Course Syllabus

Course Information

BIO 330 Zoology

4 Credit Hours

Online, Asynchronous

Instructor Information

- Email Address:
- Virtual Office Hours:

  If you need to contact me directly, I prefer that you email me. Please allow 24 hours for me to respond to emails Monday through Friday and 48 hours on the weekend.

Communicating With the Instructor

When questions arise throughout the course, please remember to check the following resources for an answer before reaching out to me:

1. Course Syllabus
2. Announcements
3. The Question Center discussion board

Question Center Discussion

The Question Center Discussion is an excellent place to ask questions and get answers from peers and me. You are encouraged to post your questions here before contacting me unless it is a time-sensitive matter. If you have questions of a personal nature, such as relating to a personal emergency, questioning a grade on an assignment, or something else that needs to be communicated privately, you are welcome to contact me directly via email or phone.

Technology Help

If you have a question about the technology used in the course, please contact the Doane University Service Center for assistance; their contact information is listed later in the syllabus. If third-party tools are utilized in the course, please contact them directly.

Course Details

Catalog Description

Zoology is the study of animals including their taxonomy, anatomy, and behavior. Students will study population, community, and ecosystem interactions. Students will consider how animals survive across the globe, compete, and reproduce. Students will examine how animals move energy and matter through the ecosystem. Students will explore how animals have been genetically engineered through domestication and later through direct gene manipulation to serve in animal agriculture and as pets.

Course Prerequisites

N/A

Course Textbook and Materials

Course books are delivered electronically and integrated into the course. If you require a physical textbook, please reach out bookstore@doane.edu.

Required

- Integrated Principles of Zoology
    - 19th Edition
    - by C.P. Hickman, et al.
    - Copyright 2024, McGraw Hill
    - ISBN-13: 9781266579769 (ebook), 9781266576522 (Connect Access)
    - Publisher Website

Course Lab Kits

This course utilizes a lab kit from our educational partner, ***Carolina Labs***. You will be required to complete both virtual and hands-on lab activities. The course includes instructions on how to order the lab kit. Some labs will require students to submit pictures of their lab experiments, if students do not submit those pictures they will not receive any points on that assignment even if they have completed the lab assigment.

Required Technology

- Canvas
- McGraw Hill (Connect)
- Carolina Labs
- Kaltura (Video)

Learning Objectives and Course Outline

Course Objectives

By the end of the course, you will be able to:

1. Define animal life as we currently understand it.
2. Explain how Zoological study is conducted and the theories that guide it.
3. Identify and describe principles of animal development.
4. Apply levels of biological organization and body plan concepts across various animal phyla
5. Explain the use of various concepts and approaches to categorize animal life
6. Describe the components and lifecycles of eukaryotic cells
7. Distinguish the forms and functions of animal phyla and their major groups.
8. Explain the evolutionary relationships between animal phyla.
9. Discuss the evolution of the coelom and the metameric body plan.
10. List and explain the significance of the five diagnostic characteristics of chordates.
11. Discuss hypotheses for the evolution of tetrapods with reference to key fossil forms.
12. Describe the early evolution and major adaptations of amniotes.
13. Explain the distribution of life on Earth and the major subdivisions of the biosphere.
14. Explain factors that drive and modulate animal behaviors.

Course Outline

Module	Topic	Assessments & Activities	Aligned Objectives
1	Foundations of Zoology: Life, Evolution, and Animal Design	Introduction & Course Relevance Discussion McGraw-Hill SmartBook Assignment Quiz 1 (McGraw-Hill Connect)	Describe the unifying properties of living systems, the unique characteristics of animals within the evolutionary tree of life, and the foundational theories and methods of zoological study. Explain gene theory and the chromosomal basis of inheritance.

Module	Topic	Assessments & Activities	Aligned Objectives
		LAB- Lab Safety & Animal Architecture	Explain how evolutionary processes contribute to the past and present diversity of animal form and function. Describe the key stages of animal development from zygote to adult. Describe embryo development and the role of gene regulation during embryo development. Compare and contrast developmental processes in protostomes and deuterostomes. Explain the levels of organization in animals, including symmetry, body cavity development, and the characteristics and functions of the four main tissue types across various animal phyla. Analyze the real-world relevance of zoology. Demonstrate correct safety procedures by properly handling dissection tools, biological specimens, and lab materials in accordance with lab safety guidelines
2	Classifying Life: Taxonomy, Phylogeny, and Unicellular Eukaryotes	Protist Passport Assignment McGraw-Hill Smartbook Assignment Quiz 2 (McGraw-Hill Connect) LAB- Cladistics (Carolina)	Explain and distinguish the concepts of taxonomy, classification, systematization, and binomial nomenclature. Explain the biological, evolutionary, cohesion, and phylogenetic species concepts, and the differences among them in defining the species category. Explain the concept of homology and how the nested hierarchy of homologous characters reveals phylogeny. Describe the components of the eukaryotic cell and explain their functions. Explain the reproduction and life cycles of unicellular eukaryotic taxa. Describe the diversity of unicellular eukaryotes and their life histories.
3	The Simpler Side of Animal Life: Sponges, Cnidarians, and Early Bilaterians	Evolutionary Connections Assignment McGraw-Hill Smartbook Assignment	Compare and contrast colonial choanoflagellates, sponges (with emphasis on choanocytes), and multicellular animals.

Module	Topic	Assessments & Activities	Aligned Objectives
		Quiz 3 (McGraw-Hill Connect) LAB- Organ Systems and Terminology	Describe the form, function, and classification of sponges (including the characteristics of the four sponge classes) and compare them to placozoans. Describe the form and function of cnidarians, highlighting cnidocytes, polyps, and medusae. Compare the organization and characteristics of the six cnidarian classes. Compare and contrast ctenophores and cnidarians in terms of body plan and locomotion. Analyze the differences between diploblastic and triploblastic animals with respect to body symmetry and complexity. Describe the diversity, morphology, and habitats of Xenacoelomorpha, Platyhelminthes (with emphasis on adaptations to parasitism), and Gastrotricha. Explain the characteristics of the five phyla within the Gnathifera clade and the basis for their classification, comparing their key features to other related groups.
4	Soft Bodies and Segmented Forms: Mollusks, Annelids, and Ecdysozoans	Survivor: Protostome Edition- Battle of the Body Plans Assignment McGraw-Hill Smartbook Assignment Quiz 4 (McGraw-Hill Connect) LAB- Earthworm Dissection Midterm Exam (Modules 1-4)	Describe the key features of the molluscan body plan and compare its variations across the eight molluscan classes. Describe the body plans of polychaete and oligochaete annelids. Explain how sipunculans and chaetopterids differ, and analyze the forms and functions of the three major annelid groups. Discuss the evolution of the coelom and the metameric body plan in relation to annelids and other protostomes. Identify and describe the body plans, lifestyles, and developmental characteristics of non-arthropod ecdysozoans, comparing their morphological features. Describe the structure and function of a hemocoel and compare it to other body cavity types across protostomes.

Module	Topic	Assessments & Activities	Aligned Objectives
5	Masters of Adaptation: Arthropods, Echinoderms, and Hemichordates	The Arthropod Story Assignment McGraw-Hill Smartbook Assignment Quiz 5 (McGraw-Hill Connect) Lab- Crayfish Dissection	Characterize the arthropod body plan, including major physiological systems Describe arthropod phylogeny according to the mandibulate hypothesis. Identify and describe major arthropod groups, including trilobites, chelicerates (with emphasis on arachnid diversity), myriapods, crustaceans (with focus on key subgroups), and hexapods (distinguishing Insecta and Entognatha). Compare and contrast arthropod morphology, lifestyles, and adaptations, including locomotion, feeding, respiration, circulation, excretion, reproduction, metamorphosis, communication, and defense mechanisms. Explain the evolutionary relationship between Crustacea and Hexapoda and how it informs our understanding of arthropod diversity. Identify the members of clade Ambulacraria Describe the body plans, functional anatomy, and phylogenetic relationships of echinoderms and hemichordates.
6	The Rise of Vertebrates: Chordates, Fishes, and Amphibians	Local Fish Species Research Assignment Local Amphibian Species Research Assignment McGraw-Hill Smartbook Assignment Quiz 6 (McGraw-Hill Connect) Lab- Fish (Perch) Dissection	Explain the five diagnostic characteristics of chordates and Describe the functional anatomy of tunicates and cephalochordates, distinguishing them from vertebrates. Summarize the evolutionary changes that distinguish vertebrates from other chordates. Outline the phylogenetic relationships among major fish groups. Compare and contrast the anatomy, physiology, and ecology of major fish groups, with emphasis on sensory and reproductive adaptations. Describe key functional aspects of fish biology. Discuss hypotheses for tetrapod evolution based on key Paleozoic fossils. Describe the ancestral life-history traits of amphibians.

Module	Topic	Assessments & Activities	Aligned Objectives
			Explain the major characteristics of the three amphibian orders—Gymnophiona (caecilians), Urodela (salamanders), and Anura (frogs)—focusing on life cycles, respiration, reproduction, and body systems.
7	Life on Land: Reptiles, Birds, and Mammals	Local Reptile Species Research Assignment Local Avian Species Research Assignment Local Mammal Species Research Assignment McGraw-Hill Smartbook Assignment Quiz 7 (McGraw-Hill Connect) Lab- Frog Dissection	Describe the early evolution of amniotes, their major adaptations, and changes in the classification and use of the term "reptiles". Explain the morphology, ecology, and evolutionary relationships of major reptilian groups, including turtles, lizards, snakes, tuataras, crocodilians, and dinosaurs. Describe the early evolution of birds, their adaptations for flight (including feathers, organ systems, and aerodynamics), and the ecological significance of migration and navigation. Explain avian reproductive strategies, including different mating systems and their evolutionary significance. Describe the evolution of mammals from their amniote ancestors, focusing on adaptations related to endothermy, diet specialization, and reproductive strategies across monotremes, marsupials, and placentals. Summarize the evolutionary transition from early primates to modern humans, highlighting key anatomical and behavioral changes.
8	Interactions and Adaptations: Behavior, Ecology, and Distribution of Animals	Backyard Ecosystems Assignment McGraw-Hill Smartbook Assignment Quiz 8 (McGraw-Hill Connect) Lab- Biodiversity and the Scientific Method (Carolina) Final Exam (Modules 5-8)	Explain the genetic and learned components of animal behavior, including stereotypical behaviors, behavioral syndromes, and the evolutionary factors underlying social behavior. Describe the hierarchical structure of ecology and the interactions between animals of different niches within ecosystems. Explain the principles of historical biogeography, including the roles of dispersal and vicariance in shaping animal distributions. Describe the major subdivisions of the biosphere, the characteristics of terrestrial and marine biomes, and their influence on animal life.

Module	Topic	Assessments & Activities	Aligned Objectives
			Define and interpret an animal's energy budget in relation to ecological and behavioral adaptations.

Course Requirements

This is an online course, and there will **not be any face-to-face class sessions**. All communications, submissions of assignments, course interactions, and posting of grades will utilize Canvas LMS (https://doane.instructure.com). You must have a **reliable internet connection** throughout the course.

Attendance/Participation

Attendance in an online course means logging into Canvas regularly and participating in all the activities posted in the course. In addition, check your Doane University email account regularly, as I may send important information about the course.

Class Preparation

Preparation for class means reading the assigned readings and reviewing all information required for that module. You should plan to work on this course every day. Regular engagement is expected for online courses.

Netiquette Guidelines

At heart, netiquette (etiquette for the Internet) is simple, including good manners and business courtesy. Some of it may seem basic, but some infringements can result in major problems for others or create an unintended insult to another user. The guidelines are adapted from Virginia Shea's *The Core Rules of Netiquette* (1994). Please review the Netiquette Guidelines in the Student Resource Center for more information.

Computer Requirements

To successfully use Canvas, please refer to Doane University's minimum computer requirements. This also includes:

- Reliable computer and internet connection
- A web browser (Chrome or Mozilla Firefox)
- Adobe Acrobat Reader (free)
- Word processing software—Microsoft Word or Google Docs
- Webcam and mic*

*A webcam is optional for privacy purposes during video conferencing and recording. It is required for proctored exams.

Campus Network or Canvas Outage

When access to Canvas is not available for an extended period of time (greater than one entire evening - 6 pm until 11 pm), you can reasonably expect that the due date for assignments will be changed to the next day.

Drop and Add Dates

If you feel it necessary to withdraw from the course, please contact your advisor for full details on the types of withdrawals available and their procedures.

Federal requirements state that students must complete 75% of the coursework to be eligible to receive an incomplete for the course. Students who fall more than two weeks behind cannot meet this requirement.

Access to Course

You can access the course in Canvas starting from the first day of the course and for 15 days after the term ends. If you need access beyond those 15 days, you must submit a request with a valid reason, which the administration must approve.

Academic Integrity

Fundamental to our mission, core values, and reputation, Doane University adheres to high academic standards. Students of Doane University are expected to conduct themselves in a manner reflecting personal and professional integrity. Disciplinary actions may be taken against students whose academic behavior is not congruent with the expectations of the University. Students are responsible for adhering to the standards detailed in this policy. Not being familiar with these standards does not mean that the students will not be accountable for adherence to them. Additional details on the Academic Integrity policy for violating academic integrity are published in the undergraduate and graduate catalogs. Please review Doane University's Academic Integrity Policy.

Course Specific Academic Integrity

Academic honesty is a core expectation in this course, and all submitted work must be entirely your own. The use of artificial intelligence tools, including websites like Grammarly, ChatGPT, or any AI-based writing assistants, is strictly prohibited. Using these tools to "clean up" or rephrase your writing is considered a violation of academic integrity as well, as it involves the use of non-human assistance. Additionally, you may not consult or submit materials from websites such as Course Hero, Chegg, or

similar platforms. If you use any external sources for information, you must properly cite them. Submitting work that is not your own, or using unauthorized assistance, undermines your learning and will result in serious academic consequences.

Course Grading

Submitting Assignments

All assignments must be submitted via Canvas. I do not accept submissions via email. Each assignment will have a designated place to submit your work. All materials, assignments, and deadlines are subject to change without prior notice. You are responsible for staying in touch with me and reviewing the course site, including Announcements, regularly to learn about changes to assignments or due dates.

Grading Scale (determined by faculty, may include + and -)

Assignment of letter grades is based on a percentage of points earned. The letter grade will correspond with the following percentages achieved. All course requirements must be completed before a grade is assigned.

Letter Grade	Maximum %	Minimum %
A+	100%	97%
A	<97%	93%
A−	<93%	90%
B+	<90%	87%
B	<87%	83%
B−	<83%	80%
C+	<80%	77%
C	<77%	73%

Grading Scheme

The following outlines the weighted breakdown for how grades will be calculated:

- Assignments & Discussions – 20% (includes written assignments and SmartBook assignments)
- Labs - 20%
- Quizzes – 20%
- Midterm Exam - 20%
- Final Exam – 20%

Total - 100%

Tutoring Services

Students can access a **free online tutoring service** within their Canvas account. You can connect with a live free tutor or submit a paper to get feedback before submitting.

Proctored Assessments

This course **may contain proctored quizzes and exams, which are not optional**. For these proctored events, Doane uses YuJa Verity, a secure, online proctoring service that allows you to complete your exam from any chosen location at any time. Proctoring assures your instructor that any suspicious activity by test takers will be monitored and reported. The cost of the proctoring is included in the tuition and fees for this course.

Late or Missed Assignments

All assignments and labs must be completed and turned in to finish the course. Unless you discuss a late assignment with me before the assignment due date, your assignment will lose 20% each day it is late.

Assignment & Assessment Feedback

Please allow 3-5 days for feedback on assignments. Be sure to review all of my feedback, as this will help you reflect on what you have learned while receiving suggestions for improvement.

Grade Appeals

Students who believe that their grade was miscalculated due to a mathematical error should contact the instructor within **ten (10) days of the grade posting**. Students are encouraged to talk with their advisor to offer an assessment of the concern and clarify the steps of the appeal process. More information is published in the Undergraduate and Graduate Catalogs.

Support and Services

Technical Support

If you need technical assistance, please access the Self-Service Portal. The help desk can be reached at 402-826-8411 or by email at helpdesk@doane.edu.

Accessibility Statement

In compliance with the Rehabilitation Act of 1973, Section 504, and the Americans with Disabilities Act of 1990, professional disability specialists and support staff at Doane University facilitate a comprehensive range of academic support services and accommodations for qualified students with

disabilities. Doane University staff coordinate student transitions from high schools and community colleges, conduct in-service training for faculty and staff, enable the resolution of accessibility issues, conduct community outreach, and facilitate collaboration among Doane University staff on disability policies, procedures, and accommodations.

Accommodations & Disability Services

Doane University's Disability Services Office will guide accommodations and universal access. To request accommodation, please complete the Self-Identification Form and visit the website for additional information as soon as possible.

Academic Support

Doane University offers all of its students access to Academic Support services.

Title IX Requirements: Mandatory Reporting

At Doane, all university employees, including faculty, are considered Mandatory Reporters. As a Mandatory Reporter, I am required to report incidents of sexual misconduct and relationship violence to the Title IX Coordinator and, thus, cannot guarantee confidentiality. This means that if you tell me about an incident of sexual harassment, sexual assault, domestic violence, dating violence, stalking, and/or other forms of prohibited discrimination, I have to share the information with the University's Title IX Coordinator. My report does not mean that you are officially reporting the incident. This process is in place to ensure you have access to and are able to receive the support and resources you need. Please visit the Campus Advocacy, Prevention, and Education (CAPE) Project for additional information, including confidential resources.

Anti-Harassment Policy

Doane University, referred to as the "University," is committed to providing all University community members with a safe and non-discriminatory learning, living, and working environment. This policy addresses the University's responsibilities under Title IX, the Violence Against Women Reauthorization Act of 2013, and the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act ("Clery Act"). More information is published in the Student Handbooks.

Instructional Technology Accessibility and Privacy Policies

Technology accessibility and privacy policies are available on the Student Resource Center within the Canvas LMS.

Regular and Substantive Interaction

The U.S. Department of Education mandates that online courses include "regular and substantive interaction" (RSI) between students and instructors to be considered distance education. This course adheres to the RSI expected of all distance education courses. The course adheres to the regular component through

- a clear schedule of due dates for lessons, readings, and assessments, and
- an instructor of record who monitors student progress in the course and alerts the students who are not engaging adequately in the course.

The substantive interaction is achieved through

- assessment of students' work with feedback on a scheduled basis
- an active discussion board about course content monitored by the instructor
- providing information about the course content on a regular basis or in response to questions.

Syllabus Addendum & Disclaimer

I (the instructor) view the course syllabus as an educational contract between myself and each student. Every effort will be made to avoid changing the course schedule, but unforeseen events may make syllabus changes necessary. I reserve the right to make changes to the syllabus as deemed necessary. Students will be notified promptly of any syllabus changes via email or course site announcements. Please check your Doane University email and the course site announcements often.

Syllabus Changes

The instructor and Doane University reserve the right to change this course syllabus. All students will be notified of any changes.

Syllabus Addendum

Each student is responsible for knowing the policies, resources, and expectations specified in the Doane Syllabus Addendum.