DISCLAIMER: This is and example syllabus that is subject to change at faculty discretion.

Course Syllabus

Course Information

Welcome to BIO-126 General Biology II

4 Credit Hours

Online/Asynchronous

Instructor Information

Instructor Name

Email Address: fill-in

Phone: fill-in (optional)

Office Hours: fill-in (optional)

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

This course will introduce students to the concepts and connections between evolution and ecology. Students will learn how populations evolve, including what factors are necessary for the process of evolution to occur, and how evolution accounts for both the diversity and similarity among all forms of life on Earth (with a focus on vertebrates). Students will use this information to understand the association between how life on Earth has evolved and how animal form (or structure) relates to function. Finally, by learning about the different types of environments on Earth, students will understand how organisms, populations, and communities are affected by the dynamics of their surroundings (i.e. the ecosystem) and the importance of conserving the diverse forms of life of Earth. Includes integrated laboratory.

Course Prerequisites

N/A

Course Textbook and Materials

Required

- Concepts of Biology
- Fowler et al.
- Apr 25, 2013, OpenStax
- ISBN #978-1-947172-03-6

Required Technology

- Canvas
- Yuja Verity (Exam Proctoring)
- Kaltura (Video)
- Knewton Alta
- Science Interactive

Course books and materials will be integrated into your Canvas portal-DO NOT purchase on your own. Students will be required to purchase a lab kit. Instructions on purchasing the lab kit will be in the Course Modules.

Course Lab

As this is a 4-credit course, you can expect to complete a module lab to fulfill the course requirements. For any lab assignment that includes questions requiring photo evidence, students must upload their own original photos as instructed.

Failure to include the required photo evidence will result in a zero for the entire lab assignment, regardless of whether the rest of the questions are completed.

Learning Objectives and Course Outline

Course Objectives

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

1. Describe the molecular basis of life, including the structure and function of DNA, and the flow of genetic information.
2. Explain the processes of DNA replication, repair, transcription, mRNA processing, and translation.
3. Interpret how nucleotide sequences determine protein structure and function through the genetic code.
4. Explain the central principles and mechanisms of evolution, including natural selection, genetic drift, mutation, and gene flow.
5. Analyze population genetics to assess evolutionary change and allele frequency shifts over time.
6. Identify and evaluate evidence supporting evolution, including homologous and vestigial structures.
7. Interpret phylogenetic trees and classification systems using morphological and molecular data.
8. Compare biodiversity across the three domains of life and describe the structure and roles of prokaryotes.
9. Explain the endosymbiotic theory and describe evolutionary relationships among protists, fungi, plants, and animals.
10. Describe major adaptations and characteristics of key animal phyla, including chordates and vertebrates such as fish, amphibians, reptiles, birds, and mammals.

Course Outline

Module	Topic	Assessments & Activities	Aligned Objectives
1	Molecular Biology	Self-Introduction Discussion Module 1 Knewton Alta Assignment Module 1 Assignment: Guided Notes and Case Study	Describe the structure of DNA. Describe how eukaryotic and prokaryotic DNA is arranged in the cell.

Module	Topic	Assessments & Activities	Aligned Objectives
		Module 1 Quiz Module 1 Labs: • Getting Started • Lab Safety • Lab Kit Inventory	Explain the process of DNA replication. Explain the importance of telomerase to DNA replication. Describe mechanisms of DNA repair.
2	Protein Synthesis	Module 2 Knewton Alta Assignment Module 2 Assignment: Draw and Explain: The Process of Translation Module 2 Quiz Module 2 Lab: DNA, RNA, Protein Synthesis	Explain the central dogma. Explain the main steps of transcription. Describe how eukaryotic mRNA is processed. Describe the different steps in protein synthesis. Discuss the role of ribosomes in protein synthesis. Describe the genetic code and how the nucleotide sequence determines the amino acid and the protein sequence.
3	Evolution and its Processes	Module 3 Knewton Alta Assignment Module 3 Assignment: Evolution Board Game Module 3 Quiz Module 3 Lab: Population Genetics: Natural Selection and Hardy-Weinberg Equilibrium - Digital	Explain how Darwin's theory of evolution differed from the current view at the time. Describe how the present-day theory of evolution was developed. Describe how population genetics is used to study the evolution of populations. Describe the four basic causes of evolution: natural selection, mutation, genetic drift, and gene flow. Explain how each evolutionary force can

Module	Topic	Assessments & Activities	Aligned Objectives
			influence the allele frequencies of a population. Explain sources of evidence for evolution. Define homologous and vestigial structures. Describe the definition of species and how species are identified as different. Explain allopatric and sympatric speciation. Describe adaptive radiation. Identify common misconceptions about evolution. Identify common criticisms of evolution
4	Diversity of Life	Module 4 Knewton Alta Assignment Module 4 Quiz Module 4 Lab: Taxonomy Practice Midterm Exam Midterm Exam - Proctored	Discuss the need for a comprehensive classification system. List the different levels of the taxonomic classification system. Describe how systematics and taxonomy relate to phylogeny. Compare homologous and analogous traits. Discuss the purpose of cladistics.
5	Diversity of Microbes, Fungi, and Protists	Module 5 Knewton Alta Assignment Module 5 Discussion: Microbial World Infographic Module 5 Quiz	Describe the evolutionary history of prokaryotes Describe the basic structure of a typical prokaryote

Module	Topic	Assessments & Activities	Aligned Objectives
		Module 5 Lab: Protista	Describe the endosymbiotic theory Explain the origin of mitochondria and chloroplasts Describe the main characteristics of protists Describe important pathogenic species of protists Describe the roles of protists as food sources and as decomposers List the characteristics of fungi Describe fungal parasites and pathogens of plants and infections in humans Describe the importance of fungi to the environment Summarize the beneficial role of fungi in food and beverage preparation and in the chemical and pharmaceutical industry
6	Diversity of Plants	Module 6 Knewton Alta Assignment Module 6 Discussion: Plant Adaptations and Ecosystem Impact Module 6 Quiz Module 6 Lab: Simple Plants and Gymnosperms	Describe the major characteristics of the plant kingdom Discuss the challenges to plant life on land Describe the adaptations that allowed plants to colonize land Describe the distinguishing traits of the three types of bryophytes

Module	Topic	Assessments & Activities	Aligned Objectives
			Identify the new traits that first appear in seedless vascular plants Describe the major classes of seedless vascular plants Discuss the type of seeds produced by gymnosperms, as well as other characteristics of gymnosperms List the four groups of modern-day gymnosperms and provide examples of each Describe the main parts of a flower and their purpose Detail the life cycle of an angiosperm Discuss the two main groups into which flower plants are divided, as well as explain how basal angiosperms differ from others
7	Diversity of Animals, Part I	Module 7 Knewton Alta Assignment Module 7 Discussion: Invertebrates Research Video & Discussion Module 7 Quiz Module 7 Lab: Invertebrates: Cnidaria, Platyhelminthes, Rotifera, and Annelida-Digital	List the features that distinguish the animal kingdom from other kingdoms Explain the processes of animal reproduction and embryonic development Describe the hierarchy of basic animal classification Compare and contrast the embryonic development of protostomes and deuterostomes Describe the organizational features of the simplest animals

Module	Topic	Assessments & Activities	Aligned Objectives
			Describe the organizational features of cnidarians Describe the structure and systems of flatworms Describe the structural organization of nematodes Compare the internal systems and the appendage specialization of arthropods Describe the unique anatomical features of mollusks Describe the features of an animal classified in phylum Annelida
8	Diversity of Animals, Part II	Module 8 Knewton Alta Assignment Module 8 Quiz Practice Final Final Exam - Proctored	Describe the distinguishing characteristics of echinoderms. Describe the distinguishing characteristics of chordates. Describe the difference between jawless and jawed fishes. Explain the main characteristics of amphibians, reptiles, and birds. Describe the derived characteristics in birds that facilitate flight. Name and describe the distinguishing features of the three main groups of mammals. Describe the derived features that distinguish primates from other animals.

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.

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 Grading

Submitting Assignments

Unless otherwise communicated to me, all assignments must be submitted via Canvas. 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

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%
C−	<73%	70%
D+	<70%	67%
D	<67%	63%

Letter Grade	Maximum %	Minimum %
D−	<63%	60%
F	<60%	0%

Grading Scheme

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

- Assignments (Knewton Alta and Module Assignments) – 20%
- Lecture Quizzes – 20%
- Labs - 20%
- Lecture Exams – 40%

Late or Missed Assignments

All assignments 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 1-3 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.

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.

Grade Appeals

Students who believe 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 assess 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.