

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



Course Syllabus

Course Information

BIO-125

Biology 1

4 Credit Hours

Instructor Information

Instructor Name

Email Address: fill-in

Phone: fill-in

Office Hours: fill-in

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 is an online introductory biology course. Students will become familiar with the nature of science and the ways in which scientific tools are used to investigate living systems. Students will understand the basic structure and function of cells as organisms and as part of multicellular organisms. Students will become familiar with the history of genetics, and understand how cells reproduce and how information is transmitted from one generation to the next. Each module will be accompanied with an online laboratory.

Course Prerequisites

None

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.

Textbook Used: Concepts of Biology (available online free of charge)

- by Reeves, N., DeSaix, J, Et al.
- Copyright 2013, OpenStax
- ISBN-13: 978-1-947172-03-6
- Publisher Website: <https://openstax.org/details/books/concepts-biology>

Course Lab Kits

This course utilizes a lab kit from our educational partner, **Science Interactive**. You will be required to complete both virtual and hands-on lab activities. The course includes instructions on how to order the voucher for the lab kit.

Required Technology

- Canvas
- Science Interactive
- WileyPlus (Knewton Alta)
- Kaltura



Learning Objectives and Course Outline

Course Objectives

By the end of this course, students will be able to:

At the completion of this course students will be able to:

1. Describe the process of science and identify how it differs from other ways of understanding our universe.
2. Define life and identify difficulties with various definitions.
3. Analyze the cellular basis of living systems.
4. Describe how cells obtain, store, and distribute energy.
5. Explain the patterns of cellular reproduction.
6. Explain the various patterns of inheritance and how these are due to the movement and rearrangement of genes on chromosomes during mitosis and meiosis.
7. Describe the structure and function of DNA.
8. Describe the process of converting genes into functional products.

Course Outline

Module	Topic	Assessments & Activities	Aligned Objectives
1	Introduction to Biology	Knewton Alta Concept Mastery Assignments Is It Alive? Discussion Getting Started Lab Lab Safety Lab Scientific Method Lab Introduction to Biology Quiz	Identify and describe the properties of life Describe the levels of organization among living things Explain the process of scientific inquiry
2	Chemistry of Life	Knewton Alta Concept Mastery Assignments Tracking Macromolecules Pre-Assignment Activity Tracking Macromolecules Assignment Biological Macromolecules Lab Chemistry of Life Quiz	Describe matter and elements Describe the interrelationship between protons, neutrons, and electrons, and the ways in which electrons can be donated or shared between atoms Describe the properties of water that are critical to maintaining life



Module	Topic	Assessments & Activities	Aligned Objectives
			<p>Describe acids, bases and buffers</p> <p>Describe the ways in which carbon is critical to life</p> <p>Explain the impact of slight changes in amino acids on organisms</p> <p>Describe the four major types of biological molecules</p> <p>Describe the functions of the four major types of molecules</p>
3	Cell Structure and Function	<p>Knewton Alta Concept Mastery Assignments</p> <p>Origins of Energy Discussion</p> <p>Cell Membrane Transport Lab</p> <p>Cell Structure and Function Quiz</p>	<p>Describe the roles of cells in organisms</p> <p>Summarize the cell theory</p> <p>Compare and contrast prokaryotic cells and eukaryotic cells</p> <p>State the role of the plasma membrane</p> <p>Summarize the functions of the major cell organelles</p> <p>Describe the cytoskeleton and extracellular matrix</p> <p>Explain why and how passive transport occurs</p> <p>Describe the processes of osmosis and diffusion</p> <p>Define tonicity and describe its relevance to passive transport</p> <p>Describe the three methods of active transport: molecular pumps, endocytosis, and exocytosis</p>

Module	Topic	Assessments & Activities	Aligned Objectives
4	How Cells Obtain Energy	<p>Knewton Alta Concept Mastery Assignments</p> <p>Cellular Respiration and Metabolism - Digital Lab</p> <p>How Cells Obtain Energy Quiz</p> <p>Practice Midterm Exam</p> <p>Midterm Exam (Proctored)</p>	<p>Discuss how enzymes function as molecular catalysts</p> <p>Explain how ATP is used by the cell as an energy source</p> <p>Describe the overall result in terms of molecules produced of the breakdown of glucose by glycolysis</p> <p>Describe the location of the citric acid cycle and oxidative phosphorylation in the cell</p> <p>Describe the overall outcome of the citric acid cycle and oxidative phosphorylation in terms of the products of each</p> <p>Describe the relationships of glycolysis, the citric acid cycle, and oxidative phosphorylation in terms of their inputs and outputs</p> <p>Discuss the fundamental difference between anaerobic cellular respiration and fermentation</p>
5	Photosynthesis	<p>Knewton Alta Concept Mastery Assignments</p> <p>Photosynthesis in a Closed Ecosystem Discussion</p> <p>Calvin Cycle Assignment</p> <p>Photosynthesis-Digital Lab</p> <p>Photosynthesis Quiz</p>	<p>Discuss how enzymes function as molecular catalysts</p> <p>Explain how ATP is used by the cell as an energy source</p> <p>Describe the overall result in terms of molecules produced of the</p>

Module	Topic	Assessments & Activities	Aligned Objectives
			<p>breakdown of glucose by glycolysis</p> <p>Describe the location of the citric acid cycle and oxidative phosphorylation in the cell</p> <p>Describe the overall outcome of the citric acid cycle and oxidative phosphorylation in terms of the products of each</p> <p>Describe the relationships of glycolysis, the citric acid cycle, and oxidative phosphorylation in terms of their inputs and outputs</p> <p>Discuss the fundamental difference between anaerobic cellular respiration and fermentation</p>
6	Mitosis	<p>Knewton Alta Concept Mastery Assignments</p> <p>Mitosis Lab</p> <p>Mitosis Quiz</p>	<p>Describe the prokaryotic and eukaryotic genome</p> <p>Distinguish between chromosomes, genes, and traits</p> <p>Describe the three stages of interphase</p> <p>Discuss the behavior of chromosomes during mitosis and how the cytoplasmic content divides during cytokinesis</p> <p>Define the quiescent G0 phase</p> <p>Explain how the three internal control checkpoints occur at the end of G1, at the G2-M</p>

Module	Topic	Assessments & Activities	Aligned Objectives
			<p>transition, and during metaphase</p> <p>Explain how cancer is caused by uncontrolled cell division</p> <p>Explain how proto-oncogenes are normal cell genes that, when mutated, become oncogenes</p> <p>Describe how tumor suppressors function to stop the cell cycle until certain events are completed</p> <p>Explain how mutant tumor suppressors cause cancer</p> <p>Describe the process of binary fission in prokaryotes</p> <p>Explain how FtsZ and tubulin proteins are examples of homology</p>
7	Meiosis	<p>Knewton Alta Concept Mastery Assignments</p> <p>Draw Meiosis Assignment</p> <p>Meiosis Lab</p> <p>Meiosis Quiz</p>	<p>Describe the behavior of chromosomes during meiosis</p> <p>Describe cellular events during meiosis</p> <p>Explain the differences between meiosis and mitosis</p> <p>Explain the mechanisms within meiosis that generate genetic variation among the products of meiosis</p>
8	Patterns of Inheritance	Knewton Alta Concept Mastery Assignments	Explain the scientific reasons for the success of

Module	Topic	Assessments & Activities	Aligned Objectives
		Patterns of Inheritance Quiz Practice Final Exam Final Exam (Proctored)	Mendel's experimental work Describe the expected outcomes of monohybrid crosses involving dominant and recessive alleles Explain the relationship between genotypes and phenotypes in dominant and recessive gene systems Use a Punnett square to calculate the expected proportions of genotypes and phenotypes in a monohybrid cross Explain Mendel's law of segregation and independent assortment in terms of genetics and the events of meiosis Explain the purpose and methods of a test cross Identify non-Mendelian inheritance patterns such as incomplete dominance, codominance, multiple alleles, and sex linkage from the results of crosses

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	Range
A	100-94%
A-	< 94 to 90%
B+	< 90 to 87%
B	< 87 to 84%
B-	< 84 to 80%
C+	< 80 to 77%
C	< 77 to 74%
C-	< 74 to 70%
D+	< 70 to 67%
D	< 67 to 64%
D-	< 64 to 61%
F	< 61 to 0%

Grading Scheme

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

Classwork	Weight
Labs	20%



Lecture Assignments	20%
Lecture Quizzes	20%
Exams (mid-term and final)	40%
	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 10% 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.

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.

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](#).

