Master Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: https://catalog.uvu.edu/

Semester: Spring
Year: 2025
Course Prefix: BIOL
Course and Section #: 1010-X07
Course Title: General Biology
Credits: 3

Course Description

Introduces major themes and concepts of biology including cell and molecular biology, genetics, diversity, evolution, and ecology. Provides students with necessary information and skills to critically evaluate what they hear, read, and see in the living world; communicate clearly; and apply methods to interpret data for making informed decisions concerning the role of biology in a world of which they are a part. May be delivered online.

Course Attributes

This course has the following attributes:

☒ General Education Requirements

☐ Global/Intercultural Graduation Requirements

☐ Writing Enriched Graduation Requirements

☐ Discipline Core Requirements in Program

☐ Elective Core Requirements in Program

☐ Open Elective

Other: Click here to enter text.

Instructor Information

Instructor Name: Staff

Student Learning Outcomes

1. Differentiate science as a way of knowing about the world and other forms of knowing.
2. Be able to make decisions based on evidence. Evaluate evidence and solve problems by using scientific thinking skills.
3. Apply your understanding of scientific literacy and citizenship to issues of today, such as evolution, human population growth, genomic medicine, climate change, GMOs, vaccination and disease, ecosystem health and conservation, among others.
4. Demonstrate why evolution is the cornerstone of modern biology, uniting the main topics of cell, molecular biology, genetics, organismal biology, and ecology.
5. Apply your knowledge of the interconnectedness of all life and the environment to your personal attitudes and actions concerning the health of this planet.

Course Materials and Texts

No textbook required, you will be provided with open educational resources for each module in the course.

Access to a computer a reliable internet connection.

Word Processing Program- A word processing program that saves in .doc, .docx or .pdf format. Office 365 is available for download for all currently enrolled students.

Course Requirements

Activity	Percent of Grade
Video Quizzes	15%
Module Discussions	15%
Weekly Reflections & Learning Checks	20%
Midterm Exams (3)	30%
Final Exam	20%

Syllabus Quiz:
One of your first assignments is to complete the Syllabus Quiz. It is important that you familiarize yourself with the syllabus (this document) and all of the information in the Course Orientation module. This quiz is multiple/choice, true/false and must be taken as many times as necessary to receive a perfect score. This will ensure that course expectations are clear.
Read & Engage Assignments:
These assignments will help jump-start your learning each week by directing you to important background knowledge and encouraging you to engage with what you already do/don't know about a topic. This is important for your learning for two reasons:

1. By activating this background knowledge first, you are much more likely to effectively learn and remember new ideas.

2. By reviewing your responses, I will be able to share and address common ideas, questions, and misunderstandings with the class early on in your progression through this week's material.

These assignments are not graded but must be submitted to unlock the rest of the module. They should be completed no later than Wednesday each week.
Video Quiz Assignments:
Each week there will be 2-5 video quizzes to complete with short video segments and associated questions to help support your learning of the module objectives. Video quizzes will help prepare you for the rest of the module assignments and should be completed no later than Thursday each week. The videos in this online course have been contributed by nine different biology faculty at UVU, so it will be a bit like we have a guest lecturer each week! You'll get to learn about who they are and what fascinates them about biology throughout the course.
Module Discussions:
Your peers are the most important people to your learning and success in this course. The weekly Module Discussions will provide a place for you to actively engage with each other and work together to master the learning objectives. I will be reading all messages and I will participate in the discussion as appropriate. I will also post a weekly summary of the main discussion points.
Posts to the discussion should add significantly to the conversation and support your point of view. Comments that do not add significantly to a discussion will receive no credit. It is okay to disagree in a discussion. In fact much learning happens when we disagree. However we need to be respectful and keep our online classroom a safe place to learn.
You may choose whether to record (video/audio) or write your post. You must make at least three meaningful posts/replies throughout the week. The more you engage, the more you will benefit. Due dates for discussions correspond with the initial post date on Thursday. Follow up comments are due by Sunday. Follow up posts are expected to be after the due date and are not marked late. Discussions conclude by the Sunday following the due date. After this, posts will be marked late and will not receive credit.
In this course, students may work ahead by a week on all but the discussions. Online discussions are more robust when they are an actual discussion, not just a public post. It helps us have a better discussion when we are all posting at the same time.
Weekly Reflections:
Reflection is an integral part of learning and a powerful life skill. It allows you to move from receiving knowledge to building new knowledge for yourself. By stepping back to reflect on what you have learned each week you will (1) connect new ideas to previous learning and experiences (2) synthesize

information and data from the week's readings, videos, assignments, and interactions, (3) apply your new understanding to your daily life.
These responses will also help me see how the class is progressing in their understanding of course content so I can better facilitate your learning.
You will want to preview the reflection prompt at the beginning of each week and then write and submit a response no later than Sunday at 11:59pm Learning Checks:
One week prior to an exam opening you will have a chance to do a final check of your understanding of the content we have covered for that exam with a Learning Check Quiz. These will consist of 10 exam style questions. You will have three attempts to take these quizzes and your score will be an average of your three attempts.
Exams:
There will be three midterm and one final exams that will test student understanding of course content using multiple choice questions. The final exam will be twice as long as a midterm and include content from the last section of the course and cumulative questions that will evaluate your understanding of the big picture ideas and themes throughout the course.
There will be an exam at the completion of every 3-4 modules. Exams will be open for five days FridayTuesday. For exam open and close dates see the Course Schedule or the Canvas Calendar.
Exam Corrections:
Exams in BIOL 1010 are a tool for learning, not just a way to measure how much you know. You have the opportunity to improve your exam score by demonstrating your understanding of the material that was not mastered on your first attempt.
For any multiple choice question that you missed, you may earn a maximum of ½ a point by completing a second attempt of the exam and submit and exam correction form. See exam instructions for more details.

A table that contains the grading scheme data. Each row contains a name, a maximum percentage, and a minimum percentage.

Letter Grade	Range
A	100%to93%
A-	< 93%to90%
B+	< 90%to87%
B	< 87%to83%
B-	< 83%to80%
C+	< 80%to77%
C	< 77%to73%
C-	< 73%to70%
D+	< 70%to67%
D	< 67%to63%
D-	< 63%to60%
F	< 60%to0%

Required or Recommended Reading Assignments

List all required or recommended reading assignments.

Module 1 Readings:

- Evidenced-based learning methodsLinks to an external site.: Explore this online resource by navigating through the menu bar on the left to learn about effective study strategies like spaced practice, retrieval practice, self-explanation, interleaved practice and more!
- What is science?: Download What is science?: This reading will help you explore how science is a way of knowing and the limits of science.
- Vocabulary mix-ups in science:Links to an external site. With this reading you will learn about what the terms fact, hypothesis, theory, and more mean in science and how they are commonly misunderstood.

Module 2

- No assigned reading Module 3

Readings:

- Lumen Learning- Module 3 Important Biological MacromoleculesLinks to an external site. Read the first three sections of Module 3 (see links below), then use the rest of the module as a reference to learn more about the specific functions of each macromolecule.
    - Why It Matters: Important Biological MacromoleculesLinks to an external site.
    - Introduction to CarbonLinks to an external site.
    - Carbon and Carbon BondingLinks to an external site.

Module 4

- No assigned reading

Module 5

Readings and Resources:

- Cellular Respiration: The Big PictureLinks to an external site.
- Learn about ATP- what it is and what it doesLinks to an external site.
- A detailed look at cellular respirationLinks to an external site. - this contains more detail than we will discuss but is a useful reference

Module 6

Readings and Resources:

Did you know that nearly all gasoline in the US has biofuels mixed in it (usually ethanol)? Biofuels are a great way to learn about the carbon cycle and our connection to it. Before you dive into this module read about biofuels and the controversy over their advantages and disadvantages.

- USEIA: Biofuels ExplainedLinks to an external site.- provides a general introduction to biofuels, focusing on the two most common types: ethanol and biodiesel
- Lifecycle Assessment of Carbon in BiofuelsLinks to an external site.: Video that traces carbon atoms through the production of biofuels
- Nature Education: The Biofuels ControversyLinks to an external site.- an education resource from the peer-reviewed journal Nature about the pros and cons of biofuels Module 7 Resources:

Estimate your carbon footprint using the US Environmental Protection Agency Carbon Footprint CalculatorLinks to an external site.. You will proceed through 20 or so questions (should take about 10 mins) do your best to estimate a response for each question (it doesn't have to be exact). Once you have a rough estimate continue with the tool to explore how changes to your lifestyle will affect your carbon footprint. Then respond to the following two prompts.

Module 8

Reading: DNA Structure and Discovery Reading.pdf Download DNA Structure and Discovery Reading.pdf

Module 9

- No assigned reading

Module 10

Readings and Resources:

- Can you identify the reproductive strategy?Links to an external site. Use this resource to examine the reproductive strategy of different living things and compare and contrast asexual vs. sexual reproduction.
- The pros and cons of sex vs asexual reproduction (the Ameoba Sisters):Links to an external site. in this article you will compare and contrast the advantages and disadvantages of sexual reproduction.
- What is a karyotype?Links to an external site.: Listen to this short explanation about karyotyping and its use in genetic analysis.

Module 11

Readings and Resources:

- What is genome editing?Links to an external site. (many other great resources here if you want to explore)
- What makes a food genetically modified?Links to an external site.
- CRISPR Cas9- How it works and what it is used forLinks to an external site.- spend some time exploring the interactive portion and watching some of these videos Module 12 Reading:
- Evolution 101Links to an external site.: Please read the section titled "An introduction to evolutionLinks to an external site." and "Mechanisms of evolutionLinks to an external site." (from "Descent with modification" through "misconceptions about natural selection") and answer the questions below as you read. The other sections in the resource may be useful as you proceed through the module or for further research.

Module 13

Readings and Resources:

- Reading 1: What is "medicine"Links to an external site.- learn about the main tools that humans have to treat and prevent disease and how they work
- Reading 2: SLC's response to the 1918 Flu pandemicLinks to an external site.- read this historical record of how SLC responded to the last global pandemic

Module 14

Readings and Resources:

- Reading 1: More species means less diseaseLinks to an external site.: Learn how species loss impacts human health
- Reading 2: What is biodiversity and why does it matter to usLinks to an external site.: An excellent resource to refer back to throughout the module. Read it now to get a primer on what biodiversity is, why it matters, and what threatens biodiversity

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General Description of the Subject Matter of Each Lecture or Discussion
A rough schedule of lecture/discussion topics. Doesn't need to be too detailed

Modules Students complete one module per week.
Course Orientation
M01: How to Learn and Love Biology: science backed study methods; the scientific method
M02: Is this alive?: Definition of Life
M03: Why do we eat?: Macromolecules: Proteins, Carbohydrates, Lipids
M04: Why we can't live without plants: How plants capture and store energy from the sun an
M05: How do living things get energy from food? : Respiration
M06: Our connection to the global carbon cycle
M07: How are humans impacting global climate?
M08: How DNA provides the blueprint of life
M09: What is cancer?
M10:Where do babies come from?: The process of Meiosis
M11: The great power and responsibility of gene editing
M12: How does evolution explain biodiversity?
M13: What makes us sick and how do we prevent it?
M14: Getting to know your neighbors: Utah Flora and Fauna

Required Course Syllabus Statements

Generative AI
Faculty Senate and UVU Academic Administration expect faculty to include a Generative AI statement within their course syllabi. Faculty are encouraged to write their own statement to fit their course and may use one of the example statements provided on the Office of Teaching and Learning's website: https://www.uvu.edu/otl/ai.html.

Using Remote Testing Software

☒ This course does not use remote testing software.

☐ This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Accommodations/Students with Disabilities
Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancyrelated conditions may contact UVU Accessibility Services at accessibilityservices@uvu.edu or 801-8638747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

Academic Integrity
At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in UVU Policy 541: Student Code of Conduct.

Equity and Title IX
Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Religious Accommodation
UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.
To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a specially dedicated space for meditation, prayer, reflection, or other forms of religious expression.