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 #: 1620-X02
Course Title: College Biology II
Credits: 3

Course Description

Provides the second semester material in the two semester introductory course designed for biology majors. Covers the evolution of life, the relationships between major taxa, anatomy and physiology of these major taxa, and interactions between living organisms and their environments. Discusses major current issues in the biological field.

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: Nicholas Wilbur

Student Learning Outcomes

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

1. Describe how the chemical and physical conditions present on Earth about 4 billion years ago could lead to the origin of living organism, the evidence that supports current theories on origin of life, origin of metabolic diversity, and the mechanisms of evolution of eukaryotic organisms from prokaryotic ancestors
2. Describe the diversity of prokaryotes, algae, fungi, and plants and their reproductive life cycles
3. Describe the growth, metabolism, and anatomy of vascular plants, their growth and its control, transport of nutrients into and throughout the plant
4. Describe the diversity of prokaryotes, algae, fungi, and plants and their reproductive life cycles;
5. Describe how the principles of bioenergetics and homeostasis with emphasis on temperature regulation and water balance;
6. Describe diversity of protozans, invertebrate and vertebrate animals and the processes of gametogenesis, fertilization, and embryo development in animals
7. Describe the scientific interpretation of animal behavior

8. Describe the principles of population dynamics, species interactions, ecosystem structures, and biome characteristics
9. Describe the major nutrient cycles and interaction of biotic and abiotic factors

Course Materials and Texts

- Urry, L. A., Cain, M. L., Wasserman, S. A., Minorsky, P. V., & Reece, J. B. (2020). Campbell biology. New York: Pearson
- Access to internet-capable device suitable for completion of an online class

Course Requirements

Course Assignments, Assessments, and Grading Policy

- Module Assignments: Assignments incorporated into course modules to reinforce and expand understanding of topics/concepts. Lowest two scores dropped. 140 points
- Module Quizzes: Pre and post quiz for each module. Pre-quiz is based on textbook readings and post-quiz is based on information obtained during module completion. Lowest two scores dropped. 150 points
- Discussions: Class discussions of course topics to broaden understanding of the concepts. Lowest two scores dropped. 130 points
- Exams: 3 exams and 1 final exam following lecture topics. Closed book, closed note, taken remotely. One page of notes is allowed. Use of calculator and scrap paper is allowed. 450 points
- Taxonomic Key: A multi-week project of creating a Taxonomic Key that includes organisms and phylogenetic groups discussed in Module lectures. 50 points
- Your Choice Assignments: A list of various assignments that students pick and choose from according to their interests. 100 points
- iSPIRE Survey: Pre and Post survey on student perceptions of science. 10 points

Final grades are calculated by adding total points earned and dividing by total points possible. Final grades are not rounded and follow the grading scheme below:

A = 93-100	B - = 80-82.9	D+ = 67-69.9
A - = 90-92.9	C+ = 77-79.9	D = 63-66.9
B+ = 87-89.9	C = 73-76.9	D - = 60-62.9
B = 83-86.9	C - = 70-72.9	F = 0-59.9

Required or Recommended Reading Assignments

All required readings use chapters from the course text that align with the modules below.

General Description of the Subject Matter of Each Lecture or Discussion

- History of Life on Earth – Chapter 25 – Analysis of the cause-and-effect nature of key events in the history of earth
- What is Life? – Chapter 25 and 26 – Chemical origins of cellular life, Radiometric decay, Mutations, Codon tables
- Mechanisms of Evolution and Phylogenetics – Chapter 22 and 23 – Natural selection, artificial selection, genetic drift, Hardy Weinberg, antibiotic resistance, phylogenetics

- Prokaryotes – Chapter 27 – Horizontal Gene Transfer, bacteria, archaea, organization of consortia
- Eukaryotic Supergroups and Protists – Chapter 28– Classification and defining characteristics of eukaryotic organisms, protista
- Plant Characteristics, Phylogenies, and Life Cycles – Chapter 29 and 30 – Plant Characteristics and phylogenies, defining characteristics, life cycles
- Plant Anatomy and Identification; Taxonomic Keys – Chapter 25 and 27 – Plant morphology, plant nutrition, use and creation of taxonomic keys
- Fungi – Chapter 31 – Fungi characteristics and classification, symbioses, fungal reproduction and life cycles
- Animals/ Metazoans – Chapter 32 (chapter 40 is optional) – Defining characteristics and phylogenies, animal origins, bioenergetics
- Invertebrates – Chapter 33 – Terrestrial evolution, defining characteristics and phylogenies, parasitism, life cycles
- Vertebrates – Chapter 34 – Defining characteristics and phylogenies, development of chordata, evolution of tetrapods
- Dinosaurs to Primates – Chapter 34 – KT extinction and evolutionary succession, primates, Defining characteristics and origins of mammals: eutherians, monotremes, and marsupials
- Animal Behavior – Chapter 51 – Evolutionary context of behavior, types of behavior, types of learning, altruism
- Ecology and Ecosystems – Chapter 52 – Relationship between organisms and environment, biotic and abiotic factors, ecosystem identification
- Population Ecology – Chapter 53 – Species range, population growth and decline, carrying capacity
- Community Ecology and Ecological Succession – Chapter 54 – Community structure, trophic structures, succession
- Biogeochemistry – Chapter 56 – Relationship between biology, geology, and chemistry as it applies to ecological biome

Required Course Syllabus Statements

Generative AI

Plagiarism is the act of appropriating any other person's or group's ideas or work (written, computerized, artistic, etc.) or portions thereof and presenting them as the product of one's own work in any academic exercise or study. This includes copying sentences from sources even if the source is cited. Generating and submitting any material using artificial intelligence, such at ChatGPT also constitutes plagiarism and will result in a grade of zero. Repeated offenses or blatant disregard for policy will result in failure of the course and report made to Student Conduct office.

AI is a tool with potential usefulness. However, AI is also fraught with serious issues. It possesses accuracy problems while simultaneously sounding very confident about its incorrectness. It also frequently generates fake citations and quotations. It cannot understand the complexities and contexts of human communication. Finally, the way AI is trained on other texts poses several ethical questions about copyright and intellectual theft of property (along with uncritically inheriting the biases of the texts it's trained on).

To be clear, unless given explicit permission from the course instructor, copying the wording of an AI chatbot is considered plagiarism and means that a student will be held accountable for violating

academic integrity. Although many citation guides are already presenting ways to properly use and cite AI, citing AI in your work is not in line with the standards of scientific writing.

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 pregnancy-related conditions may contact UVU Accessibility Services at accessibilityservices@uvu.edu or 801-863-8747.

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.