PURDUE UNIVERSITY FORT WAYNE

Course Syllabi

Course Title: Introduction to the Biological World

Instructor Email:

Course Number: F10000 (3 credits)

Last Updated: Fall 2025

Instructor Name:

Course Semester:

Course Description:

Principles of biological organization from molecules through ecosystems. Emphasis on processes common to all organisms and on concepts related to problems of current importance.

Course Prerequisites:

There are no prerequisites for this course.

Course Access:

This course will be managed through Canvas . Students are expected to check Canvas daily for announcements, assignments, grades, and resources.

Course Goal:

- Understand the chemistry of life and how molecules support biological systems.
- Analyze cell structure, energetics, communication, and division.
- Investigate heredity, gene expression, and evolutionary processes.
- Apply biological principles to ecological systems and real-world problems.
- Develop scientific thinking through labs, projects, and data analysis.

Student Learning Objectives:

This course will focus on the structure and function of organisms, as well as their interactions. We will study life from its molecular basis through the ecosystems that interconnect species and make life possible. Biology is a diverse field, but we will focus on what unites all living organisms to gain a deeper understanding of the world. We will also discuss important past and current events in the field of biological research.

Learning Resources & Texts

Primary Resource: OpenStax Biology 2e (Free online text)
Supplemental Readings: Articles, case studies, and primary research papers provided via Canvas.

Assignments

Student learning will be assessed through labs, projects, quizzes, FRQs (free-response practice), and exams.

Grading Scale:

Grading Scale:
A = 90–100%
B = 80–89%
C = 70–79%
D = 60–69%
F = below 60%

Some major assignments can include:
- Labs: Enzyme Catalysis, Diffusion Cubes, Photosynthesis & Respiration, Onion Root Tip
- Projects: “Perfect Menu” Nutrition, Organelle Museum, Respiration Infographic, Cell Signaling Comic
- Exams: Midterm (MCQ + FRQ), Mock AP Exam, Final Review Portfolio

Late work is not accepted except in cases of documented emergencies.

Course Evaluation:

At the end of this course, there will be a short form sent to you where you will evaluate the effectiveness of the course material as well as the instructor. This will be anonymous and the information will be shared with the departments at the end of the year.

Academic Misconduct / Plagiarism / AI:

The use of AI tools, including ChatGPT, is permitted in this course for students who wish to use them as a study aid (e.g., brainstorming ideas, grammar and spelling checking). Students should indicate how AI tools informed their process and the final product, including how they checked the validity/accuracy of all AI-generated content.. For example, students should include the source (AI tool used), the date of the query, content validation and editing summary, and any other relevant information. Assignment guidelines will provide additional guidance as to how these tools might be part of your process for each assessment this semester and how to provide transparency about the usage. If students are unclear whether an AI use is acceptable or not, assume that it is not, and please contact me for a discussion.

Turnitin will be used to detect potential instances of plagiarism and misuse of AI in student submissions. Misuse of AI tools (e.g., using AI to complete quizzes and exams, complete assignments for students) is not tolerated in this course. In the case of a suspected AI-misuse, a student may receive no credit on the assignment which may result in an F for the course. Students will be given an opportunity to explain and provide evidence of the originality of their work in a meeting with the course instructor. Any suspected instances of AI misuse that are perpetuated will be reported to the administration.

Assignments, Plagiarism, and Late Work

- Work turned in after the due date will only be accepted for credit if the absence is excused.
- Students who will be absent on the exam date are encouraged to take the test early.
- Grades will be completed and submitted to Purdue. If students cannot take the final test on the scheduled date, they must make arrangements to take it early.
- Plagiarism will not be tolerated, resulting in a zero for the assignment. The following actions will result in a zero on assignments.
- Cheating is any activity in which a student deliberately misrepresents their academic achievement.
- Plagiarism is a form of academic dishonesty where a student intentionally takes and uses another's published or unpublished thoughts, ideas, or writings as their work. Verbatim repetition or paraphrasing, without acknowledgment, of another person's writing, work, or research is also plagiarism.
- Misrepresentation includes any fabrication or false presentation of data, quotations, sources, or other information.
- Aiding or Abetting includes helping another student to cheat, plagiarize, misrepresent, or otherwise engage in academic dishonesty.
- Asking, persuading, or coercing another student to engage in any of the above behaviors is prohibited under this policy. If you submit someone else's work as your own, you will receive a zero, and the student whose work you copied may also receive a zero, as it appears to your instructors that the student is aiding or abetting you in plagiarism.

Student Support Services

is committed to your academic and personal success. Here is a link to the student handbook to help you be successful at our school.

If you observe and/or are made aware of student behavior that leaves you feeling concerned, worried, and/or alarmed, trust your instincts and say something. Our counselor, , can assist with the student of concern, whether that's you or someone you are referring. You can speak to her or email her. If someone is harming themselves or others, or is threatening injuries to themselves or others, please call 911 immediately.

Course Schedule

Course Schedule – Fall 2025 (Semester 1)

Unit 1: Chemistry of Life (Weeks 1–5)
Week 1: Science Process & History of Biology
Week 2: Water and Life; Carbon & Molecular Diversity
Week 3: Structure & Function of Macromolecules
Week 4: Enzymes (structure, function, catalysis)
Week 5: Nucleic Acids and ATP

Unit 2: Cell Structure and Function (Weeks 6–8)
Week 6: Cell Origin & Size
Week 7: Cell Membranes, Function, & Transport
Week 8: Cellular Organization (organelles & microscopy)

Unit 3: Cellular Energetics (Weeks 9–10)
Week 9: Cellular Respiration & Fermentation
Week 10: Photosynthesis

Unit 4: Cell Communication & Cycle (Weeks 11–13)
Week 11: Cell Communication (signal pathways, feedback)
Week 12: The Cell Cycle
Week 13: Regulation of the Cell Cycle

Unit 5: DNA Structure & Function (Weeks 14–16)
Week 14: DNA Structure & Function
Week 15: DNA Replication
Week 16: DNA Mutations

Major Tests/Projects – Semester 1

- *Unit 1 Quiz (Week 3)*
- *Enzyme Lab Write-Up (Week 4)*
- *Cell Organelle Project (Week 8)*
- *Energetics Infographic (Week 10)*
- *Cancer Case Study (Week 12)*
- *Mitosis Project (Week 13)*
- *DNA Analysis Packet (Week 16)*
- *Midterm & Final – Semester 1*
- *Midterm Exam: Week 9 (covers Units 1–2)*
- *Final Exam: Week 16 (covers Units 1–5)*

Course Schedule – Spring 2026 (Semester 2)

Unit 6: Genetics (Weeks 1–6)
Week 1–2: Mendel and the Gene Idea; The Chromosomal Basis of Inheritance
Week 3–4: Gene Expression: From Gene to Protein
Week 5–6: Regulation of Gene Expression; Environmental Effect on Phenotype

Unit 7: Genomics & Biotechnology (Weeks 7–8)
Week 7–8: Genomes and Their Evolution; DNA Tools and Biotechnology
Unit 8: Evolution (Weeks 9–12)
Week 9–10: Descent with Modification: A Darwinian View of Life; The Evolution of Populations; The Origin of Species
Week 11–12: The History of Life on Earth; Phylogeny and the Tree of Life

Unit 9: Ecology (Weeks 13–15)
Week 13–15: Energy Flow in Ecosystems; Community Ecology; Biodiversity; Threats to Ecosystems
Unit 10: Development & Integration (Weeks 16–18)

Week 16–18: Animal Development

Major Tests/Projects – Semester 2

- *Punnett Square/Genetics Project (Week 2)*
- *Gene-to-Protein Flowchart (Week 4)*
- *Biotechnology Poster (Week 8)*
- *Evolution Portfolio (Week 10)*

- *Phylogeny & Tree of Life Project (Week 12)*
- *Ecology Case Study (Week 15)*
- *Development Comparative Report (Week 18)*
- *Midterm & Final – Semester 2*
- *Midterm Exam: Week 9 (covers Units 6–7)*
- *Final Exam: Week 18 (comprehensive, Units 6–10)*

Additional Information:

Classroom Conduct

Academic communities exist to facilitate the process of acquiring and exchanging knowledge and understanding, enhance their members' personal and intellectual development, and advance the interests of society. Essential to this mission is that all class members are safe and free to engage in a civil teaching and learning process through their experiences inside and outside the classroom. Accordingly, no student should engage in any form of behavior that interferes with the academic or educational process, compromises the personal safety or well-being of another, or disrupts the administration of school programs or services. Please refer to the student handbook for examples of disruptive behavior and guidelines for response and enforcement. Students must adhere to School Norms, especially the academic integrity policy. Cheating during assessments (e.g., using mobile phones, communicating with peers, copying work, or moving computers under desks) will invalidate scores, and students must either retake the assessment or accept a zero grade.

Accommodations

Choice-based assessments, tiered assignments, flexible grouping, multimodal instruction, accommodations for IEP/ELL/504, enrichment opportunities.