



K-12

TEXAS TECH

Biology – Semester A v8.0 – Syllabus

Course Name

BIO-A

BIO v8.0 – Semester A

Course Information

The Biology course is a two-segment study that builds on the foundations of life science, scientific practices, and scientific thinking skills. In this course, students will explore the relationships between living things and their environments. Students will develop an understanding of biological concepts through scientific inquiry, investigations, interactive experiences, higher-order thinking, real-world applications, interpreting and collecting data, and virtual and hands-on experiences. The key big ideas of the Biology course are molecular, cellular, heredity, evolution, classification, organisms, populations, and ecosystems. Students will enhance their mastery of biological concepts, which will enable them to make real-world connections and apply their understanding to everyday life.

Course Delivery Method

Online

Contacting Your Instructor

You may contact your instructor using your Canvas Inbox. Technical support is available 24/7 at [TTU K-12](#).

Course Topics

After completing this course, the students should have increased knowledge of

- Identify the different types of biology
- Explain scientific processes and investigation
- Describe each step of the scientific method

- Differentiate between repetition and replication
- Analyze data and draw conclusion
- Describe the structure and function of each macromolecule
- Explain why macromolecules are essential for living things
- Explain the origins of life on Earth
- Describe the properties of water
- Differentiate between the different types of cells
- Describe each type of microscope
- Identify the parts of the microscope
- Describe the structure and function of cell organelles
- Explain how materials are transported through the cell membrane
- Differentiate between passive and active transport
- Describe the function of ATP
- Explain what happens to ATP when it is broken down
- Identify the products of photosynthesis and cellular respiration
- Explain how photosynthesis and cellular respiration are interrelated
- Describe each phase of the cell cycle
- Explain what happens if cell division is not regulated
- Describe the function of DNA and RNA
- Explain DNA replication
- Explain transcription and translation
- Describe the different types of mutations
- Create a monohybrid and dihybrid cross
- Explain how genetics is passed down from parent to offspring
- Describe the different types of biotechnology
- Explain the benefits and disadvantages of biotechnology

Textbook and Materials

No textbooks required. All content is within Canvas.

Materials

- Lesson 02.04 Membrane Transport (required for the hands-on option)
 - 3 Raw eggs
 - String or thread or yarn (or kitchen scale)
 - Ruler (or kitchen scale)
 - White vinegar
 - Tap water
 - Syrup
 - 3 Cups

Technical Requirements

- Internet access – preferably high speed (for accessing Canvas)
- browser (we recommend Chrome)
- supported browser plugins and settings
The following plugins and settings may be required to use our courses.
 - JavaScript enabled
 - Cookies enabled
 - Java installed
- Email
- Printing capabilities
- Adobe Reader (download from [Adobe](#))
- Audio and video capabilities (for watching/listening to course content)
- PDF app (free options available)

Technical Skill Requirements

Be comfortable with the following:

- accessing online learning materials via Canvas
- Internet search engines and browsers (we recommend Chrome)
- uploading assignments into Canvas (there will be instructions for uploading assignments)

Course Pacing

This course is designed to be completed in 18 weeks.

- Print this guide and use a calendar to fill in your goal dates for completing each Module.
- Note that you must have a grade of 70 or above on a Discussion-Based Assessment (DBA) in order to continue moving forward in the course. DBAs occur every other lesson.
- To achieve success, students are expected to submit work in each course weekly.
- Students can learn at their own pace; however, "any pace" still means that students must make progress in the course every week.
- Post the pace guide in a place where you and your Parent or Guardian will see it every day (on the refrigerator or next to the computer). Give yourself a check every time you complete a task, and celebrate your efforts!

Weeks	Lessons	Due Date (you write this in)
1	Checkpoint 1 01.00 Foundations of Biology Pretest 01.01 Exploring Life	
2	01.02 Chemistry of Life 01.03 Earth's Early Atmosphere	
3	01.04 Foundations of Biology Discussion-Based Assessment *01.05 Foundations of Biology Module Exam	
4	02.00 Life's Origins Pretest 02.01 Properties of Water	
5	02.02 Early Cells	
6	02.03 Cell Structure and Function	
7	02.04 Membrane Transport	
8	02.05 Cellular Energy 02.06 Photosynthesis and Cellular Respiration Checkpoint 2	
9	*02.08 Life's Origins Module Exam	
10	03.00 Cell Reproduction Pretest 03.01 Cell Division	
11	03.02 DNA Replication	
12	03.03 Protein Synthesis 03.04 Mutations	
13	03.05 Meiosis 03.06 Mendel	
14	03.07 Heredity Patterns 03.08 Biotechnology	
15	Checkpoint 3 03.09 Cell Reproduction Discussion-Based Assessment	
16	*Final Exam	
17	Floating Vacation Week	
18	Floating Vacation Week	

Course Credit

Your grade will be calculated as follows:

- formative assessments (50%)
- summative assessments (20%)
- summative final exam (30%)

Assignments are labeled as “summative” or “formative” under Grades in Canvas.

Course Completion and Extensions

- Students may not complete the course in less than 30 days.
- All courses expire 180 days after the enrollment date.

Academic Integrity

It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and high standard of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offenders liable to serious consequences, possibly suspension.

“Scholastic dishonesty” includes, but is not limited to, cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, and any act designed to give unfair academic advantage to the student (such as, but not limited to, submission of essentially the same written assignment for two courses without the prior permission of the instructor) or the attempt to commit such an act.

Artificial Intelligence (AI) Use Policy

This policy covers any generative AI tool, such as ChatGTP, Elicit, Photo Math, etc. This includes text and artwork/graphics/video/audio, etc.

All work submitted in this course must be your own. You may not use artificial intelligence tools to complete your assignments in this course.

If an instructor suspects that an assignment is not the work of the student, it will receive a score of zero. The instructor will message the student or provide feedback on the assignment indicating the need to schedule a one-on-one video conference, during which the student will be required to demonstrate their skills or knowledge through an alternative or mutually agreed-upon assignment. The grade of the alternate or agreed upon assignment will be determined at the instructor’s discretion with the highest possible score being 70%.

If it is determined that a student has violated final exam directions on Final Exam A or CBE Set 1, the exam will be scored as zero. The student may take Final Exam B or CBE Set 2 with the highest possible score being 70%.

The incident will be reported to Texas Tech K-12 Administration and documented in the student's file. Continued violations of Texas Tech University's Academic Integrity Policy will result in the removal of the student from the program.

Student/Parent Expectations

You will be expected to log into the Canvas course regularly to be aware of possible announcements/reminders and to pace your student's progress in the course.

The following are prohibited while using the Canvas interface:

- spamming;
- hacking; and
- using TTU or Canvas email for commercial purposes;

Inappropriate behavior shall result in consequences ranging from a request to correct the problem, to removal from the course or even the university, depending on the severity of the behavior. Disciplinary actions will be taken according to the TTU K-12 Student Handbook.

Communication

- You can expect a reply from your instructor within 2 business days.
- Use the Canvas Inbox for sending messages to your instructor.

Submitting Assignments

You will submit all assignments through Canvas, rather than by mail or email.

Technical Difficulties

Getting Help

For student assistance with Canvas, visit [TTU K-12 Support](#).

Computer Problems

A working computer is necessary for online coursework. Computer problems will not be accepted as a valid reason for failure to complete course activities within the allotted time frame. Identify a second computer, before the course begins, that you can use if you experience computer problems.

Server Problems

When the Canvas server needs to be taken down for maintenance, the Canvas administrator will post an announcement in your course informing you of the time and date. If the server experiences unforeseen problems, your course instructor will notify you.

Lost or Corrupted Files

You must keep/save a copy of every project/assignment on an external disk or personal computer. In the event of any kind of technology failure (e.g., Canvas server crash or virus infection, students' own computer problems, loss of files in cyberspace, etc.) or any disputes, the instructor may request or require you to resubmit the files. In some instances, the instructor may need to open another attempt within Canvas, so communication with your instructor is critical in these circumstances.