Biology (BIO) 1A
Syllabus

Course Name

BIO 1A

Biology I – Semester A

Course Information

BIO 1A is the first semester of this two-semester course.

In this course, you'll work through the first four units of your biology textbook.

Course Delivery Method

Online

Contacting Your Instructor

You may contact your instructor through the Blackboard messaging system. Technical support is available 24/7 at www.k12.ttu.edu.

Course Objectives

After completing this course, you should be able to:

1. conduct laboratory and field investigations using safe, environmentally appropriate, and ethical practices;
2. use scientific methods and equipment during laboratory and field investigations;
3. understand that cells are the basic structures of all living things with specialized parts that perform specific functions and that viruses are different from cells;
4. compare and contrast prokaryotic and eukaryotic cells;
5. investigate and explain cellular processes, including homeostasis, energy conversions, transport of molecules, and synthesis of new molecules;
6. explain how an organism grows and recognize the importance of cell differentiation;

7. describe the mechanisms of genetics such as the role of nucleic acids and the principles of Mendelian and non-Mendelian genetics;
8. recognize the significance of various molecules involved in metabolic processes and energy conversions that occur in living organisms;
9. compare the structures and functions of different types of biomolecules, including carbohydrates, lipids, proteins, and nucleic acids;
10. compare the reactants and products of photosynthesis and cellular respiration in terms of energy and matter;
11. identify and investigate the role of enzymes;
12. understand that biological systems are composed of multiple levels;
13. describe the interactions that occur among systems that perform the functions of regulation, nutrient absorption, reproduction, and defense from injury or illness in animals;
14. analyze the levels of organization in biological systems and relate the levels to each other and to the whole system;
15. explain how biological systems work to achieve and maintain balance;
16. investigate and analyze how organisms, populations, and communities respond to external factors;
17. describe how events and processes that occur during ecological succession can change populations and species diversity; and
18. recognize that interdependence and interactions occur within an environmental system.

BIO addresses the required Texas Essential Knowledge and Skills (TEKS). These can be found at the Texas Education Agency website.

Textbook and Materials

Textbook(s)

The required textbook for this course is:

- Miller, Kenneth R., and Joseph S. Levine. (2015). *Biology*. Texas Edition. Hoboken, NJ: Pearson Education, Inc. ISBN-13: 978-0-13317640-7, ISBN-10: 0-13-317640-1.

This title may also be known as *Miller & Levine Biology, Texas Biology Student Edition*.

Additionally, students will need an online account at Savvas Realize in order to access some of the virtual lab materials and other online resources.

Technical Requirements

- Internet access – preferably high speed (for accessing Blackboard)
- Email

- Word processing software such as Microsoft Word
- Adobe Reader (download from Adobe.com)
- Audio and video capabilities (for watching/listening to course content)
- PDF app (free options available)

Technical Skill Requirements

Be comfortable with the following:

- using a word processor
- Internet search engines and browsers
- creating PDFs (see **Requirements for Creating PDFs** on the course home page)

Course Organization

This course consists of 15 lessons, four Unit Reviews, and a final examination. Each lesson includes several activities that present content knowledge. Each lesson also includes multiple graded assignments to ensure that you learn the content that has been presented in the activities. Some of the assignments are automatically-graded quizzes, and some are written assignments or activities that your instructor will grade.

The course follows the structure of the textbook. Each chapter is a lesson, and each lesson is subdivided into three to five parts. For each part, you'll watch and take notes on a video lecture, as well as complete readings and take notes from your textbook. As you complete each part, you'll take a short multiple-choice quiz (usually ten or fewer questions). After you've completed all the parts of each chapter, you'll work through a lab (one chapter has two labs).

The chapters (or lessons) are also grouped into units. After you've completed the chapters in a unit, you'll have a unit review section with three sections: a selected notebook submission, a discussion forum assignment, and a unit assessment. The notebook submission will ask you to submit specific items from your notes taken while watching the instruction video lectures; each lesson will guide you on the notes you should take.

Be sure you read all instructions carefully and ask your instructor for help if something is not clear.

Lab Reports

Each chapter (or lesson) will contain a lab assignment (one chapter has two). Virtual Labs will use a standard seven-part lab report, as detailed below. Other types of labs will have varying formats; specific details are provided for each lab individually. You will need to use a word processor such as Microsoft Word, Microsoft WordPad, OpenOffice.org Writer, or Notepad to write your lab report.

Virtual Lab Report Format

Use the following format to write up your Virtual Lab reports:

1. Abstract
2. Problem (Question)
3. Hypothesis
4. Experiment
5. Results
6. Conclusions
7. Future

You'll have a chance to give this format a "test run" in the Lesson 1 Lab. **Always** follow this format when you submit a Virtual Lab. Writing lab reports is standard procedure in science because it allows others to read about and understand what you did. It also gives others the opportunity to duplicate your experiment. All scientists know the scientific community may dismiss an experiment that can't be duplicated.

Write up your laboratory reports for each lab carefully; they account for a large part of each lesson grade. Your instructor will use the following lab scale to grade your Virtual Lab reports:

- Abstract (10%)
- Problem/Question (10%)
- Hypothesis (10%)
- Experiment (20%)
- Results (20%)
- Conclusions (20%)
- Future (10%)

Don't forget to proofread your labs: make sure they're clear and understandable!

Virtual Lab Report Template

Make sure you complete the whole lab before writing up your lab report. The template for the report is available in two formats, Word and PDF, in the Syllabus and Resources sections of the course.

These are just blank templates, so you'll have to adjust the spacing to make room for all the information in each section.

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Lab Report Writing Tips

Here are a few things to keep in mind as you write your lab reports.

- All labs will have an **Abstract** that briefly summarizes the purpose, procedure, and findings. You can make sure that you cover these areas by using the sentence starters that are provided in the lab report template.

- All labs will have a **Conclusion** which summarizes the implications of the results. Then, the **Future** section should include at least one future study and at least one improvement to the study/lab.

- If the lab that you're working through is not a controlled experiment, then it may not have controls and/or variables. If this is the case, just note this in your **Experiment** section. If the lab includes real-world data, include a brief explanation of how the data was collected.

- If the lab is a virtual lab that includes data which you are creating, updating, or analyzing, then take a screenshot of the data and include it in your **Results** section. If the lab contains data which isn't already collated into a graph or chart, you'll need to create your own graphic(s) to display that information in a meaningful way.

In general, pay attention to the prompts in the lab template and they will guide you as you fill out your report.

Course Outline

Please note that some assignments will be hidden from you when you start the course. As you move through the lessons and complete assignments, more will unlock for you.

Lesson	Topic	Approximate Time for Completion
Chapter 1	The Science of Biology	One week
Chapter 2	The Chemistry of Life	One week
Unit 1 Review	The Nature of Life (Chapters 1-2)	Two days
Chapter 3	The Biosphere	One week
Chapter 4	Ecosystems and Communities	One week
Chapter 5	Populations	One week
Chapter 6	Humans in the Biosphere	One week
Unit 2 Review	Ecology (Chapters 3-6)	Two days

Lesson	Topic	Approximate Time for Completion
Chapter 7	Cell Structure and Function	One week
Chapter 8	Photosynthesis	One week
Chapter 9	Cellular Respiration and Fermentation	One week
Chapter 10	Cell Growth and Division	One week
Unit 3 Review	Cells (Chapters 7-10)	Two days
Chapter 11	Introduction to Genetics	One week
Chapter 12	DNA	One week
Chapter 13	RNA and Protein Synthesis	One week
Chapter 14	Human Heredity	One week
Chapter 15	Genetic Engineering	One week
Unit 4 Review	Genetics (Chapters 11-15)	Two days
Final Exam		

Assignment Schedule

Each of the following must be completed to complete the course. Items with an asterisk (*) indicate that these are summative assessments for the course.

Keep in mind that this course is meant to be completed in a particular sequence, so some assignments may not appear until you've completed prerequisite assignments.

For example, you will not be able to see anything in the Unit folders until you've completed the chapter assignments. The Unit folders contain Notebook, Discussion Forum, and Unit Test assignments.

Lesson	Weeks	Assignments
Chapter 1	1	Checkpoint 1 (Non-graded) Lesson 1.1 Quiz Lesson 1.2 Quiz Lesson 1.3 Quiz Lesson 1 Lab
Chapter 2	2	Lesson 2.1 Quiz Lesson 2.2 Quiz Lesson 2.3 Quiz Lesson 2.4 Quiz Lesson 2 Lab

Lesson	Weeks	Assignments
Unit 1 Review		*This folder will appear empty until you've completed prerequisite chapter assignments.* Unit 1 Notebook Unit 1 Forum *Unit 1 Test
Chapter 3	3	Lesson 3.1 Quiz Lesson 3.2 Quiz Lesson 3.3 Quiz Lesson 3.4 Quiz Lesson 3 Lab Checkpoint 2 (Non-graded)
Chapter 4	4	Lesson 4.1 Quiz Lesson 4.2 Quiz Lesson 4.3 Quiz Lesson 4.4 Quiz Lesson 4.5 Quiz Lesson 4 Lab
Chapter 5	5	Lesson 5.1 Quiz Lesson 5.2 Quiz Lesson 5.3 Quiz Lesson 5 Lab
Chapter 6	6	Lesson 6.1 Quiz Lesson 6.2 Quiz Lesson 6.3 Quiz Lesson 6.4 Quiz Lesson 6 Lab
Unit 2 Review		*This folder will appear empty until you've completed prerequisite chapter assignments.* Unit 2 Notebook Unit 2 Forum *Unit 2 Test
Chapter 7	7	Lesson 7.1 Quiz Lesson 7.2 Quiz Lesson 7.3 Quiz Lesson 7.4 Quiz Lesson 7 Lab
Chapter 8	8	Lesson 8.1 Quiz Lesson 8.2 Quiz

Lesson	Weeks	Assignments
		Lesson 8.3 Quiz Lesson 8 Lab
Chapter 9	9	Lesson 9.1 Quiz Lesson 9.2 Quiz Lesson 9.3 Quiz Lesson 9 Lab
Chapter 10	10	Lesson 10.1 Quiz Lesson 10.2 Quiz Lesson 10.3 Quiz Lesson 10.4 Quiz Lesson 10 Lab
Unit 3 Review		*This folder will appear empty until you've completed prerequisite chapter assignments.* Unit 3 Notebook Unit 3 Forum *Unit 3 Test
Chapter 11	11	Lesson 11.1 Quiz Lesson 11.2 Quiz Lesson 11.3 Quiz Lesson 11.4 Quiz Lesson 11 Lab
Chapter 12	12	Lesson 12.1 Quiz Lesson 12.2 Quiz Lesson 12.3 Quiz Lesson 12.1 Lab Lesson 12.3 Lab
Chapter 13	13	Lesson 13.1 Quiz Lesson 13.2 Quiz Lesson 13.3 Quiz Lesson 13.4 Quiz Lesson 13 Lab
Chapter 14	14	Lesson 14.1 Quiz Lesson 14.2 Quiz Lesson 14.3 Quiz Lesson 14 Lab
Chapter 15	15	Lesson 15.1 Quiz Lesson 15.2 Quiz Lesson 15.3 Quiz

Lesson	Weeks	Assignments
		Lesson 15.4 Quiz Lesson 15 Lab
Unit 4 Review	16	*This folder will appear empty until you've completed prerequisite chapter assignments.* Unit 4 Notebook Unit 4 Forum *Unit 4 Test Checkpoint 3 (Non-graded)
		Final Exam

Course Credit

The course grade will be calculated as follows:

- 50% coursework average;
- 50% summative assessment average, including the final exam;
- A passing course grade is 70 or higher.

Students must attempt all assignments in the course. The final exam will not be available until all assignments have been accepted and graded by the teacher.

Students who score below 70% on the final exam will be eligible for one re-exam opportunity.

Coursework

The graded assignments within each lesson are formative in nature. This means that they are designed to assist you in applying and demonstrating the lesson concepts, as well as identifying areas in which you need additional review. You may use all the lesson's learning activities to assist you as you complete the graded assignments.

Summative Assessments

Summative assessments are those that allow you to demonstrate mastery of the course objectives. For summative assessments, you will NOT be allowed to use the learning materials. These are opportunities for you to show what you have learned by that point in the course. Summative assessments may be proctored using the online proctoring system Proctorio. Information about Proctorio is provided in **Remote Proctoring** in the Syllabus section of your course. The summative assessments for this course are as follows:

- Summative Assessments **(20% of Course Grade)**
    - Unit 1 Test (40 points)
    - Unit 2 Test (80 points)

    - Unit 3 Test (80 points)
    - Unit 4 Test (80 points)
- Summative Final Exam **(30% of Course Grade)**

Course Completion and Extensions

- Students may not complete the course in less than 30 days.
- All courses expire six months after the enrollment date. Student may purchase a single three-month extension for a fee.
- Extensions are non-refundable and non-transferrable.

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.

Student Expectations

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

Students are expected to maintain an online environment conducive to learning, which includes "netiquette" (Internet etiquette). Please review the basic rules for Online Discussion Netiquette. Ensure that your email messages, discussion board postings, and other electronic communications are thoughtful and respectful. Diverse opinions are welcome in this course, and you are expected to demonstrate an open mind and courtesy when responding to the thoughts and ideas of others.

The following are prohibited:

- making offensive remarks in email or the discussion board;
- using inappropriate language or discussing inappropriate topics online;
- spamming;
- hacking;
- using TTU or Blackboard email or discussion boards for commercial purposes;
- using all caps (considered shouting in online communications); and
- cyber-bullying or online harassment of any type.

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 Blackboard Course Messages tool for sending messages to your instructor.

Submitting Assignments

You will submit all assignments through the Blackboard Assignment Tool, rather than by email. For assignments that require you to upload a PDF or other document, please title your assignment files "lastName_firstName_assignmentName.*xxx* (.pdf, .doc, .xl, .jpg, etc.)".

Technical Difficulties

Getting Help

For student assistance with Blackboard, 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 Blackboard server needs to be taken down for maintenance, the Blackboard 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., Blackboard 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 Blackboard, so communication with your instructor is critical in these circumstances.