

Syllabus

Health Science—1B

Course Overview

This one-semester course is intended as a practical, hands-on guide to help you understand the skills required to achieve success in modern-day careers. This course has 12 lessons organized into three units, plus three Unit Activities. Each lesson contains one or more Lesson Activities.

This course will cover various topics in health science, such as biomolecules, biological and chemical processes, and various diseases.

You will submit the Unit Activity documents to your teacher, and you will grade your work in the Lesson Activities by comparing them with given sample responses. The Unit Activities (submitted to the teacher) and the Lesson Activities (self-checked) are the major components of this course. There are other assessment components, namely the mastery test questions that feature along with the lesson; the pre- and post-test questions that come at the beginning and end of the unit, respectively; and an end-of-semester test. All of these tests are a combination of simple multiple-choice questions and technology enhanced (TE) questions.

Course Goals

This course will help you meet the following goals:

- Examine the structures, parts, and functions of the human body and each of its systems.
- Analyze diseases and disorders, including causes, treatments, and procedures, related to various body systems.
- Measure the effects of carbohydrates, lipids, supplements, and various nutrients on the human body.
- Inspect the various biological and chemical processes throughout the human body.
- Analyze the evolution of DNA, RNA, and genetics research in the health sciences.

Prerequisite Skills

Health Science—1B has the following prerequisites:

- basic math knowledge
- ability to visualize and apply creativity and innovation
- familiarity with the writing process and following guidelines

General Skills

To participate in this course, you should be able to do the following:

- Perform basic operations with word processing software, such as Microsoft Word or Google Docs.
- Perform online research using various search engines and library databases.
- Communicate through email and participate in discussion boards.

For a complete list of general skills that are required for participation in online courses, refer to the Prerequisites section of the Plato Student Orientation document, found at the beginning of this course.

Credit Value

Health Science—1B is a 0.5-credit course.

Course Materials

- Notebook
- Computer with Internet connection and speakers or headphones
- Microsoft Word or equivalent
- Microsoft Excel or equivalent
- Microsoft PowerPoint or equivalent

Course Pacing Guide

This course description and pacing guide is intended to help you stay on schedule with your work. Note that your course teacher may modify the schedule to meet the specific needs of your class.

Course Components and Grading Rubric

The table gives a breakdown of the weight for each component in the course. Weight represents the percentage of the total score coming from each activity.

Course Components	Count	Weight
Pretest. <i>Pretests are optional assessments, typically designed for credit recovery use. If a student shows mastery of a lesson's objective, the student may be automatically exempted from that lesson in the upcoming unit. Typically, teachers do not choose to employ exemptive pretests for first-time credit courses. Pretests are not included as a component of the student's final grade.</i>	3	0%
Module. <i>Each module in this course contains an interactive tutorial and an associated mastery test. Tutorials may include one or more Lesson Activities that constitute tasks associated with the tutorial. The module score comes from a student's score on the mastery test.</i>	12	30%
Discussion. <i>Online discussions allow for higher-order thinking about terminal objectives. An online threaded discussion mirrors the educational experience of a classroom discussion. Teachers can initiate a discussion by asking a complex, open-ended question. Students can engage in the discussion by responding both to the question and to the thoughts of others. Each unit in a course has one predefined discussion topic; teachers may add more discussion topics.</i>	3	10%
Unit Activity. <i>Unit Activities are at the end a unit and constitute one or more small tasks. Their purpose is to deepen understanding of key unit concepts and tie them together. Each Unit Activity includes a simple rubric. The teacher versions include both a rubric and modeled sample answers. Unit Activities are teacher graded.</i>	3	20%
Posttest. <i>The posttest appears at the end of the unit and mirrors the pretest in structure, content, and complexity.</i>	3	20%
End of Semester Test. <i>The end of semester test (EOS) appears at the end of the course. Students are delivered a few items from every tutorial in the course in order to assess the major course objectives.</i>	1	20%
Total	25	100%

**Teachers may manually adjust these weights if desired, per district grading requirements.*

Unit 1: Biomolecules

Summary

In this unit, you will learn about the structure and functions of amino acids and how they form proteins. You'll also discuss simple and complex carbohydrates, lipids, and lipoproteins.

Additionally, in this unit, you will familiarize yourself with the chemistry and structure of DNA and RNA.

Day	Activity/Objective	Type
1 day: 1	Syllabus and Plato Student Orientation <i>Review the Plato Student Orientation and Course Syllabus at the beginning of this course.</i>	Course Orientation
6 days: 2–7	Amino Acids and Proteins <i>Describe amino acids and proteins and their functions; discuss diseases caused by protein misfolding, including symptoms, risks, and treatments.</i>	Lesson
6 days: 8–13	Simple and Complex Carbohydrates <i>Discuss the chemistry of simple and complex carbohydrates and the role of each in a healthy diet; describe various disorders, including causes and treatments.</i>	Lesson
6 days: 14–19	Lipids and Membranes <i>Identify the properties and functions of lipids and biological membranes; list amounts of fat found in common foods.</i>	Lesson
6 days: 20–25	DNA and RNA <i>Discuss the structure, chemistry, functions, and evolution of DNA and RNA; recall inherited diseases.</i>	Lesson
1 day: 26	Para Jumble	Game
4 days: 27–30	Unit Activity/Threaded Discussion—Unit 1 <i>Compare and contrast the four different groupings: amino acids and proteins, simple and complex carbohydrates, lipids and biological membranes, and DNA and RNA.</i>	Unit Activity
1 day: 31	Posttest—Unit 1	Assessment

Unit 2: Biological and Chemical Processes

Summary

In this unit, you will learn about vitamins and cofactors. You'll differentiate between coenzymes and cofactors. You'll learn about carbohydrate, protein, and lipid metabolism. You'll also learn about anabolic and catabolic pathways and the relationship between the digestive process and metabolic pathways. Additionally, you'll learn about the biological and chemical processes of the human body.

Day	Activity/Objective	Type
5 days: 32–36	Vitamins and Cofactors <i>List various vitamins and cofactors, including usage, benefits, and risks.</i>	Lesson
5 days: 37–41	Enzymes <i>Explain how enzymes control the biochemical processes and how enzyme supplements might affect diseases; describe diseases caused by enzyme deficiencies.</i>	Lesson
5 days: 42–46	Metabolism <i>Recall the metabolic pathways and the processes involved in metabolism; describe diseases related to metabolic disorders, including symptoms and causes.</i>	Lesson
5 days: 47–51	Biological Processes <i>Name the biological processes that are characteristic of all human beings; discuss the effects of environmental conditions on humans and the causes, treatments, and risks of sexually transmitted diseases.</i>	Lesson
5 days: 52–56	Chemical Reactions <i>Describe the various chemical reactions that take place in the human body and discuss the benefits of antioxidants and certain metals in the human diet.</i>	Lesson
1 day: 57	Thwack-A-Mole	Game
4 days: 58–61	Unit Activity/Threaded Discussion—Unit 2 <i>Identify the components of milk and the metabolic processes involved in breaking these components down into nutrients your body can use.</i>	Unit Activity
1 day: 62	Posttest—Unit 2	Assessment

Unit 3: Disease

Summary

In this unit, you will learn about homeostasis. You'll identify various diseases that affect different body systems. You'll learn how the immune system functions. You'll also learn about the four types of tissue and their structure and functions. In addition, you will familiarize yourself with gene mapping and genetic diseases.

Day	Activity/Objective	Type
7 days: 63–69	Disease and Immunity <i>Explain the pathophysiology of disease and the immune response; identify diseases that cause immune deficiencies.</i>	Lesson
6 days: 70–75	Human Tissues <i>Identify types and functions of human tissues and describe related diseases.</i>	Lesson
7 days: 76–82	Genetic Research and Diseases <i>Discuss genetics, including traits, inherited diseases, and advancements in genetic research.</i>	Lesson
1 day: 83	Space Jumble	Game
4 days: 84–87	Unit Activity/Threaded Discussion—Unit 3 <i>Describe the sickle-cell trait, which can result in sickle-cell disease, but has genetic advantages as well.</i>	Unit Activity
1 day: 88	Posttest—Unit 3	Assessment
1 day: 89	Semester Review	
1 day: 90	End-of-Semester Test	Assessment

Course Map

You will achieve course level objectives by completing each lesson's instruction, assignments, and assessments. For a detailed look at how the materials meet these objectives, review the [course map for Semester B](#).