

Pelahatchie High School Biology I Course Outline

Course Description/Overview

Biology I is an introductory, laboratory-based course designed to study living organisms and their physical environment. Students should apply scientific methods of inquiry and research in examination of the following topics: chemical basis of life; cell structure, function, and reproduction; energy; molecular basis of genetics; natural selection and diversity; and ecology. **BIOLOGY I IS A STATE TESTED SUBJECT. THIS MEANS THAT A COMPREHENSIVE STATE TEST WILL BE GIVEN TOWARD THE END OF THE COURSE (December for the Fall semester and April for the Spring semester). THE PASSING OF THE STATE TEST IS A GRADUATION REQUIREMENT FOR THE STATE OF MISSISSIPPI.**

Instructional Philosophy

The emphasis of Biology I is on the ability to ask questions, to observe, to experiment, to measure, to use computers and calculators, to problem solve/reason, to use tools of science, to gather data, and to communicate findings. Through actively investigating and discussing scientific ideas using a variety of tools, students will become confident scientific thinkers. *Students must be willing to commit to the rigor of the coursework.*

Course Goals

Comp. 1: Utilize critical thinking and scientific problem solving in designing and performing biological research and experimentation.	Obj 1: The student will demonstrate proper care and use of scientific equipment, observe and practice safe procedures, apply components of scientific processes and methods, and communicate results of scientific communications in the classroom and laboratory.	Chapter: 1 (and appendices A-E)
Comp. 2: Investigate the biochemical basis of life.	Obj 2: The student will identify the characteristics of living things, distinguish between ionic and covalent bonding, describe the unique properties of water, classify solutions using the pH scale, compare structure and properties of organic compounds, and relate enzyme activity to its structure.	Chapter: 2

<p>Comp. 3: Investigate cell structures, functions, and methods of reproduction.</p>	<p>Obj 3: The student will distinguish between prokaryotic/eukaryotic, animal/plant cell structure while focusing on organelle structure, location, and function. The student will describe cellular organization, cell membrane structure, transport, cell division, and distinguish between asexual and sexual reproduction.</p>	<p>Chapters: 7,10</p>
<p>Comp. 4: Investigate the transfer of energy from the sun to living systems.</p>	<p>Obj 4: The student will describe the structure of ATP, compare and contrast cellular respiration and photosynthesis, and anaerobic and aerobic respiration.</p>	<p>Chapters: 8, 9</p>
<p>Comp. 5: Investigate the principles, mechanisms, and methodology of classical and molecular genetics.</p>	<p>Obj 5: The student will compare and contrast DNA and RNA in replication, and protein synthesis Identify and illustrate changes in DNA, analyze DNA technology, discuss contributions of well-known scientists, apply genetic principles while solving multiple inheritance problems, and examine inheritance problems using modern technology.</p>	<p>Chapters: 11,12 13,14</p>
<p>Comp. 6: Investigate the concepts of natural selection as they relate to diversity of life.</p>	<p>Obj 6: The student will analyze how organisms are classified, identify characteristics of kingdoms including differentiations between the plant and animal kingdoms, compare viruses and bacteria, identify evidence of change in species, and analyze the results of natural selection.</p>	<p>Chapters: 16-34</p>
<p>Comp. 7: Investigate the interdependence and interactions that occur within an ecosystem.</p>	<p>Obj 7: The student will analyze flow of energy and matter through ecosystems, interpret interactions among organisms, compare major biomes, investigate transfer of energy, and examine changes to the environment as a result of natural selection.</p>	<p>Chapters: 3-6</p>

Major Course Projects and Assignments

Types of Assessments

Quizzes, Test and Projects: Quizzes are given periodically to assess student achievement on material that has been previously covered. Tests will be given at the end of a unit and periodically at the unit's midpoint. Exams will be given at the end of each term. A project will also be assigned for the first term.

Homework and Classwork: Assignments will be given at least twice per week. Classwork is assigned during the class and will either be picked-up at the time indicated by the teacher or may be sent home to be completed and collected the next day for a grade.

Grading Plan:
Grading Scale and Rubric

Grade	Scale	Description of Work
A	95-100	Consistently demonstrates an exceptional level of quality and effort. Having all work in on time and completed to exceed expectations.
B	85-94	Consistently demonstrates proficient knowledge with a good effort and quality of work. All assignments are completed on time.
C	75-84	Demonstrates proficient knowledge and the ability to apply scientific principles and techniques. Work shows average effort. A few assignments may be missed or late.
D	70-74	Work shows minimal effort and some assignments are late. Demonstrates a basic understanding of scientific principles and techniques.
F	Below 70	Understanding is below basic in relation to the techniques and principles of science. Work is of poor quality and does not meet standards or expectations.

Grade Components:

Homework	10%
Classwork	20%
Quizzes	20%
Tests/Projects	30%
Exam	20%

Absences/Make-up Work: In the event of an absence, it is the responsibility of the student to find out what assignments were missed and also to pick up any handouts missed. Assignments and handouts will be located in a binder/box at the front of the classroom. Students should pick up make-up assignments before class begins. Students absent on a test date will be expected to report to the teacher on the first day back to make arrangements for testing/quizzing.

Extra Help

Please come to class prepared to work. If you do not understand any topics that are covered, please see me as soon as possible. I am available for before and after school tutoring on Tuesdays and Thursdays. In-school tutoring is offered on Tuesday and Friday from 9:05-9:23.

Course Materials

- ✓ Textbook: (Biology, Miller and Levine, Prentice Hall, 2002)
- ✓ Workbook (Guided Reading and Study Workbook: Biology, Prentice Hall, 2002)
- ✓ 1.5 to 2 inch binder
- ✓ Dividers
- ✓ Loose-leaf paper
- ✓ Blue or Black Pen/Pencil
- ✓ Colored Pencils
- ✓ Highlighters