

Biology Syllabus

School Year 2021-2022

Providence Career & Technical Academy

Teacher Contact : Ms. Salisbury

alicia.salisbury@providenceschools.org

(401)305-0348

Course Description:

This course discusses the basic topics of biology: Cellular Energetics, Genetics, Organismal Biology, Heredity and Evolution, and Ecology (time permitting). Students will examine these topics as they relate to and demonstrate the crosscutting concepts of: cause and effect, systems and system models, stability and change, patterns, scale, proportion and quantity, energy and matter, and structure and function.

Class Goals:

The goal of this class is to improve your 21st century skills including: use of technology, critical thinking, pattern recognition, data collection, literacy, numeracy, and collaboration. You will work to expand your scientific content knowledge and vocabulary by communicating scientific information in various ways including formal and informal discussion, reading and writing, hands-on data collection and representation (laboratory investigations and graphing), peer review, and oral presentation.

Norms:

- There are four values that students should use to guide their behavior and learning in science class: respect, responsibility, integrity, and diligence.
- Each class will collaborate to define these terms concretely so we have a model of expectations. This collaborative definition will be posted in the Google classroom.

Required Materials:

1. One three-ring binder*
2. Pencils and erasers, pen is not recommended
3. A charged chromebook (bring your charger to school)
4. **Textbook****: Miller, Kenneth R., and Joseph S. Levine. Biology. Pearson, 2019.

*Can be provided at school, but must then stay at school.

**A digital copy of the textbook is provided and can be accessed at any time from the Google Classroom.

Grading Plan:

We will be using rubric-based assignments throughout the year. Each assignment type will be repeated in regular intervals so that you have the opportunity to improve your performance and skills.

- We will have quarterly grades for research projects, peer review and binder checks.
- Participation is graded DAILY.
- Each unit will include one or more wet lab investigations (time permitting - ideally we would find time for a lab each chapter) and a **test**.
- Each chapter will include 1-2 homework assignments and a **quiz**.

Assignments will be weighted according to type as follows:

Assignment Type	Examples and Important Information*	Weight
Classwork	Lab Reports, Oral Presentations, Jigsaw Activities, and any other work done in class.	50%
Assessments	Chapter Quizzes and Unit Tests* *Please Note: If you are not in class on the date of the unit test you will not take the same test as everyone else and may be required to complete a more difficult writing assignment in lieu of a test.	35%
Homework	Mind Maps, and any other work meant to be done independently at home for the purpose of reinforcing new skills.	10%
Participation	Active participation and effort in ALL classroom activities.	5%

Biology Syllabus

Providence Career & Technical Academy

Class content outline and textbook chapter alignment:

Quarter 1: From Molecules to Organisms

- Unit 1: Cellular Energetics
 - The Nature of Science Chapter 1
 - Chemistry of Life Chapter 2
 - Photosynthesis Chapters 9
 - Cellular Respiration Chapter 10
- Unit 2: Genetics
 - Introduction to genetics Chapter 12
 - DNA Chapter 13
 - RNA and Protein Synthesis Chapter 14
 - The Human Genome Chapter 15
 - Biotechnology (Time Permitting) Chapter 16
- Unit 3: Biological Organization and Homeostasis
 - Cell Structure and Function Chapter 8
 - Cell Growth and Division Chapter 11
 - The Human Body Chapter 27

Quarter 2: Earth's History and Evolution

- Unit 1: Introduction to Evolution
 - History of Life Chapter 20
 - Darwin's Theory of Evolution Chapter 17
- Unit 2: Evolution and Natural Selection
 - Evolution of Populations Chapter 18
 - Biodiversity and Classification Chapter 19
 - Animal Evolution, Diversity, and Behavior Chapter 24

Quarter 3: Natural Cycles and the Anthropocene

- Unit 1: Cycles of Matter and Energy in the Biosphere PBL
- Unit 2: Humans and Climate Change
 - The Biosphere Chapter 3
 - Humans and Global Change Chapter 7

Quarter 4: Ecology and Biodiversity

- Unit 1: Ecosystem Dynamics
 - Ecosystems Chapter 4
 - Populations Chapter 5
 - Communities and Ecosystem Dynamics Chapter 6
- Unit 2: Non-Animal Biodiversity (Time Permitting)
 - Viruses, Prokaryotes, Protists, and Fungi Chapter 21
 - Plants Chapter 22
 - Plant Structure and Function Chapter 23

Ninth grade biology is structured to build a foundation of knowledge in the study of living things. We will focus on strengthening 21st century skills and acquiring a basic understanding of a wide range of topics. You will have the opportunity to acquire deep knowledge in a topic of interest while strengthening independent research skills once per quarter as you work on your oral research presentation.