Biology
1st Semester

CONTENT	DATE

BIOLOGY: THE STUDY OF LIFE — August 6 - 7

- Course Overview
- What is Life?
- Introduction to Biology
- Project: Characteristics of Life
- Scientific Inquiry
- The Scientific Method
- Project: The Scientific Method
- Laboratory Safety
- Special Project

BIOCHEMISTRY — August 10 - 21

- Life Chemistry
- Atoms, Elements, and Compounds
- Chemical Reactions
- Chemistry of Water
- Experiment: Water Properties
- Experiment: pH Indicators
- Carbon of Life
- Carbohydrates and Lipids
- Experiment: Sugar and Starch
- Proteins, Enzymes, and Nucleic Acids
- Experiment: Enzyme Action
- Special Project

CELLS — August 24-September 11

- Cell Theory
- Project: Introducing the Microscope
- Cell Overview
- Cell Structures and Functions
- Project: Plant, Animal, and Algae Cells
- The Plasma Membrane
- Project: Virtual Lab - Osmosis
- Experiment: Osmosis
- Cell Regulation
- Project: Homeostasis
- Special Project

Biology
1st Semester (Cont.)

CONTENT	DATE
CELL ENERGY	September 14 - 25
• Laws of Thermodynamics	
• Energy Transformations	
• Project: Energy Laws	
• Photosynthesis: Energy Production in Plants	
• Experiment: Photosynthesis Reactions	
• Cellular Respiration: Anaerobic Phase	
• Project: Respiration in Muscles	
• Special Project	
CELL DIVISION AND REPRODUCTION	September 28-October 9
• Types of Reproduction	
• Cell Division: Fission	
• Project: Fragmentation	
• Cell Division: Mitosis	
• Project: Stages of Mitosis	
• Cell Division: Meiosis	
• Cell Cycle and Regulation	
• Cell Differentiation	
• Project: Stem Cell Research	
• Special Project	
DNA, RNA and Genetic Variation/Biotechnology	October 19-November 6
• DNA and RNA	
• Protein Synthesis	
MUTATIONS	November 9 - 20
BIOTECHNOLOGY	November 30-December 11
• Project: Ethics in Biotechnology	
• Genetic Engineering and Ethics	
REVIEW AND EXAMS	December 14 - 18

Biology
2nd Semester

CONTENT	DATE

GENETICS AND HEREDITY — January 4-22

- Chromosomes and Genes
- Project: Karyotypes
- Experiment: Molecular Genetics
- Mendelian Genetics
- Inheritance
- Project: Punnett Squares
- Probability
- Project: Testing Probability
- Special Project

ECOLOGY AND THE ENVIRONMENT — January 25-March 5

- The Study of Ecology
- Organisms and Their Environment
- Project: Food Webs
- Animal Behavior and Interdependencies
- Project: Symbiosis
- Ecosystems and Biomes
- Project: Habitats
- Project: Local Ecosystems
- Project: Biomes
- Energy Flow in Ecosystems
- Project: Energy Flow in Ecosystems
- Human Interaction
- Project: Virtual Lab - Biome: Deciduous Forest
- Project: Virtual Lab - Biome: Tundra
- Project: Virtual Lab - Biome: Rainforest
- Project: Stewardship
- Special Project

EVOLUTION — March 8 - 26

- Evolutionary Basics
- Project: Natural Selection
- Patterns of Evolution
- Evolution
- Evidence of Evolution
- Evolutionary Evidence
- Project: Morphology
- Other Methods of Evolution
- Extinction
- Speciation
- Fossils

Biology
2nd Semester (Cont.)

CONTENT	DATE
MICROBIOLOGY AND BIODIVERSITY	April 5 - 30
EOC REVIEW/EOC ADMINISTRATION	May 3 - 7
SPECIAL PROJECTS	May10 - 21
FINAL EXAMS	May 24 - 28

- Introduction to Taxonomy
- Taxonomy: Classification and Naming
- Keys to Classification
- Project: Classifying Fruit
- Project: Keying Animals
- Cladograms and Phylogenetic Trees
- Archaea and Eubacteria Kingdoms
- Bacteria
- Viruses
- Protista Kingdom: The Protozoa
- Protista Kingdom: Algae
- Fungi Kingdom
- Plantae Kingdom
- Animalia Kingdom: Invertebrates
- Animalia Kingdom: Chordates and Vertebrates
- Project: Plant and Animal Research
- Special Project