

Phoenix Christian High School

SCI200 Biology

Course Scope & Sequence (2010)

COURSE DESCRIPTION

Life is the most intricately designed and wonderful of God's creations. This Biology course is based upon a traditional study of life. Each of these living wonders is credited to God rather than to the chance processes of evolution. A vital part of the study of Biology is the actual student involvement obtained in biology lab, research projects and field investigative trips. God's Truth is integrated into the lesson plans and time is given for prayer.

REQUIRED TEXTS AND *KEY SUPPLEMENTAL MATERIALS

All materials, both lecture and lab related, are teacher generated.

COURSE SCOPE AND SEQUENCE

FIRST SEMESTER

Introduction to Science and Biology 2 Weeks

Key Concepts: Define Science, Scientific Method, Biology and its Branches. Learn to use the Tools of science and to understand standard lab procedures and how to write lab reports. Learn the parts of the metric system applicable to Science.

Biblical Integration: Biology is Defined as the Study of God's Living Creation. All Truth is God's Truth.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Chemistry of Life 2 Weeks

Key Concepts: Nature of Matter, Properties of Water, Carbon Compounds, Chemical Reactions and Enzymes.

Biblical Integration: A Believer is not Only Identified by the Inner Witness of the Holy Spirit, but His/Her Life Should Reflect this just as the Physical and Chemical Properties of Elements Define Them.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Cell Structure And Function 2 Weeks

Key Concepts: Cellular Life, Cell Structures, Movements Through Membrane, Diversity of Cellular Life.

Biblical Integration: The Bible Confirms the Cell Principle When it Declares Throughout Genesis 1 that all Living Things Reproduce After Their Own Kind.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Cell Growth And Division 2 Weeks

Key Concepts: Cell Growth, Cell Division, Cell Cycle.

Biblical Integration: God's Process to Ensure Continuity of Life.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Introduction To Genetics

2 Weeks

Key Concepts: Work of Gregor Mendel, Probability and Punnett Squares, Mendelian Genetics, Meiosis, Linkage and Gene Maps.

Biblical Integration: God Designed His Creation to Conserve Inheritable Characteristics, not to Diffuse Them. Left to Itself, the Living World Obeys this Design, yet God has Allowed Man Some Authority Over the Creation by Permitting Manipulation of the Gene Pool Within Certain Limits.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Human Genome

2 Weeks

Key Concepts: Human Heredity, Chromosomes, and Molecular Genetics.

Biblical Integration: DNA is a Marvelous Molecule in the Glorious Design of Creation by Our All-Wise God. As Christians We Should be Defensive not Over Reactive. DNA Can and Does Change, just as Biological Systems have Changed and do Change. One of the Results of the Fall (Gen 3:17-19) is that Errors (Mutations) Do Occur During DNA Replication and Can Be Transmitted to Future Generations.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Creation/Evolution

3 weeks

Key Concepts: Creation Model, Evolution Model, What is a Bias, How do Both Groups interpret the scientific data?, Darwin and Darwinism, Concept of God setting rules or Man setting rules, Big Bang Theory, Gap Theory, Mutations, Natural Selection, Biblical vs Non-biblical views, Concepts of old and young world., microevolution and macroevolution, Fossil record, Radioactive Dating, Local or Global Flood, Creation Scientists, Pseudo Creation.

Biblical Integration: Genesis 1:1-25,2:7,3:19,22:17, Psalms 104:24, Jeremiah 31:36-36, 33:22, 1Cor. 15:41, Job 26:7, 28:25 and many more!

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

SECOND SEMESTER

Classification, Bacteria And Viruses

2 Weeks

Key Concepts: Order in Diversity, Modern Evolutionary Classification, Kingdoms and Domains, Prokaryotes, Bacteria in Nature, Viruses

Biblical Integration: Pathogenic Agents are on the Rise as Sin Continues to Grow in the World.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Protists

2.5 Weeks

Key Concepts: Kingdom Protista, Animal-like Protists: Protozoans, Plant-like Protists: Unicellular Algae, Plant-like Protists: Red, Brown, and Green Algae, Fungus-like Protists.

Biblical Integration: Life Exists Even at the Microscopic Level and is God Designed.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Fungi 2 Weeks

Key Concepts: Kingdom Fungi, Classification of Fungi, Ecology of Fungi.

Biblical Integration: Fungi are God's Natural Decomposers, Breaking Down Dead, Decaying Matter Thereby Maintaining Homeostasis in the Biosphere.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Plant Diversity, Roots, Stems, And Leaves 2 Weeks

Key Concepts: Plants, Bryophytes, Seedless Vascular Plants, Seed Plants, Angiosperms: Flowering Plants, Specialized Tissues in Plants, Roots, Stems, Leaves, Transport in Plants.

Biblical Integration: Emphasizes the Concreteness of God's Living Creation. Fruit Production is not Only to Perpetuate the Species but also to Provide Food for God's Creatures, Including Man (Deut.20:19-20).

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Sponges And Cnidarians, Worms And Mollusks 3 Weeks

Key Concepts: Animal Kingdom, Sponges, Cnidarians, Flatworms, Roundworms, Annelids, Mollusks

Biblical Integration: The Variety of Invertebrate Life Emphasizes the Design in God's Creation.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Arthropods, Echinoderms, Nonvertebrate Chordates, Fishes, Amphibians 3 Weeks

Key Concepts: Arthropods, Groups of Arthropods, Insects, Echinoderms, Chordates, Fishes, Amphibians.

Biblical Integration: Genesis 1: 20 – 25, Diversity Alone Testifies of a Creator.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Reptiles, Birds, and Mammals 3 Weeks

Key Concepts: Reptiles, Birds, Mammals, Diversity of Mammals, Primates and Human Origins.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Biosphere 2.5 Weeks

Key Concepts: Ecology, Energy Flow, Cycles of Matter.

Biblical Integration: God Holds the Whole Universe Together by His Sovereign Power.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Ecosystems And Communities 2 Weeks

Key Concepts: Climate, Ecosystem, Land Biomes, Aquatic Ecosystems

Biblical Integration: God is a God of Variety and Diversity.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

ALERNATE UNITS

Nervous System, Skeletal, Muscular, And Integumentary Systems 3 Weeks

Key Concepts: Human Body Systems, Nervous System, Divisions of Nervous System, Senses, Drugs and the Nervous System.

Biblical Integration: The Physical Body of the Believer is the Temple of The Holy Spirit, Therefore the Body Should Be Well Cared For and Glorify God.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Circulatory, Respiratory, Digestive, and Excretory Systems 3 Weeks

Key Concepts: Circulatory System, Blood and Lymphatic System, Respiratory System, Food and Nutrition, Process of Digestion, Excretory System.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.

Endocrine And Reproductive Systems, Immune System & Disease 3 Weeks

Key Concepts: Endocrine System, Human Endocrine Glands, Reproductive System, Fertilization and Development, Infectious Disease, Immune System, Immune System Disorders, Cancer.

Assessments: Assignments, Quizzes, Review Sheets, Labs, Chapter Tests.