

Biology

Level: Upper Secondary and Undergrads

Instructor: Afolabi Oladayo Daniel

Course Outline

Module 1: Introduction to Biology

- **Meaning and scope of Biology**
- **Branches of Biology**
- **Characteristics of living things**
- **Importance of Biology in everyday life**

Learning Outcome

Students will understand what Biology is and appreciate its relevance to health, environment, agriculture, and technology.

Module 2: Classification of Living Organisms

- **Living and non-living things**
- **Kingdoms of living organisms**
- **Classification of plants and animals**
- **Scientific naming of organisms**

Learning Outcome

Students will learn how scientists identify, classify, and study living organisms.

Module 3: Cell Structure and Organization

- **The cell as the basic unit of life**
- **Plant and animal cells**
- **Functions of cell organelles**
- **Differences between plant and animal cells**

Learning Outcome

Students will understand how cells function and support life processes.

Module 4: Human Body Systems

- **Skeletal system**

- Muscular system
- Digestive system
- Respiratory system
- Circulatory system

Learning Outcome

Students will understand how major body systems work together to maintain life.

Module 5: Nutrition and Health

- Balanced diet
- Nutrients and their functions
- Malnutrition and deficiency diseases
- Healthy lifestyle practices

Learning Outcome

Students will learn how nutrition influences growth, health, and wellbeing.

Module 6: Reproduction and Growth

- Growth and development in living organisms
- Types of reproduction
- Human reproductive system
- Heredity and inheritance (basic concepts)

Learning Outcome

Students will understand how living organisms reproduce and pass traits to offspring.

Module 7: Ecology and the Environment

- Ecosystems
- Food chains and food webs
- Habitats and adaptation
- Environmental conservation

Learning Outcome

Students will appreciate the relationship between living organisms and their environment.

Module 8: Microorganisms and Disease

- **Types of microorganisms**
- **Beneficial and harmful microorganisms**
- **Causes of diseases**
- **Disease prevention and control**

Learning Outcome

Students will understand the role of microorganisms in health and disease.

Module 9: Introduction to Biotechnology and Modern Biology

- **What is biotechnology?**
- **Applications of Biology in medicine and agriculture**
- **Genetics and modern scientific innovations**
- **Career opportunities in biological sciences**

Learning Outcome

Students will gain exposure to emerging biological technologies and future career pathways.

What Students Will Gain

- ✓ **Strong understanding of biological concepts**
- ✓ **Improved performance in school examinations**
- ✓ **Critical thinking and scientific reasoning skills**
- ✓ **Better understanding of health and wellbeing**
- ✓ **Environmental awareness and responsibility**
- ✓ **Foundation for medicine, nursing, pharmacy, biotechnology, agriculture, and other life science careers**

Instructor Section

Afolabi Oladayo Daniel, B.Tech, M.Tech, PhD (In View)

Biomedical Scientist | Translational Researcher | STEM Educator

Specializing in molecular biology, biochemistry, nanomedicine, and life sciences education.