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JAMB BIOLOGY SYLLABUS 2027

All Topics and Recommended Textbooks

STUDY GUIDE

A structured Biology revision guide for UTME candidates

Topics are arranged under the five broad syllabus areas: Variety of Organisms; Form and Functions; Ecology; Heredity and Variations; and Evolution.

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Important: This is a study guide prepared from syllabus material supplied for editing. It is not an official JAMB publication, and the 2027 syllabus and recommended texts should be checked against JAMB's current official materials before relying on them.

How to Use This Guide

Use this guide as a revision checklist, not as a replacement for your Biology textbook, class notes, or the official JAMB syllabus. Work through one section at a time, practise diagrams and definitions, and answer objective questions after each topic.

- **Read actively:** explain each process in your own words rather than memorising isolated sentences.
- **Practise diagrams:** label biological structures neatly and learn the functions of each part.
- **Compare related concepts:** for example, diffusion and osmosis, mitosis and meiosis, or arteries and veins.
- **Review consistently:** keep a short list of topics you find difficult and revisit it weekly.

Syllabus Aims

Biology preparation generally requires candidates to demonstrate understanding of living organisms, biological structures and processes, relationships between organisms and their environment, inheritance, variation, and evolutionary ideas. Candidates should be able to interpret diagrams, apply biological terms correctly, and use scientific knowledge to explain familiar situations.

Section A: Variety of Organisms

Focus: the diversity of living things, their characteristics, classification, and relationships.

- **Characteristics of living organisms:** nutrition, respiration, movement, growth, excretion, reproduction, sensitivity and related life processes.
- **Cell structure and organisation:** basic plant and animal cell structures, functions of organelles, and levels of organisation from cells to organisms.
- **Classification:** principles of grouping organisms, major groups of plants and animals, and the value of classification.
- **Viruses and microorganisms:** general characteristics, useful and harmful effects, and their roles in health, agriculture and the environment.
- **Adaptation:** structural and behavioural features that help organisms survive in their habitats.

Revision check: Can you identify major cell structures, compare broad organism groups, and explain why classification is useful?

Section B: Form and Functions

Focus: the structures of organisms and how those structures support life processes.

- **Nutrition:** modes of nutrition, photosynthesis, mineral requirements in plants, feeding in animals, digestion and absorption.
- **Transport:** movement of water and minerals in plants; blood, blood vessels, the heart and transport of materials in animals.
- **Respiration:** aerobic and anaerobic respiration, energy release, and the role of respiratory structures.
- **Excretion and homeostasis:** removal of metabolic waste and regulation of internal conditions.
- **Support and movement:** skeletons, muscles, movement in plants, and the relationship between structure and function.
- **Coordination and control:** nervous coordination, sense organs, hormones, and responses to stimuli.
- **Reproduction:** asexual and sexual reproduction, reproductive structures, pollination, fertilisation, development and growth.
- **Growth and development:** stages of growth and factors that influence development in plants and animals.

Revision check: Practise labelled diagrams of the heart, digestive system, selected plant structures, and reproductive organs where required by your class materials.

Section C: Ecology

Focus: how organisms interact with one another and with their physical environment.

- **Habitat and ecosystem:** habitat, population, community, ecosystem, biosphere and ecological niches.
- **Environmental factors:** light, temperature, water, soil, humidity and other factors that affect distribution and survival.
- **Feeding relationships:** food chains, food webs, trophic levels, energy flow and ecological pyramids.
- **Population studies:** population size, density, distribution, growth and factors that regulate populations.
- **Adaptation and competition:** competition, predation, parasitism, mutualism, commensalism and other interactions.
- **Nutrient cycles:** the water, carbon and nitrogen cycles, including the roles of organisms in recycling materials.
- **Ecological succession and conservation:** changes in communities, biodiversity, conservation practices and sustainable use of resources.
- **Pollution and human impact:** causes and effects of air, water and land pollution, deforestation, erosion and habitat loss.

Revision check: Be able to interpret a food web, identify biotic and abiotic factors, and explain how human activity changes ecosystems.

Section D: Heredity and Variations

Focus: inheritance, genetic information, differences among individuals and the causes of variation.

- **Basic genetics:** chromosomes, genes, DNA, alleles, genotype, phenotype and inherited characteristics.
- **Cell division:** mitosis and meiosis, their differences, and their importance in growth, repair and reproduction.
- **Inheritance:** dominant and recessive alleles, simple genetic crosses, and interpretation of basic inheritance patterns.
- **Variation:** continuous and discontinuous variation, inherited and environmental influences, and examples in populations.
- **Sex determination and sex-linked traits:** understand the basic principles and examples covered in the prescribed syllabus and textbooks.
- **Mutation:** gene and chromosome changes, possible causes, and their effects on organisms.

Revision check: Practise simple genetic-cross questions and make sure you can distinguish genotype from phenotype and mitosis from meiosis.

Section E: Evolution

Focus: how populations and living organisms change over generations, and the evidence used to study these changes.

- **Evidence for evolution:** fossils, comparative anatomy, embryology and other evidence presented in your prescribed materials.
- **Variation and natural selection:** how heritable variation and environmental pressures can affect survival and reproduction.
- **Adaptation:** how characteristics that improve survival or reproductive success may become more common over generations.
- **Evolutionary relationships:** similarities and differences among organisms and how these can inform ideas about common ancestry.

- **Human evolution:** study the examples and key concepts specified in the current official syllabus and recommended textbooks.

Revision check: Explain natural selection in clear steps and distinguish evidence for evolution from an individual organism's response to its environment.

Recommended Textbooks

The following titles were included in the syllabus material supplied for this guide. Check the latest official JAMB syllabus for the current recommended list and exact bibliographic details before publication or exam preparation.

No.	Author(s)	Title
1	Ndu, F.O.C.; Ndu, Abun A.; and Aina, J.O.	Senior Secondary School Biology, Books 1–3
2	Odunfa, S.A.	Essential of Biology
3	Ogunniyi, M.B.; Adebisi, A.A.; and Okojie, J.A.	Biology for Senior Secondary Schools, Books 1–3
4	Ramalingam, S.T.	Modern Biology

A Practical Revision Plan

- **Step 1:** Read one topic from the syllabus and your textbook.
- **Step 2:** Write a short summary using key biological terms.
- **Step 3:** Draw and label any important structures or cycles.
- **Step 4:** Answer practice questions without checking the answers first.
- **Step 5:** Review mistakes and revisit weak areas.

Before You Rely on This Guide

JAMB may revise syllabus details or recommended materials. Confirm the current syllabus through the official JAMB e-syllabus portal: https://ibass.jamb.gov.ng/e-syllabus. This PDF is an independently prepared revision guide for Masterjob.com.ng and is not produced or endorsed by JAMB.

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