Immaculate Conception High School

CAPE Biology Unit 1 Course Outline for the Academic Year 2024/2025

Department	Science
Grade Level	12
Title of Course	CAPE Biology Unit 1
Duration	September 2024 – May/June 2025
Description of the Course	Biology is the scientific study of living organisms. The study of this subject leads to an understanding and appreciation of the concepts of life at all levels and hence to a greater respect and reverence for life. The interconnected web of life and the unique role of the human species are integral to the dynamic value of the biosphere. The CAPE Biology course outline prepares students to acquire knowledge about how to protect, sustain, conserve and improve the variety of life in the ecosphere. It also provides a foundation for persons wishing to pursue careers in biological, environmental, agricultural. medical, paramedical and applied science.
Course Prerequisites	Students should have: - ● A good grasp of the CSEC Biology and Chemistry syllabuses and content, or the equivalent. ● Good verbal skills. ● Good written communication skills.
Course Objectives	This course outline aims to: - ● Develop an understanding of the scientific method and the ability to apply it to solving problems, both in academic and non-academic settings. ● Facilitate the development of the ability to communicate scientific information in a logical and structured manner. ● Develop the ability to appraise information critically, identify, patterns, cause and effects, stability and change and evaluate ideas.

	● Develop the ability to work independently and collaboratively with others when necessary. ● Develop the ability to apply biological knowledge and skills on society and relevant Caribbean situations and issues. ● Acknowledge the social and economic implications of biology. ● Integrate information communication and technology (ICT) tools and skills.
Student Learning Outcomes	Students' should perform adequately (75% and over) in the following profiles and should be able to: ***a) Knowledge and Comprehension –*** i. Identify, remember, and grasp the meaning of basic facts, concepts and principles. ii. Select appropriate ideas, match, compare and cite examples of facts, concepts and principles in familiar situations. ***b) Use of Knowledge –*** i. Use facts and apply concepts principles and procedures in familiar and novel situations. ii. Identify and recognize the component parts of a whole and interpret the relationship among those parts. iii. Make necessary and accurate calculations and recognize the limitations and assumptions inherent in the collection and interpretation of data. iv. Combine component parts to form a new and meaningful whole. Make predictions and solve problems. v. Make reasoned judgements and recommendations based on the value of ideas, information and their implications. ***c) Experimental Skills –*** i. Use techniques, apparatus and materials safely and effectively. ii. Set up light microscope for optimum use both under low power and high power. iii. Record observations, measurements, methods and techniques with due regard for precision, accuracy, and units.

	iv. Present data in an appropriate manner, using the accepted convention of recording errors and uncertainties. v. Report accurately and concisely using scientific terminology and conventions as necessary. vi. Make predictions, develop hypotheses and devise means of carrying out investigations to test them. vii. Plan and execute experimental procedures and operations in an appropriate sequence. viii. Take into account possible sources of errors and precaution in the design of an experiment. ix. Select and use appropriate equipment and techniques. x. Make clear, accurate line representations of specimens, with no shading or unnecessary details. xi. Annotate illustrations appropriately and accurately. xii. Calculate the magnification of the illustrations.
Topical Outline of the Course Content	The following topics are what are intended to be covered during the academic year: - Module 1: Cell and Molecular Biology ● Aspects of Biochemistry ● Cells ● Membrane Structure Module 2: Genetics, Variation and Natural Selection ● Enzymes ● Nucleic Acids ● Mitosis ● Meiosis ● Patterns of Inheritance ● Aspects of Genetic Engineering ● Variation and Natural Selection Module 3: Reproductive Biology ● Asexual Reproduction and Vegetative Propagation ● Reproduction in Plants ● Reproduction in Animals

Guidelines/Suggestions for Teaching Methods and Student Learning Activities	● Lectures: Provide contextual background and detailed analysis of each topic. ● Group Discussions: Facilitate discussions on primary source documents and historical interpretations. ● Field Trips: Visits to local museums or historical sites, where applicable. ● Differentiated Instruction: Tailoring instruction to meet the needs, strengths, and interests of each student. ● Peer Teaching: Students teach their peers, which can reinforce their own learning and enhance their understanding. ● Socratic Method: Teaching by asking thought-provoking questions to challenge assumptions and encourage critical thinking.
Guidelines/Suggestions for Methods of Student Evaluation	● Quizzes and Tests: Regular assessments to check understanding of key concepts. ● Classwork: Assignments completed during class that help monitor ongoing student progress and understanding. ● Class Participation: Assessment based on engagement in discussions and activities. ● Presentations: Students present their research findings to the class. ● Group Projects: Team assignments that assess collaborative and interpersonal skills along with individual contributions. ● Reflections: Written insights by students on their learning experiences, often discussing what they learned and areas for improvement. ● Online Quizzes and Exams: Digital tests that make use of technology to assess students' understanding in a more flexible or remote setting. ● Final Exam: A comprehensive exam covering all course material.
Suggested Readings, Text, Objects of study	● Biological Science 1 & 2 by R. Soper, D. J. Taylor, N. P. O. Green, G. W. Stout ● CAPE Biology Syllabus

Additional Readings	• Biology Unit 1 by Cambridge University Press • Biology Unit 1 for CAPE by Richard Fosbery, Stuart LaPlace, Lorna McPherson (OXFORD University Press)
Bibliography of Supportive Texts and Other Materials	• *Caribbean Examinations Council: CAPE Biology Syllabus by Macmillan Publishers Limited* • *Course Outline Template by Natalie Bailey* • *Immaculate Conception High School Book List: Science Department*

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