



Course Descriptor BIOL 101 & Biology - I

Proposed Academic Year	2021-22	Last Reviewed Academic Year	2020-21
Course Code	BIOL 101	Course Title	Biology - I
Credit hours	3	Level of study	Diploma/ Undergraduate
College / Centre	CAHS	Department	Basic Sciences
Co-requisites	BIOL181	Pre-requisites	-

1. COURSE OUTLINE

[This course gives an introduction to Biology and explores the nature of cells from prokaryote to eukaryotes. Biology is the study of different life forms and their interconnectedness with all other life forms. It also provides students the opportunities to learn about the processes of all living things. Biologists contribute to medical and biotechnological advances. Studying Biology gives the students an awareness of the ecological issues and develop more sustainable ways of using our natural resources e.g. soil, land, or water. The study of biology forms a firm foundation for all the other related courses including Food Science, Human Nutrition, Biomedical Science etc. that are relevant to the students of the College of Applied Sciences.]

2. AIMS

[This course lays a strong foundation on the basic principles of Biology, Anatomy and Physiology, Microbiology, Food Science and Human Nutrition. Studying Biology gives students learn to become good decision makers about their own health and other significant biological issues such as the use of antibiotics and the eradication of invasive species. Biology helps students to recognize the global importance of agriculture and horticulture and become potential contributors of the future.]

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS

Learning Outcomes (Definitive)	Teaching and Learning methods (Indicative)	Assessment (Indicative)
Upon successful completion of this course, students will be able to:		
1. Discuss biodiversity and characteristics of living organisms and describe the basic concepts of Biology.	Lectures and presentations	Class tests and Quizzes
2. Describe the structure and function of cells and tissues	Presentations and Demonstrations and Assignment, etc	Self-reflective journal
3. Outline the general metabolic processes used	Lectures and presentations	Class Presentation, Written Examination



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by the cell to generate cellular energy from food substances and the cell cycle.		
4. Develop an understanding of the essential knowledge and underlying concepts of biology, and acquire practical skills needed to utilize in new and challenging situations.	Lectures and presentations	Quiz and Written Examination
Analyse and apply the knowledge of Biotechnology and other applied branches of biology and appreciate their values for human welfare in today's world	Lectures and presentations and Assignments	Assignments and Written Examination

4. ASSESSMENT WEIGHTING

Assessment	Percentage of final mark (%)
Quizzes (Two)	20
Assignment/ Homework	20
Mid-Term Examination	20
Final Examination	40
TOTAL	100%

5. ACHIEVING A PASS

Students will achieve **3** credit hours for this course by passing **ALL** of the course assessments [*alternatively, list the compulsory pass assessments**] and achieving a **minimum overall score of 50%**

NB *Ensure that ALL learning outcomes are taken into account

6. Course Content:

Week	Lecture Topics	Learning outcomes
1	Introduction to the course: (aims of the course, textbooks, and exam),	1
	Characteristics of living things, Branches of biology	
2	Biodiversity and classification: Diversity of living organisms: Classification of living things, Binomial nomenclature	1



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Week	Lecture Topics	Learning outcomes
	Basic features of the modern classification of living organisms.	
3	Cell: the fundamental unit of life, Cell theory, Types of cells; Structure and functions of cell organelles	2
4	Structure of prokaryotic cell Prokaryotic and Eukaryotic cells, Differences between Prokaryotic and Eukaryotic cells	2
	Differences between plant and animal cells	2
5	Cell division : Cell cycle, Types and Phases of cell division: mitosis, meiosis and cloning	3
6	Cell division (continued): Meiosis	3
	Differences between Mitosis and Meiosis	3
7	Revision & Mid Term Exam	3
8	Cellular Metabolism & Energy metabolism	3
	Aerobic Respiration and Anaerobic respiration	
9	Introduction to Plant and Animal tissues. Types of Plant Tissues: Meristematic and Permanent Tissues-Simple and Complex tissues.	2
	Types of body tissues: Epithelial tissue, Connective tissue, Muscle tissue and Nervous tissue.	
10	Reproduction, Importance, Types of reproduction: Asexual and Sexual methods of reproduction in Plants	4
	Asexual and Sexual methods of reproduction in Animals	
11	Genetics- heredity and variation Mendel's experiments	4
	Behavior of Chromosomes, Molecular basis of heredity-DNA and RNA	
12	Basics of Biotechnology: Definition and Principles of Biotechnology Recombinant DNA technology ,	3
	Tools for Genetic engineering: Restriction enzymes and Vectors/Plasmids	
13	Introduction to applications of Biotechnology:	5
	Applications of Biotechnology in Agriculture, Medicine and Food industries.	
14	Applied Biology: Basics of Agriculture, Animal Husbandry	5
	Livestock management, Dairy technology	
15	Aquaculture and Fish farming, Fungi culture (Mushroom culture) and Apiculture.	5



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Week	Lecture Topics	Learning outcomes
16	Revision	
17	Final Exam	
1-15	RECOMMENDED INDEPENDENT STUDY HOURS	15
	TOTAL COURSE HOURS (47+15)	72

7. RECOMMENDED REFERENCES

Core text/s:

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Neil A. Campbell and Jane B. Reece. Biology 11th Edition. Benjamin Cummings. (3rd.ed (0-582-29420-7)

Additional resources:

ASU's Manual of Biology I

Library + online resources:

<http://www.bioedonline.org/>

Open Educational Resources:

[MOOC/Khan Academy/edX](#)



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