Course Descriptor
BIOL181 & Biology-I Lab

Proposed Academic Year	2021-22	**Last Reviewed Academic Year**	2020-2021
Course Code	**BIOL181**	**Course Title**	**Biology-I Lab**
Credit hours	1	**Level of study**	Diploma/Bachelor
College / Centre	CAHS	**Department**	Basic Sciences
Co-requisites	BIOL 101	**Pre-requisites**	-

1. COURSE OUTLINE

This course provides an opportunity to explore the nature of cells, from prokaryote to eukaryotes. Biology 1 Laboratory offers a variety of laboratory exercises on current concepts in cell and molecular biology using research-grade scientific equipment. Different teaching techniques, materials and instruments will be employed to provoke student's interest to enrich their understanding about the basic concepts and principles in cell and molecular biology. Numerous laboratory methods will be utilized in demonstrations and student experiments. Students will exercise critical thinking for interpreting laboratory results.

2. AIMS

[This course aims at providing students with hand-on experience in bench work on basic cell biology and molecular biology. The course will stress the acquisition of experimental skills and techniques that are needed for modern technologies used in the two related fields. The main objective of the course is to allow the students to consolidate the principles taught in the lectures of biology. At the end of the course, the students should feel comfortable to work with the equipment's and tools in the biology laboratory and perform experiments independently.

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS

Learning Outcomes ***(Definitive)*** Upon successful completion of this course, students will be able to**:**	**Teaching and Learning methods** ***(Indicative)***	**Assessment** ***(Indicative)***
1. Recognize the need for following safety precautions in the biology laboratory.	Lecture, presentations and lab work	in-class tests, quizzes
2. Identify different types of animal and plant tissues under the microscope.	Lecture, presentations and lab work	Quiz and written examination

3.	Describe the detailed structure of plant and animal cells.	Lecture, presentations and lab work	in-class tests, quizzes
4.	Distinguish among hypertonic, hypotonic, and isotonic solutions and observe the changes in the cells during respiration and reproduction of yeast.	Lecture, presentations and lab work	in-class tests, quizzes
5	Follow the steps taken to isolate DNA from plant tissues.	Lecture, presentations and lab work	Quiz and written examination

4. ASSESSMENT WEIGHTING

Assessment	Percentage of final mark (%)
Quizzes (Two)	20
Lab reports	20
Mid-Term Examination	20
Final Examination	40
TOTAL	**100%**

5. ACHIEVING A PASS

Students will achieve 1 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 (Indicative)

WEEK	LECTURE TOPIC	Learning outcome
1	Introduction to the course: (aims of the course, textbooks, and exam),	1
		1
2	Laboratory Safety	1
3	Care and use of a Light Microscope	2
4	Focusing a Light Microscope	2
5	Looking at a plant and an animal cell	2,3
6	Plant tissues	3
	Midterm exam	

7	Animal tissues	3
8	Microscopic characteristics of bacteria, protozoa, algae and fungi	3
9	Microscopic examination of cell division (Mitosis)	3
10	Investigating Plasmolysis in plant cells	3
12	Reproduction and Respiration in yeast	4
13	Extraction and separation of DNA	5
	Revision	
15	Final Examination	
	TOTAL HOURS	**45**
1 - 15	Plus **RECOMMENDED INDEPENDENT STUDY HOURS**	**15**
	TOTAL COURSE HOURS	**60**

7. RECOMMENDED REFERENCES

Core text/s:

1. A' Sharqiyah University Biology Lab Manual.
2. Michael R. Green, Joseph Sambrook, Molecular Cloning: A Laboratory Manual, 4th edition, Publisher: Cold Spring Harbor Laboratory Press ISBN 978-1-936113-42-2

Library + online resources:

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http://www.bioedonline.org/

Open Educational Resources:

Khan Academy/ edX/MOOC