

COURSE COMPACT

College: CSE

Department: Biological Sciences

Programme: Microbiology

Course Code: BLY 213

Units: 2

Course Title: Basic Biological Techniques

Course Lecturer: Mr O. I. Adejobi, Mrs. T.A. Adelani-Akande

Semester: Alpha

Time of Lecture: Mondays 3- 6pm

Location: Biology Lab

Brief Overview

A. Course Objective/ Goals

Students should be able to:

- a. Describe the functions of various parts of the microscope.
- b. Prepare temporary and permanent slides of tissues.
- c. Prepare solutions of given molarity and dilute as appropriate.
- d. Calibrate and operate a pH meter.
- e. Explain the principles of colorimetric methods.
- f. Determine concentration of a test sample using the spectrophotometer.
- g. Explain the principle behind the functioning of a flame photometer.
- h. Mention various types of chromatographic techniques and their applications.
- i. Explain how the electrophoretic machine works and the principle behind its functioning.
- j. Mention various materials used in the microbiology laboratory and their functions.
- k. Explain the principles behind conductometry and centrifugation.

B. Method of Lecture Delivery / Teaching

Lectures

Practical sessions

C. Course Outline

Module	Title	Aim and Objectives
1	General introduction and slide preparation	Students will be introduced to: a. The scope of this course and basic requirements. b. The use of microtome. c. Dehydration, embedding, staining and other processes require in preparing a tissue for examination under the microscope.
2	Solutions and dilutions	To expose students to: a. Procedures for preparing standard solutions. b. Terms such as molarity, normality and dilutions.
4	pH determination	To enlighten students on: a. Various methods of measuring pH. b. The components of a pH meter and how they function.
5	Colorimetry and spectrophotometry	To examine in details: a. How colorimetry can be used in pH determination. b. The similarities and difference between a colorimeter and spectrophotometer. c. The principle behind the use of both photometers.
6	Flame photometry	To broaden the understanding of students on : a. The unique roles of volatilization of sample and excitation in photometry. b. Analyzing elements in a solution using a flame photometer.
7	Chromatography	To expose students to: a. The classification of chromatographic techniques. b. How to run paper chromatography
8	Electrophoresis	To enlighten students on: a. The general principles behind electrophoresis. b. Different types of electrophoresis and their applications.
9	Microbiological techniques	To introduce students to: a. Materials and equipment used in the microbiology laboratory. b. Basic techniques used in microbiology.

10	Conductometry	To broaden the understanding of students on : a. The theoretical principles in conductometry. b. Factors that can contribute to conductance of a solution.
11	Centrifugation	To enlighten students on: a. Basic components of a centrifuge. b. The basic theory of sedimentation

Note: Each module will last for a week except for modules 4 and 6 that will last for two weeks each.

D. Tutorials : This will be given as required by the class.

E. Structure of Programme/ Method of Grading

Fourteen (14) weeks of lecture

Continuous assessment: 30%

Alpha semester exams: 70%

F. Ground Rules and Regulation

1. University requirements for attendance would be strictly followed.
2. Rules guiding the use of the laboratory should be adhered to.
3. Students should comport themselves as royalties during lectures.
4. Lateness to lectures will not be tolerated.

G. Topic for Term Paper/ Assignment

Each student will be required to make a presentation before the semester ends.

H. Alignment with Goals and Vision of Landmark University

This course will engage the minds of students in productive thinking as they are unravel the “mystery” behind each biological technique. They will be challenged to improve on these techniques or develop better procedures and equipment to accomplish same task in more efficient ways; thus becoming solution providers.

I. Contemporary Issues / Industry Relevance

The performance of a graduate on the job can be judged by his/her practical know-how. This course exposes students to various techniques carried out in the biology laboratory as well as the equipment employed and the biological principle behind their use thus positioning students for optimum performance on the job.

J. Recommended Reading

1. Principles of Biological Techniques, S.O. Owa. 2012. Palace Publication & Press.
2. Biochemical Methods of Analysis: Theory and Applications. 2010. Saroj Dua and Neera Garg. Alpha Science International Ltd., UK.