

SAMUEL ADEGBOYEGA UNIVERSITY, OGWA, EDO STATE
COLLEGE OF BASIC AND APPLIED SCIENCES
DEPARTMENT OF BIOLOGICAL SCIENCES



Course Code: MCB 223

Course Title: Microbiological Techniques

No. of Units: 2

Course Duration: Two hours of theory lecture for 14 weeks and
Three hours of practical for 8 weeks

Lecture Hours: Wednesdays 8:00am – 10:00am for Theory class and
Tuesdays 2:00pm – 5:00pm for practical class

Status: Compulsory

Prerequisite: MCB 121

COURSE LECTURER

Enerijiofi, K. E., Ph. D (MNSM, MASM)

Room A106,

College of Basic and Applied Sciences Building,

Samuel Adegboyega University, Ogwa, Edo State, Nigeria.

Office Hours: Mondays: 12:00 – 2: 00pm; Wednesdays: 10:00am – 12:00noon

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COURSE DESCRIPTION

This course exposes students to the real practical microbiology. It entails the study of Tools and techniques used in the study of microorganisms in microbiology. Microscopy as well as Dye and staining techniques. The different Culture media, formulation and methods of preparations. Sterilization and pure culture techniques in addition to maintenance and preservation of the pure cultures. The study and applications of laboratory techniques such as Centrifugation, electrophoresis, filtration, spectroscopy and Atomic absorption spectrophotometer will be examined. Identification of bacteria and fungi using conventional and modern methods will be looked into as well as scientific writing which entails the method of writing scientific findings for onward communication to readers all over.

COURSE OBJECTIVES

The objectives of this course are to:

- introduce students to the various tools and techniques used in the study of microorganisms;
- explain the importance of microscope, dye and staining in microbial study;
- enable students know the composition and rationale for using a particular culture medium.
- introduce students to the different conventional and modern methods of bacterial and fungal identification and

- teach students the art of communicating laboratory findings for easy understanding by readers.

COURSE LEARNING OUTCOMES

At the end of the course, students will be able to:

- identify the tools and techniques as well as the condition for using a particular technique for studying a certain group of microorganism;
- draw, fully label, know the functions and use a microscope as well as different dyes for effective of a pure isolated colony;
- know the composition and prepare different culture media to grow different microorganisms.
- prepare pure isolates using streak, pour and spread plate technique as well as identify them using cultural, morphological as well as biochemical characteristics and
- report laboratory findings in its standard scientific form to the outside community.

GENERAL INSTRUCTIONS

The instructions below are well spelt out on the first day of the course lecture for the students understanding

- 1. Attendance:** It is expected that every student will be in class for lectures. In the case absence due to illness or unforeseen circumstances, the student must communicate as soon as possible to the course lecturer with a cogent reason, otherwise the student is assumed absent from lectures.
- 2. Code of Conduct in Lecture Rooms:** Students are expected to put off their cell phones during lectures. Food and drinks are not allowed.
- 3. Academic Integrity:** No violations of any kind is allowed. These include but not limited to dishonesty in assignments, examinations and or plagiarism. All cases of academic dishonesty will be reported to the University Management for appropriate sanctions in accordance with the guidelines as detailed in the Students' Handbook.
- 4. Assignments and Group Work:** Students do assignments and submit as agreed with the course Lecturer. However, failure to submit assignment as at when due will be recorded as zero, but in cases of earlier information for late submission, such assignments will be accepted and graded. The group work takes the form of seminar presentations by students with power points on chosen topics and thereafter submit report for grading and recording.

COURSE ASSESSMENT:

Attendance.....	5%
Mid-Semester Test	15%
Assignment / Group Work	10%
Examination	70%
Total.....	100%

COURSE OUTLINES

WEEK	TOPIC
1	Tools and techniques used in microbiology
2	Microscopy
3	Dye and staining techniques
4	Culture media and their preparation
5	Sterilization and pure culture techniques
6	Maintenance and preservation of cultures
7	Mid semester Test
8	Centrifugation
9	Electrophoresis
10	Filtration
11	Spectroscopy
12	Atomic absorption spectrophotometer
13	Identification of bacteria and fungi
14	Scientific writing.

READING LISTS

1. Wiley, J. M., Sherwood, L. M. and Woolverton, C. J. (2008). Prescott, Harley and Klein's Microbiology 8th Edition. McGraw-Hill International USA
2. Cheesbrough, M. (2004). District Laboratory Practice in Tropical Countries. Part 2. Cambridge University Press, United Kingdom. 434pp.