



MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF PUBLIC HEALTH, BIOMEDICAL SCIENCE AND TECHNOLOGY

COURSE OUTLINE

Department: Medical Laboratory Science and Technology
 Program: Medical Biotechnology

Course code: BMB 311 Course Title: MOLECULAR GENETICS
 Year of Study: Three Semester One Academic Year 2018/2019
Date: October 2018 -January 2019

1. Introduction

This course provides an understanding of molecular genetics.

2. Course Purpose

This course aims at enabling the learner to understand the current trends and controversial issues emanating from in the practice of medical biotechnology.

3. Learning outcomes

By the end of the course the learner will be able to:

1. Describe the DNA structure
2. Discuss human genome.
3. State and explain gene expression.
4. Describe genes and the environment

4. Rationale

There is a rapid technological advancement in medical biotechnology with the advent of many controversial practices. This course serves to equip the learner with knowledge on the contemporary issues in medical biotechnology.

TEACHING-LEARNING STRATEGIES

Overview Lectures
 Group work and presentations
 Small-group Tutorial Discussions
 Individual reading assignments
 Self-directed Learning

5. Topic Outline

Week	Topic	Activities
1	DNA: The Genetic Material; Experimental proof and the genetic function of DNA	Lectures, Group work
2	DNA structure: The Double Helix	Lectures, discussions, practicals
3	An overview of DNA Replication	Lectures, discussions
4	Genes and Proteins: Inborn errors of metabolism as a cause of Hereditary disease mutant genes and defective proteins	Lectures, discussions
5	CAT ONE	CAT
6	Gene Expression: The Central Dogma; Transcription, Translation, The Genetic code	Group work, lectures, discussion.
7	Mutations	Lectures, discussions, practicals
8	Protein folding and stability	Lectures, discussions
9	CAT TWO	CAT
10	Genes and Environment	Lectures, discussions
11	Evolution: From genes to genomes, from proteins to proteome. The molecular unity of life, natural selection and diversity.	Lectures, discussions

12	Recombinant DNA Technology	Lectures, discussions
13	Revision	
14	CAT THREE	CAT
15	End of Semester Examinations	Exams
16	End of Semester Examinations	Exams

6. Course Requirements

a) Attendance

Attendance of lectures and other scheduled classes/practical/laboratory sessions is mandatory for all students. Any absence will prohibit the student from taking CAT and examinations.

b) Methods of Assessment (For university wide courses; CATs 40%, Exam 60%)

7. Continuous Assessment Tests (CATs):

Written CAT (At least 3 CATs, one of which has to be a sit-in) 20%

Practical CAT (Can be sit-in or practical marked reports) 20%

Final Examination (Written) 60%

Pass Mark 50%

8. Instructional Resources

- Mader, S. S. (2004). Biology. Eighth edition. Boston: McGraw-Hill. Higher
- Leland H. & Ricki . (2003). Ethics and Biotechnology
- Ringo J. (2004). Fundamental Genetics. Cambridge University Press.

9. Signing and Approval

Prepared by Course Lecturer:

Name: Dr. Nathan Shaviya Sign.....Date.....

Contacts: Email: nshaviya@mmust.ac.ke Phone: 0723700008

Issued by Curriculum Coordinator:

Name: Dr. Mustafa Barasa Sign.....Date.....

Approved by COD:

Name: Fidelis Mambo Sign.....Date.....