LEAD CITY UNIVERSITY, IBADAN

Faculty of Sciences

Department of Microbiology/Biology

COURSE PARTICULARS

Course code: BIO 415
Course title: Molecular Biology II
No. of Units: 3
Status: Required

LECTURER DETAILS

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COURSE DESCRIPTION

The structure, conformation and properties of proteins, with special reference to X-ray crystallography and other physical techniques. Polysaccharides, glycoprotein cell wall structures e.t.c. and biological macromolecules. Structure and properties of DNA and RNA.

COURSE OBJECTIVES

To enable students understand the various structures and functions of macromolecules and proteins

ASSESSMENT

Coursework and attendance	40marks
Final Examination	60marks

LECTURE PLAN

Weeks 1 - 3:	Storage polysaccharides
Week 4 - 6:	Structural polysaccharides
Week 7 & 8:	Mucopolysaccharides, Chitin, Keratin sulphate, heparins, hyaluronic acids and chondroitin sulphate, glycoproteins.
Week 9 & 10:	Lipids and bacterial cell wall
Week 11 & 12:	Structure and properties of DNA
Week 13 & 14:	Structure and properties of RNA
Week 15:	Revision

READING LIST

Lehninger, principle of Biochemistry by David L. Nelson and Micheal .M.Cox. (4th edition). Principles of Biochemistry by Horton, Moran, Scrigeour, Perry and Rawn (4th edition) Harper's illustrated Biochemistry by Robert, Darl, Peter, and Victor (twenty-sixty edition). Gareth and Grishan Biochemistry (2nd edition).

TUTORIAL QUESTIONS

SECTION A

1. Describe the chemical nature of cellulose and explain the biological importance .

2 .Write a comprehensive essay on Sugar isomerism .

3. Write short notes on three of the following

a. Chitin b. Heparins c. Hyaluronic acid d. Dextran

4. Write short notes on a) gram positive bacterial cell wall b) Glycogen

SECTION B

1. (a) What are proteins.

   (b) Discuss the different methods in the study of structure of proteins.

2. Briefly describe the replication of DNA using appropriate model.

3a. Describe the structure of lipid bilayer in human cell

b. What role do lipoproteins play in lipid metabolism.

4a.. Trace the origin of how biomolecule synthesis first arose.

b. Describe how abiotic production of biomolecules have been made possible using illustrated experiments.

SECTION C

1. Describe in detail, the structure and properties of DNA
2. Describe in detail, the structure and properties of RNA
3. Write short notes on the following:
   a) Mitochondrial DNA
   b) Nucleosides
   c) Nucleotides