

SEMESTER 2nd
MULTIDISCIPLINARY COURSE

BCH022I: BIOCHEMISTRY (INTRODUCTION TO BIOCHEMISTRY)

CREDITS: 03

Course Objective:

The objective of the course is to introduce the subject of Biochemistry including biomolecules and water as a universal solvent, to students.

Course Learning Outcomes:

At the end of the course students will have:

- gained the knowledge regarding structure and function of carbohydrates, protein, RNA, DNA and lipids
- known how structure of a biomolecule determines its biochemical properties
- understood biochemical foundations of life
- known biological significance of each biomolecule

Unit I:

Definition, Scope & significance of Biochemistry. Cellular basis of life (eukaryotic and prokaryotic)

Carbohydrates: Definition, classification and functions; Monosaccharides, Disaccharides, Polysaccharides, Homo- and Heteropolysaccharides. Hyper- and hypoglycemia

Unit II:

Amino Acids and Proteins: Definition, structure and function of amino Acids. Classification of Amino Acids- Aliphatic, Aromatic, Acidic, Basic, Essential and Non-essential Amino Acids

Primary, secondary, tertiary and quaternary structure of Proteins, Protein energy malnutrition

Unit III:

Lipids: Definition and classification- Fatty acids, Triglycerols and Phospholipids. Significance of lipids as energy stores of body. Cholesterol and its function.

Nucleic acids: Ribose and De-oxyrribose sugars, Nucleosides, Nucleotides, Nucleic acids (DNA and RNA) as genetic material

Books recommended:

1. Biochemistry by Dr U Satyanarayan
2. Lehninger, Principles of Biochemistry (2013) 6th ed., Nelson, D.L. and Cox, M.M., W.H. Freeman and Company (New York).