



Code	Subject Title	Cr. Hrs	Semester
CHEM-311	Bio Chemistry	4	V
Year	Discipline		
3	Chemistry-I, II		

SYLLABUS OUTLINE:

1. Introductory Biochemistry:

Scope of Biochemistry. The molecular logic of life. Structure and Functions of Cells. Cell wall Composition. A brief description on the isolation of cellular components.

2. Water:

Weak interactions in aqueous system. Ionization of water. Weak acids and weak bases. pH and buffer systems. Different buffering agents. Importance of buffers in biological systems.

3. Carbohydrates:

Nature, Structure and Classification of Carbohydrates. Aldoses and Ketoses Cyclic structure of monosaccharides Hawarth configurations, D and L configuration of monosaccharides, Optical isomerism and Mutarotation in glucose. Formation of Glycosidic bonds. Reducing and non reducing sugars. Important monosaccharide and their derivatives. Invert sugars. Biological significance of Glucose. Structures and functions of common Disaccharides and Polysaccharides: Succrose, Lactose, Maltose Amylose and Amylopectins. , Cellulose, Chitin, Glycogen, Starch and Dextran. Derived carbohydrates and hexose derivatives present in microorganisms. Sensory properties of monosaccharides. Proteoglycan and glycoproteins: their Structure and function. Hyluronic acid Chondroitin Sulphate and related compounds.

4. Nucleic acids:

Purines, Pyrimidines and nucleotides. Structure and functions of DNA, different type of RNA. Nucleic acid hydrolysis. Determination of Primary structure of Nucleic acids. Chemical synthesis of oligonucleotides.

RECOMMENDED BOOKS:

1. Principles of Biochemistry by Lehninger AL, Nelson DL and Cox MN, 2000 Pub: worth Publishers
2. Biochemistry by Lubert Stryer 2006 Pub: Freeman and Company
3. Biochemistry by Voet, and Pratt, 2004, John wiley and sons Inc.
4. Lippincott's Biochemistry by Champe.P C; Harvey. R. A and Ferrier. D. R. 3rd ed., 2004 Pub: J. b. Lippincott Company
5. Harpers Biochemistry, 27th ed. 2006 Pub: McGraw Hill Inc.