

1.	Title of the Course	Biomolecules and Chemical Biology
2.	Course Number	CY6202
3.	Status of the Course	Core
4.	Structure of Credits	3-0-0-3
5.	Offered To	PG
6.	New Course/Modification to	New
7.	To be Offered by	Department of Chemistry
8.	To take effect from	July 2020
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	Course Objective: To impart knowledge on the complicated and diverse structures of biological molecules. To entice students with their varied cellular functionality and with the molecular basis of drug action in body.	
12.	Course Content: General introduction including structural aspects of peptides/proteins, carbohydrates and nucleic acids and their biological importance; Transcription, translation and post-translational modifications; Protein folding & structures; Biomolecular Interactions: nature, energetics and dynamics; Hydrophobicity, organized assemblies and supramolecular structures; Enzyme Catalysis and Kinetics; Enzyme chemistry including the role of co-enzyme: proteases, phosphatases, oxidases and reductases; Proteins as drug targets & drug design; Nucleic acid chemistry: Quadruplex nucleic acids; Nucleic acids based enzymes: ribozymes, DNA enzymes and riboswitches; Nucleic acid based therapeutic strategies and drug targeting; DNA damage and repair.	
13.	Text book(s): 1. Lehninger A, Nelson D L, and Cox M M, <i>Principles of Biochemistry</i> , W.H Freeman (2008). 2. Miller A, and Tanner J, <i>Essentials Of Chemical Biology: Structure and Dynamics of Biological Macromolecules</i> , Wiley (2002).	
14.	Reference(s): 1. Blackburn G M, Gait M J, Loakes D and Williams D M, <i>Nucleic Acids in Chemistry and Biology</i> , RSC Publishing (2006). 2. Dobson C M, Gerrard J A and Pratt A J, <i>Foundations of Chemical Biology</i> , Oxford University Press (2002). 3. Schreiber S L, Kapoor T and Wess G, <i>Chemical Biology: From Small Molecules to Systems Biology and Drug Design, Vol. 1-3</i> , Wiley-VCH, Verlag GmbH & Co. KGaA (2007). 4. Waldmann H, and Janning P, <i>Chemical Biology: Learning Through Case Studies</i> , Wiley-VCH, Weinheim (2009).	