

<b>LS 450A                      Biophysics and Structural Biology                      2 Credits</b> Name of the Faculty: Prof. S. Gourinath*, Prof. A.K. Saxena, Dr. Karunakar kar		
S. No.	Topic	Faculty Name/ Contact Hours
1	Introduction, Interaction in biology systems	SGN/1
2	Structure of Biomolecules and confirmations of protein and nucleic acids	SGN/2
3	Motifs, Domains, tertiary, quaternary and supramolecular structures of proteins	SGN/4
4	Primary and secondary structure of RNA and DNA	SGN/2
5	Method of conformational analysis and prediction of Conformation	SGN/2
6	Ultra-centrifugation, Sedimentation velocity and equilibrium-determination of molecular weights	KK/1
7	UV Visible Spectroscopy, Fluorescence Spectroscopy, Forster resonance energy transfer (FRET)	KK/3
8	Protein stability and folding, techniques for confirming native structure	KK/1+1
9	Nuclear Magnetic Resonance (NMR)	KK/1+1
10	Electron microscopy (SEM, TEM, Cryo-EM)	AKS/2
11	Circular Dichroism Spectroscopy	AKS/2
12	Crystallization, Crystal lattices, Symmetry, Space group, Bragg's law in real & reciprocal space	AKS/4

**Suggested reading:**

1. Biophysical Chemistry by Cantor & P Schimmel Vol I & II
2. Physical Biochemistry by David I Freifelder
3. Proteins: Structures and Molecular Properties by TE Creighton