

Core Course

LS 455 – BIOPHYSICS AND STRUCTURAL BIOLOGY [2 credits]

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S No	Topic	Contact Hours
1.	Introduction, Interaction in biology systems	
2.	Structure of Biomolecules: and confirmations of protein and nucleic acids	
3.	Secondary, tertiary and quaternary structure of protein	
4.	Primary and secondary structure of RNA and DNA	
5.	Method of conformational analysis and prediction of conformation	
6.	Thermodynamics and kinetics of conformational transition of proteins	
7.	Protein folding, techniques for studying Macromolecular structure	
8.	Ultra centrifugation Sedimentation velocity and equilibrium-determination of molecular weights	
9.	Electron microscopy	
10.	UV Visible Spectroscopy, Fluorescence Spectroscopy	
11.	Circular Dichroism Spectroscopy	
12.	Symmetry, space group crystal lattices, brag's law in real & reciprocal space	
13.	Nuclear Magnetic Resonance	

Suggested reading:

1. Biophysical Chemistry by Cantor & P. Schimmel. Vol. I & II
2. Physical Biochemistry by David I Reifelder
3. Protein: Structure 7 molecular Properties by TE Creighton