FUNDAMENTALS OF PROTEIN CHEMISTRY

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Department of CHEMISTRY
IIT KGP

TYPE OF COURSE : New | Core | UG/PG
COURSE DURATION : 12 Weeks (26-Jul' 21 - 15-Oct' 21)
EXAM DATE : 24 Oct 2021

PRE-REQUISITES : Biochemistry
INTENDED AUDIENCE : Undergraduate and Graduate students

COURSE OUTLINE :
The course provides an in-depth study into protein structure and function. Building up from an understanding of amino acids and the peptide bond that form the basics of protein structure, protein folding and denaturation will be studied followed by the techniques used for protein isolation and characterization. The importance of metalloproteins and motor proteins will be followed by a discussion on membrane proteins and transport.

ABOUT INSTRUCTOR :
Professor Swagata Dasgupta completed her B.Sc. (Hons) in Chemistry from Presidency College, Kolkata and her M.Sc. from IIT Kanpur. After a Post M.Sc. in Bioscience she obtained her Ph.D. from Rensselaer Polytechnic Institute, USA. She then joined IIT Kharagpur and initiated research in Protein Chemistry in the Department of Chemistry at IIT Kharagpur. Her areas of interest are protein–protein and protein-small molecule interactions and protein structure analyses. Professor Swagata Dasgupta has contributed to teaching and research at IIT Kharagpur for the past 25 years.

COURSE PLAN :
Week 1: Amino acids and the Peptide Bond
Week 2: Protein Architecture
Week 3: Protein Folding and Denaturation
Week 4: Protein isolation and characterization
Week 5: Protein-ligand interactions
Week 6: Membrane Proteins and Transport
Week 7: Enzymes and Enzyme mechanisms
Week 8: Enzyme kinetics and Enzyme inhibition
Week 9: Metalloproteins and Motor Proteins
Week 10: Protein-Protein interactions
Week 11: Protein Structure analysis
Week 12: Special Topics in Protein Chemistry