



EXPERIMENTAL BIOCHEMISTRY

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TYPE OF COURSE : New | Core | UG
INTENDED AUDIENCE : Chemistry, Biochemistry
PRE-REQUISITES : Biochemistry desirable

COURSE DURATION : 12 weeks (28 Jan'19 - 19 Apr'19)

EXAM DATE : 28 April 2019

INDUSTRIES APPLICABLE TO : Biotech & Pharma companies

COURSE OUTLINE :

For undergraduate students in the discipline of biochemistry, molecular biology, chemistry and other related biological sciences, the biochemistry laboratory course has become an integral part. It is necessary for students to acquire skills in working with biomolecules in the laboratory. This course is designed to train students with the basic biochemistry laboratory techniques and also introduce some higher level concepts that will prepare them for future research and development projects. The course outline is given for each week. We will introduce each topic and give an overview of the topic and underlying theory. This will be followed by actual demonstration of the experiment. Weekly assignments will be provided and graded.

ABOUT INSTRUCTOR :

Swagata Dasgupta did her B.Sc. (Hons) from Presidency College, Calcutta, M.Sc. from IIT Kanpur and Ph.D. from Rensselaer Polytechnic Institute, USA. Her research interests in Protein Chemistry encompass protein-protein and protein-small molecule interactions and protein structure analyses. She has contributed to teaching and research at IIT Kharagpur for the past 20 years, guided 21 students to date with 130+ publications. The main focus of research includes the study of polyphenols and their interactions with biomacromolecules.

Soumya De did his BSc. (Hons) and MSc from IIT Kharagpur. He completed his PhD from Cornell University, USA followed by postdoctoral research at University of British Columbia, Canada. He joined IIT Kharagpur as Assistant Professor in 2015.

COURSE PLAN :

- Week 01** : Basics of Experimental Biochemistry
- Week 02** : Amino Acid Titration and pI determination
- Week 03** : Spectroscopic techniques
- Week 04** : Protein folding and denaturation studies
- Week 05** : Chromatographic techniques
- Week 06** : Gel electrophoresis of DNA and proteins
- Week 07** : Isolation and characterization of proteins
- Week 08** : Enzyme Kinetics
- Week 09** : Isolation and characterization of DNA
- Week 10** : Basics of rDNA technology
- Week 11** : Protein ligand interactions
- Week 12** : Immunoassay techniques