

Sri Bhagawan Mahaveer Jain First Grade College

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BIOCHEMICAL TECHNIQUES

After studying this paper, biochemistry graduate students will be able to:

- Understand biochemistry at the atomic level, draw molecules and reactions involved with biomolecules.
- To know the various structures of DNA ,RNA ,nucleosides and nucleotides.
- Learn the molecular structures of DNA double helix ,denaturation , biological importance of RNA and their functions.
- Recognize the reassociation kinetics, cot curves and their significance. find the T_m values
- hyperchromic effect.
- Understand the difference between colorimetry and spectroscopy, Beer Lamberts law and its limitations.
- To study the principles involved in fluorimetry and centrifugation.
- To have a clear picture of principles and instrumentation in TLC, paper chromatography, gel filtration, ion-exchange and affinity chromatography.

- Describe/recognize photochemical and spectral characteristics of nucleic acids.
- Understand the relationship between laws of absorption and molar extinction coefficient.
- To have basic knowledge of Modern Biology and Genomics.
- To understand the advantages and disadvantages of different machine learning techniques in bioinformatics.
- To understand how theoretical approaches can be used to model and analyze complex biological systems.
- The student can explain which type of data can be available from the most common protein sequence and structure data bases like
- UNIPROT and CATH, Genbank.
- The student can explain principles of computational methods for the prediction of secondary structures, elements from protein sequence, homology modeling

After studying this paper, biochemistry graduate students will be able to:

- Describe structure, functions and the mechanism of action of enzymes. Learning kinetics of Enzyme catalysed reactions and enzyme
- inhibitions and regulatory process. Ability to perform immobilization of enzymes. Exposure of wide applications of enzymes and future potential.
- Understand the fundamental energetics of biochemical processes, chemical logic of metabolic pathways. Knowing in detail about

- concepts to illustrate how enzymes and redox carriers and the oxidative phosphorylation machinery occur.
- Understand the utilization of proton gradient to drive the formation of high energy bonds and high energy compounds.
- To provide a deeper insight in to the fundamentals of enzyme structure and function and kinetics of
- soluble and immobilized enzymes.
- Discussion on current applications and future potential of enzymes.
- Complete understand of rate of reactions and order of reactions, and inhibitions and their
- kinetics.To gain knowledge on enzyme catalysis
- and isoenzymes and and on multienzyme complexes.
- Understanding the concepts of standard redox potential and the enzymes in biological oxidations.
- A brief account of Mitochondria and
- chloroplast structure, ATPase (oxidative phosphorylation) and C3 and C4 cycles in plants.
- To compare and contrast clinical laboratory procedures, interpret data & predict the pathogen
- isolated.
- To distinguish normal and abnormal microscopic characteristics of blood cells through
- performance of complete blood count.
- Compare different antibiotic susceptibility test methods, interpret results of antimicrobial
- susceptibility tests.
- Demonstrate technical skills by following established procedures & Processing biological
- specimen analysis.
- Correlate laboratory detection of tumour markers with cancers and metastatic disease.

Code Course title Course Type HP Credits