Lecture Plan

Name of the College: Government College of Arts, Science and Commerce. Sanquelim- Goa

Name of Faculty: Dr. Suphala Pujari	**Subject: Zoology**

Paper code: ZOO 203 Theory	**Program: S. Y. BSc**	**Division: A**
Academic year: 2025- 2026	**Semester: IV**	**Total Lectures: 45 hrs**

Course Objectives:

1. Understand the fundamental principles and concepts of biochemistry.
2. Imparting understanding of structure of biomolecules, the basic building blocks of living organisms
3. Understanding the biological roles of the various biomolecules.
4. Examine the principles of enzyme kinetics and catalysis in biochemical reactions

Expected Course Outcome:

At the end of the course, students will be able to

1. Impart understanding of structure of biomolecules, the basic building blocks of living organisms.
2. Understand the biological roles of the various biomolecules.
3. Analyze the structure and function of biomolecules such as proteins, carbohydrates, lipids, and nucleic acids.
4. Examine the kinetics and catalytic properties of enzymes in biochemical reactions.

Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
December	01/12/2025	06/12/2025	3	Module 1: Carbohydrates Structure and Biological importance: Monosaccharides, Disaccharides, Polysaccharides and Glycoconjugates.		PPT	1. J.M. Berg, J.L. Tymoczko, and L. Stryer, L. *Biochemistry*. VI Edition. W.H Freeman and Co., 2006. 2. R.K. *Murray, D. Granner, P. Mayes, V. Rodwell, Harper's*. Illustrated *Biochemistry* (LANGE medical book)
	08/12/2025	13/12/2025	3	Monosaccharides - structure of aldoses and ketoses, ring structure of sugars, conformations of sugars, mutarotation, anomers, epimers and enantiomers,		PPT	

	15/12/2025	20/12/2025	3	structure of biologically important monosaccharide derivatives, oxidation of sugars.			26th edition., McGraw-Hill Education, 2003. 3. M.N. Chatterjea, R. Shinde, *Textbook of Medical Biochemistry.,* Jaypee Brothers Medical Publishers, 2012. 4. D.L. Nelson, M.M. Cox, Lehninger *Principles of Biochemistry*. 7th Edition. W.H. Freeman and Co., 2017. 5. *P. Naik*, Essentials of *Biochemistry*. Jaypee Brothers Medical Publishers., New Delhi., 2023 6. R.A. Joshi, M. Saraswat, A Text Book of Practical Biochemistry., B Jain Publishers Pvt Ltd; First Edition, 2021. 7. Ranjna Chawla, Practical Clinical Biochemistry Methods And Interpretations, Jaypee Brothers Medical publishers (P) Ltd. New Delhi 8. R.J.P. Williams and J.J.R.F. da Silva, Bringing chemistry to life: from matter to man, Oxford University Press., 1999. 9. U. Satyanarayana, U. Chakrapani, Biochemistry, Elsevier India Pvt. Ltd, Co published by Allied Books, 2020.
	22/12/2025	23/12/2025	1	Revision		PPT	
January	05/01/2026	10/01/2026	3	Formation of disaccharides, reducing and non- reducing disaccharides.		PPT	
	12/01/2026	17/01/2026	3	Polysaccharides – homo- and heteropolysaccharides, structural and storage polysaccharides		PPT	
	19/01/2026	24/01/2026	3	Module II: Lipids Classification of Lipids. Building blocks of lipids - fatty acids (Physiologically important saturated and unsaturated fatty acids)		PPT	
	26/01/2026	31/01/2026	3	PUFA, glycerol, ceramide.		PPT	
February	02/02/2026	07/02/2026	3	Storage lipids - triacylglycerol and waxes.		PPT	
	09/02/2026	14/02/2026	3	Structural lipids in membranes – glycerophospholipids, galactolipids and sulpholipids, sphingolipids and sterols		PPT	
	16/02/2026	21/02/2026	3	structure, distribution and role of membrane lipids. Derived lipids- cholesterol & its importance		PPT	
	23/02/2026	28/02/2026	3	Module III: Proteins & Enzymes Classification, structure & physico-chemical properties of amino acids (amphoteric molecules, ionisation, zwitterions, pka values, isoelectric point), Physiological importance of essential and non-essential α-amino acids		PPT	
March	02/03/2026	07/03/2026	3	Peptide bond, Proteins- simple, conjugated and derived. Fibrous and globular**,** bond stabilizing protein structure.		PPT	
	09/03/2026	14/03/2026	3	Classification of Enzymes; Cofactors, Co-enzymes, Zymogens, Iso-enzymes, Specificity of enzyme action		PPT	
	16/03/2026	21/03/2026	3	Factors affecting rate of enzyme-catalysed reactions, Concept of Michaelis-Menten equation, Significance of Km		PPT	
	23/03/2026	28/03/2026	3	Lineweaver-Burk plot for enzyme inhibition- (competitive and non-competitive)		PPT	
	30/03/2026	31/03/2026	1	Revision		PPT	