

Lecture plan for M.F. Sc Second semester (Batch- 2025)

Course – CELLULAR AND MOLECULAR PHYSIOLOGY Course code- FPB-505
credit hrs.- 3(2+1)

Theory

<i>Sl no.</i>	<i>Topic</i>	<i>No of lecture</i>
01.	Introduction	1
02.	Cell structure: General organization of euaryotic and prokaryotic cell	2
03.	Structure and function of cell organelles, Cell membrane, Compartments,	3
04.	Electrolytes and Extracellular matrix, Membrane fluidity.	2
05.	Cell cycle and division: Meiosis and Mitosis regulation of cell cycle factors affecting cell cycle	3
06.	Apoptotic and necrotic pathways.	2
07.	Cell signaling: General principles; Second messenger system; Concept of ligand; Ligand and receptor interactions Mechanism of cell signaling	2
08.	Intracellular and extracellular receptors (Ion channel linked, G-Protein linked and enzyme linked) mediated signaling pathways; GPCR structures and functions;	2
09.	Concepts of membrane bound receptors and cytoplasmic/ nuclear receptor; second messenger system; Steroid hormone actions.	2
09.	Cellular trafficking: Endocytic and Exocytic pathways membrane transport protein sorting vesicular transport.	2
10.	Gene expression: DNA replication, transcription translation and regulation of gene expression.	3
11.	Translation and epigenesis: Pre and Post transcriptional and	3

	post translational modifications;	
12.	Gene splicing, duplication and mutation, DNA damage and repair, Pathways; Epigenetic regulations	3
Total no of lecture		30

Practical

Sl no.	Practical	No of lecture
01.	RNA isolation	2
02.	and cDNA synthesis	2
03.	PCR	2
04.	Genomic DNA isolation	2
05	PAGE	2
06	SDSPAGE,	2
07	DNA barcoding.	3
Total No of Practical		15

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Course teacher : Dr. Showkat Ahmad Dar