

Department of Bioinformatics

SRM University

Course: PHARMACOGENOMICS AND PHARMACOGENETICS

CODE: BI0405

Staff Handling: Ms. Priya Swaminathan

LESSON PLAN

Section: IV A

TOTAL HOURS: 45

Hours	Topic	Objective
	UNIT I: INTRODUCTION	This portion introduces pharmacogenomics and its application
1	Historical aspects of Pharmacogenetics,	
2	Monogenic and Multigenic Variations	
3	Ecogenetics	
4	Pharmacogenomics	
5	Biomarkers	
6	The promise of personalized medicine	
7	Drivers and the Promise of Personalized Medicine	
8	Application of Pharmacogenomics to Customize Therapy	
	UNIT II: PHARMACOGENETICS	This gives indepth knowledge of pharmacogenetics and the mechanism involved
9	Pharmacogenetics	
10	The CYP2D6 & TPMT Polymorphism	
11	Future Perspectives on the Pharmacogenetics of Drug Metabolism	
12	Pharmacogenetics of drug transporters	
13	Nuclear Receptors, Cell Surface Receptors	
14	Organic Anion Transporting Polypeptide Family	
15	Organic Anion& cation Transporter Family	
16	Novel Organic Cation Transporter Family	
17	(PepT) Family & Multidrug Resistance Family &b Related Protein	
18	Breast Cancer Resistance Protein (BCRP)	
	UNIT III: DRUG RESPONSE	This portion helps to
19	Inter ethnic drug response,	

20	Alcohol & Aldehyde Dehydrogenase	understand different types of drug responses, technologies involved and the challenges faced.
21	clinical viewpoints	
22	N-Acetyltransferase (NAT2) and Isoniazid	
23	CYP2C9 and Warfarin	
24	Thiopurine S-Methyltransferase and Mercaptopurin	
25	UDP-Glucuronosyltransferase (UGT) 1A1	
26	CYP2D6 and Codeine	
27	technologies & challenges	
28	Technology Selection	
29	Reduction to Practice	
	UNIT IV: SINGLE NUCLEOTIDE POLYMORPHISM	This gives indepth knowledge of SNPs and its types
	Introduction	
30	Technologies for the analysis of SNPs,	
31	Biochemistries,	
32	Readouts	
33	Platforms	
34	Assay Biochemistries	
35	Detection Methods : molecular diagnostics	
36	Types of Genetic Variations	
37	Methods to Detect Known Mutations	
38	Technical Advances in Molecular Diagnostic Techniques	This portion gives introduction to SAGE and its application
	UNIV V: SAGE	
39	Serial Analysis of Gene Expression-SAGE	
40	Overview	
41	Analysis	
42	function	
43	Applications	
44	functional biology	
45	mapping of disease loci	

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