SRM UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF BIOINFORMATICS

BI0200- MOLECULR BIOLOGY & GENETICS

LESSON PLAN

SEMESTER: IV
CODE: BI0200

Course: Moleculr Biology & Genetics
Staff Handling: Mr. Rex Arunraj
(Genetic Engineering Department)

Code	Course	L	T	P	C
BI0200	MOLECULAR BIOLOGY AND GENETICS	3	0	0	3

Lecture No	Description
	UNIT I
1	Structure of DNA - nucleoside, nucleotide, base pairing, stacking, double helix
2	Features of Watson and Crick Model
3	Forms of DNA - A, B, Z
4	Types of RNA - mRNA, rRNA, tRNA, & other types
5	Structure and function of mRNA, rRNA, tRNA
6	Griffith - Avery, McLeod and McCarty experiments
7	Hershey and Chase - Messelson and Stahl experiment.
	UNIT II
8	Semi-Conservative replication
9	Replication overview & DNA polymerases in prokaryote and eukaryote
10	Replication in prokaryote
11	
12	Replication in eukaryote
13	Exonuclease activity and Topoisomerase activity Telomeric Replication
14	Classification of Mutation
15	Molecular basis of Mutation
	UNIT III
16	Fine structure of gene
17	Transcription overview, Structure & function of gene components
18	RNA polymerase - types, structure and function
19	Transcription of mRNA in prokaryote
20	
21	Transcription of mRNA in eukaryote
22	
23	Post transcriptional modification - cap, tail, and RNA editing
24	Splicing types, mRNA, rRNA, tRNA splicing

25	Genetic code and Wobble hypothesis
26	Translation in prokaryote
27	
28	Translation in eukaryote
29	Post translation modifications
30	Principles of gene regulation - transcriptional
31	Principles of gene regulation - post transcriptional
32	Principles of gene regulation - chromatin
33	Principles of gene regulation - activators, supressors, moderators, silencers, enhancers, insulators, co-activators, co-suppressors
34	Operon Concept - lac operon
	UNIT IV
35	History of Genetics & Mendelian history
36	Mendel's law
37	Monohybrid cross
38	Dihybrid cross
39	Multiple alleles, Blood grouping systems
40	Chromosome structure organization in eukaryotes (microscopic)
41	Chromosome structure organization in eukaryotes (molecular)
	UNIT V
42	Linkage, Types of linkage
43	Crossing over – Characteristics, Types of crossing over, kinds of crossing over
44	Mapping by Two point and three point crosses
45	Mapping in Bacteria

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