

**COLLEGE OF FISHERIES, KISHANGANJ
BIHAR ANIMAL SCIENCES UNIVERSITY, PATNA**

**Lecture Plan
FBT 509 (2+1) – Molecular Markers
Theory**

Sl. No.	Topics	No. of Classes
1	Introduction to Genetic Variation, Sources of Genetic Variation	1
2	Significance of Genetic Variation, Statistical Methods to Estimate Genetic Variation	1
3	Introduction to Molecular Markers, Type I and Type II Markers, Allozymes: Development and Applications	1
4	mtDNA Markers: Principles and Applications	1
5	RFLP Technique	1
6	RAPD Technique	1
7	AFLP Technique	1
8	Minisatellites and Microsatellites	1
9	SNP Markers, Comparison of Molecular Marker Systems	1
10	Chemical Sequencing (Maxam-Gilbert Method)	1
11	Chain Termination Method (Sanger Sequencing)	1
12	Next Generation Sequencing (NGS): Overview	1
13	Applications of Sequencing Technologies	1
14	Whole Genome Sequencing (Nuclear Genome)	1
15	Mitochondrial Genome Sequencing	1
16	Transcriptome Sequencing (RNA-Seq), Applications of Genome and Transcriptome Sequencing	1
17	Introduction to Marker Assisted Selection (MAS)	1
18	Linkage Maps: Concepts and Construction	1
19	Fluorescence In Situ Hybridization (FISH)	1
20	Quantitative Trait Loci (QTL) Mapping, Genomic Selection	1
21	Population Genomics: Concepts, Applications of Population Genomics	1
22	DNA Barcoding	1
23	Metabarcoding	1
	Total	23

Practical

Sl. No.	Topics	No. of Classes
1	Allozyme variation by PAGE	1
2	SDS-PAGE	1
3	Protein isolation from tissue and quantification	1
4	Gel Imaging and scoring of allozyme	1
5	AFLP	1
6	Interpretation of AFLP gel and data analysis	1
7	RAPD	1
8	Interpretation of RAPD gel and data analysis	1
9	Development of microsatellite marker	2
10	Genotyping of SNPs	2
	Total	12

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