

COLLEGE OF FISHERIES, KISHANGANJ
BIHAR ANIMAL SCIENCES UNIVERSITY, PATNA
Lecture plan for course AQC-213 (Genetics and Breeding), B.F.Sc. Batch

Sl. No.	Topic	Name of the course teachers	No. of classes
THEORY			
1.	Principles of genetics and breeding, Gene and chromosome as the basis of inheritance, Mendel's inheritance law- complete and incomplete dominance, monohybrid and dihybrid ratios.	Aishwarya Sharma	2
2.	Gene interactions – dominant and recessive epistasis.	Aishwarya Sharma	2
3.	Pleiotropism. Lethal genes. Mutation.	Aishwarya Sharma	1
4.	Sex-linked genes, sex-influenced and sex-limited traits. Linkage and crossing over.	Aishwarya Sharma	1
5.	Introduction to population genetics. Hardy- Weinberg law and its significance.	Aishwarya Sharma	1
6.	Chromosomal structure and aberrations.	Aishwarya Sharma	1
7.	Chromosome manipulation techniques - androgenesis, gynogenesis, and polyploidy and identification of ploidy.	Aishwarya Sharma	2
8.	Sex determination.	Sachin O. Khairnar	1
9.	Crossbreeding (hybridization) – types of cross-breeding, heterosis, design of cross-breeding programs, and hybridization in different fishes.	Sachin O. Khairnar	2
10.	Quantitative genetics – quantitative traits, polygenic traits, heritability.	Sachin O. Khairnar	1
11.	History and present status of selective breeding programs in aquaculture. Selection methods and mating designs. Design for selective breeding.	Sachin O. Khairnar	2
12.	Inbreeding and its consequences. Domestication methods.	Sachin O. Khairnar	1
13.	Seed certification and quarantine procedures.	Sachin O. Khairnar	1
14.	Cryopreservation of gametes.	Sachin O. Khairnar	1
Total number of classes (Theory)			19
PRACTICAL			
1.	Problems on Mendelian inheritance (qualitative genetics) - monohybrid and dihybrid ratios and epistasis.	Aishwarya Sharma	03
2.	Problems with quantitative traits, response to selection, and heritability.	Sachin O. Khairnar	02
3.	Estimation of rate of inbreeding and heterosis.	Sachin O. Khairnar	01
4.	Mitotic and meiotic chromosome preparation.	Sachin O. Khairnar Aishwarya Sharma	03
5.	Demonstration of the protocol of androgenesis, gynogenesis, and polyploidy.	Sachin O. Khairnar Aishwarya Sharma	03
6.	Problems on gene and genotypic frequency.	Aishwarya Sharma	02
7.	Gamete cryopreservation protocols and quality evaluation of fish milt.	Sachin O. Khairnar Aishwarya Sharma	02
Total number of classes (Practical)			16
Total number of classes (Theory+ Practical)			35

Aishwarya

Sachin

(Ms. Aishwarya Sharma & Dr. Sachin Onkar Khairnar)

