ACADEMIC PLANNER 2023-24
NAME OF THE DEPARTMENT:GENETICS(HONS) DSCC
DISCIPLINE SPECIFIC CORE COURSE
VI SEMESTER Paper -7 SUBJECT TITLE: DSCC5GENT7:GENES AND DEVELOPMENT

Semester	**first**	**Paper**	**GENES AND DEVELOPMENT**
Week/Month & Date (Preferably)	**Day**	**Portions Planned for 1 hour**	**Teacher**
FEBRUARY FIRST WEEK	1	Apical- basal axis formation, flowering in Arabidopsis	PRIYADARSHINI P.A
	2	Stages of early embryonic development	PRIYADARSHINI P.A
	3	Model organisms for genetic analysis	JALAJAKSHI.S
	4	Insect- Drosophila	JALAJAKSHI.S
FEBRUARY SECOND WEEK	1	Transition from vegetative to floral development	PRIYADARSHINI P.A
	2	ABC model & homeotic genes	PRIYADARSHINI P.A
	3	Nematode- C. eleganus	JALAJAKSHI.S
	4	Amphibian- Xenopus laevis	JALAJAKSHI.S
FEBUARY THIRD WEEK	1	Genetics of anther development	PRIYADARSHINI P.A
	2	Pollen formation	PRIYADARSHINI P.A
	3	Fish- Danio rerio (Zebra fish)	JALAJAKSHI.S
	4	Mammals- Mus musculus	JALAJAKSHI.S
FEBRUARY FOURTH WEEK	1	Role of maternal genes	PRIYADARSHINI P.A
	2	Polarization of body axes during oogenesis	PRIYADARSHINI P.A
	3	Potency, commitment	JALAJAKSHI.S
	4	Specification, induction	JALAJAKSHI.S
MARCH FIRST WEEK	1	Role of zygotic genes in establishment of body axis	PRIYADARSHINI P.A
	2	Homeotic gene expression	PRIYADARSHINI P.A
	3	Competence, determination & differentiation	JALAJAKSHI.S
	4	Morphogenetic gradients	JALAJAKSHI.S
MARCH SECOND WEEK	1	Imaginal disc and its development	PRIYADARSHINI P.A
	2	Axes formation & Hox genes	PRIYADARSHINI P.A
	3	Pattern formation	JALAJAKSHI.S
	4	Cell fate	JALAJAKSHI.S
MARCH THIRD WEEK	1	Genetics of gonadal differentiation in human	PRIYADARSHINI P.A
	2	Gametogenesis	PRIYADARSHINI P.A
	3	Cell linage	JALAJAKSHI.S
	4	Nuclear transplantation experiments	JALAJAKSHI.S
MARCH FOURTH WEEK	1	Follicular development	PRIYADARSHINI P.A
	2	Ovulation	PRIYADARSHINI P.A
	3	Xenopus & Acetabularia	JALAJAKSHI.S
	4	Switching genes on & off	JALAJAKSHI.S
APRIL FIRST WEEK	1	Fertilization	PRIYADARSHINI P.A
	2	Implantation	PRIYADARSHINI P.A
	3	Tissue specific methylation	JALAJAKSHI.S
	4	Differential expression of haemoglobin genes	JALAJAKSHI.S
APRIL ECOND WEEK	1	Embryonic stem cells & their applications	PRIYADARSHINI P.A
	2	Hormonal control of reproduction	PRIYADARSHINI P.A
	3	Types of egg	JALAJAKSHI.S
	4	Fertilisation	JALAJAKSHI.S
APRIL THIRD WEEK	1	Gonadal malformation & their genetic basis	PRIYADARSHINI .P.A
	2	Reproductive failure	PRIYADARSHINI. P.A
	3	Cleavage and its type	JALAJAKSHI.S
	4	Patterns of cleavage	JALAJAKSHI.S
APRIL FOURTH WEEK	1	Causes of infertility	PRIYADARSHINI.P.A
	2	Young syndrome	PRIYADARSHINI.P.A
	3	Gastrulation	JALAJAKSHI.S
	4	Morphogenetic movements	JALAJAKSHI.S
		ASSIGNMENTS CORRECTION AND DISCUSSION	
MAY FIRST WEEK	1	KALIG gene mutation	PRIYADARSHINI P.A
	2	Assisted reproductive technology	PRIYADARSHINI P.A

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	3	Formation of germ layers in frog	JALAJAKSHI.S
	4	Organogenesis in frog	JALAJAKSHI.S
MAY SECOND WEEK	1	IUI, IVF	PRIYADARSHINI P.A
	2	ICSI	PRIYADARSHINI P.A
	3	Neural induction	JALAJAKSHI.S
	4	Formation of early nervous system	JALAJAKSHI.S
MAY THIRD WEEK	1	Mad box genes	PRIYADARSHINI P.A
	2	Revision on Unit 3	PRIYADARSHINI P.A
	3	Role of organizer	JALAJAKSHI.S
	4	Revision of Unit 1	JALAJAKSHI.S
MAY FOURTH WEEK	1	Unit 3 test	PRIYADARSHINI P.A
	2	Revision on Unit 4	PRIYADARSHINI P.A
	3	Revision of Unit 2	JALAJAKSHI.S
	4	Test on Unit 2	JALAJAKSHI.S
		SCHEME OF EXAMINATION AND QUESTION PAPERS DISCUSSION	

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VI SEMESTER Paper-8 SUBJECT TITLE: DSCC5GENT8:POPULATION AND EVOLUTIONARY GENETICS

Semester	**first**	**Paper**	**POPULATION AND EVOLUTIONARY GENETICS**
Week/Month & Date (Preferably)	**Day**	**Portions Planned for 1 hour**	**Teacher**
JUNE FIRST WEEK	1	Emergence of Evolutionary theory	PRIYADARSHINI P.A
	2	Lamarckism theory of evolution	PRIYADARSHINI P.A
	3	Population genetics- Definition & meaning	JALAJAKSHI.S
	4	Mendelian population	JALAJAKSHI.S
JUNE SECOND WEEK	1	Darwin's theory of evolution	PRIYADARSHINI P.A
	2	Lamarckism	PRIYADARSHINI P.A
	3	Scope of population genetics	JALAJAKSHI.S
	4	Gene & genotype frequencies	JALAJAKSHI.S
JUNE THIRD WEEK	1	Neo- Darwinism	PRIYADARSHINI P.A
	2	Origin of basic organic monomers	PRIYADARSHINI P.A
	3	Mating pattern	JALAJAKSHI.S
	4	Random & Non- random mating	JALAJAKSHI.S
JUNE FOURTH WEEK	1	Polymers	PRIYADARSHINI P.A
	2	Spontaneous generation	PRIYADARSHINI P.A
	3	Hardy- Weinberg principle	JALAJAKSHI.S
	4	Extension of H-W principle to multiple alleles & sex linked alleles	JALAJAKSHI.S
JULY FIRST WEEK	1	Louis Pasteur's experiment	PRIYADARSHINI P.A
	2	Oparin & Haldane's theory	PRIYADARSHINI P.A
	3	Factors affecting Hardy- Weinberg equilibrium	JALAJAKSHI.S
	4	Quantitative genetics	JALAJAKSHI.S
JULY SECOND WEEK	1	Miller- Urey experiment	PRIYADARSHINI P.A
	2	Evolutionary time scale	PRIYADARSHINI P.A
	3	Traits controlled by two loci, three loci & multiple loci	JALAJAKSHI.S
	4	Heritability, measurement of variability	JALAJAKSHI.S
NOVEMBER THIRD WEEK	1	Eras, periods & epoch	PRIYADARSHINI P.A
	2	Major events in evolutionary time scale	PRIYADARSHINI P.A
	3	Heterosis, transgressive inheritance	JALAJAKSHI.S
	4	Inbreeding & Inbreeding coefficient	JALAJAKSHI.S
JULY FOURTH WEEK	1	Molecular evolution	PRIYADARSHINI P.A
	2	Concept of natural theory of molecular evolution	PRIYADARSHINI P.A
	3	Natural selection and its types	JALAJAKSHI.S
	4	Balancing selection, Mutation- Selection balance	JALAJAKSHI.S
AUGUST FIRST WEEK	1	Molecular divergence	PRIYADARSHINI P.A
	2	Molecular clocks	PRIYADARSHINI P.A
	3	Mutation – Drift balance	JALAJAKSHI.S
	4	Concept of fitness in natural selection	JALAJAKSHI.S
AUGUST SECOND WEEK	1	Molecular tools in phylogeny	PRIYADARSHINI P.A
	2	Classification and identification	PRIYADARSHINI P.A
	3	Isolating mechanisms and classification	JALAJAKSHI.S
	4	Geographic isolation & Reproductive isolation	JALAJAKSHI.S
AUGUST THIRD WEEK	1	Genetic variation in natural populations	PRIYADARSHINI .P.A
	2	Chromosomal polymorphism	PRIYADARSHINI. P.A
	3	Pre-mating isolation- climatic, seasonal, Habitat, Ethological	JALAJAKSHI.S
	4	Post- mating isolation- gametic mortality, zygotic mortality,	JALAJAKSHI.S
AUGUST FOURTH WEEK	1	Balanced polymorphism	PRIYADARSHINI.P.A
	2	Protein sequence analysis	PRIYADARSHINI.P.A

	3	Hybrid inviability and hybrid sterility	JALAJAKSHI.S
	4	Evidence of speciation	JALAJAKSHI.S
		ASSIGNMENTS CORRECTION AND DISCUSSION	
SEPTEMBER FIRST WEEK	1	protein polymorphism	PRIYADARSHINI P.A
	2	nucleotide sequence analysis	PRIYADARSHINI P.A
	3	Mode of speciation- allopatric,	JALAJAKSHI.S
	4	Parapatric & Sympatric	JALAJAKSHI.S
SEPTEMBER SECOND WEEK	1	Construction of phylogenetic tree using tools of bioinformatics	PRIYADARSHINI P.A
	2	Revision of Unit 3	PRIYADARSHINI P.A
	3	Co-speciation: sexual selection	JALAJAKSHI.S
	4	Co-evolution & convergent evolution	JALAJAKSHI.S
SEPTEMBER THIRD WEEK	1	Revision of Unit 4	PRIYADARSHINI P.A
	2	Test on Unit 3	PRIYADARSHINI P.A
	3	Revision of Unit 1	JALAJAKSHI.S
	4	Revision on Unit 2	JALAJAKSHI.S
SEPTEMBER FOURTH WEEK	1	Test on Unit 4	PRIYADARSHINI P.A
	2	Paper discussion	PRIYADARSHINI P.A
	3	Test on Unit-1	JALAJAKSHI.S
	4	Test on Unit-2	JALAJAKSHI.S
		SCHEME OF EXAMINATION AND QUESTION PAPERS DISCUSSION	