Lesson plan (2022-23)

*Dr. Bindu Rani (Department of Zoology)*

**B.Sc. Semester – II (Theory)**

**Paper – I (Life and Diversity from Annelida to Arthropoda and Genetics-I)**

**Paper – II (Life and Diversity from Mollusca to Hemichordata and Genetics-II)**

**February**

PHYLUM ANNELIDA

* General Characters
* Peculiar Characters
* Classification up to order level
* Economic importance of Annelids
* Type Study-*Pheretima*
* Metamerism in Annelida
* Trochophore Larva

GENETICS

* Basic concept of Genetics
* Genes and Alleles, Mendelism
* Multiple allelism
* Heredity and variations
* Gene-gene interactions
* Gene-environment interactions

**March**

PHYLUM ARTHROPODA

* General and peculiar characters of phylum Arthropoda
* Classification up to order level
* Type study- *Periplaneta*
* Economic importance of insects

HUMAN GENETICS

* Human Karyotype
* Chromosomal abnormalities in autosomes
* Chromosomal abnormalities in allosomes
* Monozygotic and dizygotic twins

SEX DETERMINATION AND ITS MECHANISMS

* Male and female heterozygous system
* Genetic balance system (inactivation of X chromosome)
* Role of Y chromosome, male haploidy
* Role of hormones in sex determination
* Extrachromosomal and cytoplasmic inheritance

**April**

PHYLUM MOLLUSCA

* General and peculiar characters of phylum Mollusca
* Classification up to order level with economically important examples
* Type study of *Pila*
* Type study of *Pila*
* Torsion and detorsion in Mollusca
* Respiration and foot in Mollusca

SEX LINKED INHERITANCE

* Haemophilia and colour blindness in man
* Eye colour in *Drosophila*
* Non-disjunction of sex-chromosomes in *Drosophila*
* Sex-linked and sex-influenced inheritance
* Inborn errors of metabolism in man

NATURE AND FUNCTION OF GENETIC MATERIAL

* Structure and type of nucleic acids
* Protein Synthesis
* Mutations (induced and spontaneous, gene mutations)
* Chromosomal aberrations (structural and numerical)

**May**

PHYLUM ECHINODERMATA

* General and peculiar characters of phylum Echinodermata
* Classification up to order level with economically important examples
* Echinoderm larvae
* Type study-*Asterias*
* *Aristotle’s Lantern*

HEMICHORDATA

* General and Peculiar characters of phylum hemichordate
* Type study- *Balanoglossus*
* Tornaria Larva

APPLIED GENETICS

* Eugenics, Euthenics and Euphenics
* Genetic counseling
* Prenatal diagnostics
* DNA fingerprinting
* Transgenic animals

Lesson plan (2022-23)

*Dr. Bindu Rani (Department of Zoology)*

**B.Sc. Semester – IV (Theory)**

**Paper – I (Life and Diversity of Chordates-II)**

**February:**

*Class Amphibia*

* General characters and classification of chordates, differences between Chordata, Nonchordata and Vertebrata
* Origin and evolution of amphibians
* Type study of *Rana tigrina*
* Parental care in amphibians

**March:**

*Class Reptilia*

* Origin and evolution of reptiles
* Extinct reptiles
* Poisonous and non-poisonous snakes
* Poison apparatus in snakes
* Type study of *Hemidactylus*

**April:**

*Class Aves*

* Type study of *Columba livia*
* Flight adaptations and principles of aerodynamics in bird flight
* Migration in birds

**May:**

*Class Mammalia*

* Classification of class Mammalia
* Adaptive radiations of mammals
* Type study of *Rattus*
* Type study of *Rattus*
* Dentition in mammals