

# Government College For Women, Mahendragarh

*Department Of ZOOLOGY- Session : 2023-24*

**Name Of The Assistant Professor : Praveen Saroha**

*Class : B.Sc.1st- Semester 2*

## **Lesson Plan**

### **Week 01**

Phylum - Annelida:

General characters and classification up to order level

Biodiversity and economic importance of Annelida

Type study - Pheretima (Earthworm)

### **Week 02**

Metamerism in Annelida Trochophore larva:. Affinities, evolutionary significance

Phylum – Arthropoda:

General characters and classification up to order level

Biodiversity and economic importance of insects

### **Week 03**

Type study – Periplaneta

Phylum – Mollusca:

General characters and classification up to order level

### **Week 04**

Biodiversity and economic importance

Type study – Pila

Torsion and detorsion in gastropoda

Respiration and foot

### **Week 05**

Phylum – Echinodermata:

General characters and classification up to order level

Biodiversity and economic importance

### **Week 06**

Type Study -Asteries (Sea Star)

Echinoderm larvae

Aristotle's Lantern

### **Week 07**

Phylum – Hemichordate

General characters  
Type study: Balanoglossus

**Week 08**

Elements of Heredity and variations.  
The varieties of gene interactions

**Week 09**

Linkage and recombination: Coupling and repulsion hypothesis, crossing-over and chiasma Formation; gene mapping.  
Sex determination and its mechanism: male and female heterozygous systems, genetic balance  
System; role of Y -chromosome, male haploidy, cytoplasmic and environmental factors, role of  
Hormones in sex determination.

**Week 10**

Sex linked inheritance: Haemophilia and colour blindness in man, eye colour in Drosophila, Non-  
Disjunction of sex-chromosome in Drosophila; Sex-linked and sex influenced inheritance.  
Extra chromosomal and cytoplasmic inheritance:  
Kappa particles in Paramecium.  
Shell coiling in snails.  
Milk factor in mice.

**Week 11**

Multiple allelism: Eye colour in Drosophila; A, B, O blood group in man. Human genetics:  
Human karyotype, Chromosomal abnormalities involving autosomes and sex  
Chromosomes, monozygotic and dizygotic twins

**Week 12**

Inborn errors of metabolism (Alcaptonuria, Phenylketonuria, Albinism, sickle-cell anaemia).  
Nature and function of genetic material; Structure and type of nucleic acids; Protein synthesis.

**Week 13**

Spontaneous and induced (chemical and radiations) mutations; gene mutations; chemical basis of

Mutations; transition, transversion, structural chromosomal aberrations (deletion, duplication,

Inversion and translocation); Numerical aberrations (autopolyploidy, euploidy and polyploidy in Animals)

**Week 14**

Applied genetics: Eugenics, eugenics and eugenics; genetic counseling, pre-natal diagnostics,

DNA-finger printing, transgenic animals

**Week 15**

Revision

**Week 16**

Revision

**Government College For Women, Mahendergarh**

*Department Of ZOOLOGY - Session : 2023-24*

**Name of The Assistant Professor : PRAVEEN SAROHA**

*Class : B.Sc.2<sup>ND</sup> - Semester IV*

**Lesson Plan**

**Week 01**

Amphibia: Origin, Evolutionary tree. Type study of frog (*Rana tigrina*),

**Week 02**

Parental Care in

Amphibia

Reptilia: Type study of Lizard (*Hemidactylus*)

**Week 03**

Origin, Evolutionary tree. Extinct reptiles;

Poisonous and non-poisonous snakes; Poison apparatus in snakes.

**Week 04**

Aves: Type study of Pigeon (*Columba livia*);

**Week 05**

Flight adaptation, Principles of aerodynamics in Bird flight, migration in birds.

**Week 06**

Mammals: Classification, type study of Rat; Adaptive radiations of mammals and dentition.

**Week 07**

Circulation: Origin, conduction and regulation of heart beat, cardiac cycle, Electrocardiogram, cardiac output, fluid pressure and flow pressure in closed and open

**Week 08**

Circulatory system; Composition and functions of blood & lymph; Mechanism of Coagulation of blood, coagulation factors; anticoagulants, haemopoiesis

**Week 09**

Respiration: Exchange of respiratory gases, transport of gases, lung air volumes, oxygen Dissociation curve of hemoglobin, Bohr's effect, Haburger's phenomenon (Chloride Shift), control / regulation of respiration.

**Week 10**

Excretion: Patterns of excretory products viz. Amonotelic, ureotlic uricotelic, ornithine Cycle (Kreb's- Henseleit cycle) for urea formation in liver.

**Week 11**

Excretion: Urine formation, counter-current mechanism of urine concentration, Osmoregulation, micturition.

**Week 12**

Neural Integration: Nature, origin and propagation of nerve impulse along with Medullated & non-medullated nerve fibre, conduction of nerve impulse across synapse.

**Week 12**

Chemical integration of Endocrinology: Structure and mechanism of hormone

Action; physiology of hypothalamus, pituitary, thyroid, parathyroid, adrenal, pancreas and Gonads.

**Week 13**

Reproduction: Spermatogenesis, Capacitation of spermatozoa, ovulation,

**Week 14**

Formation of Corpus luteum, oestrous-anoestrous cycle, Menstrual cycle in human; fertilization, Implantation and gestation.

**Week 15**

Revision

**Government College For Women, Mahendergarh**

*Department Of ZOOLOGY - Session : 2023-24*

**Name Of The Assistant Professor : PRAVEEN SAROHA**

*Class : B.Sc.3<sup>RD</sup> - Semester VI*

**Lesson Plan**

**Week 01**

Introduction to world fisheries: Production, utilization and demand.

**Week 02**

Fresh Water fishes of India: River system, reservoir, pond, tank fisheries; captive and Culture fisheries, cold water fisheries.

**Week 03**

Fishing crafts and gears.

**Week 04**

Fin fishes, Crustaceans, Molluscs and their culture

**Week 05**

Seed production: Natural seed resources – its assessment, collection, Hatchery production.

**Week 06**

Nutrition: Sources of food (Natural, Artificial) and feed composition (Calorie and Chemical ingredients).

**Week 07**

Field Culture: Ponds-running water, recycled water, cage, culture; poly culture.

**Week 08**

Culture technology: Biotechnology, gene manipulation and cryopreservation of gamete

**Week 09**

Basic concepts of ecology: Definition, significance. Concepts of habitat and Ecological niche.

**Week 10**

Factors affecting environment: Abiotic factors (light-intensity, quality and duration), Temperature, humidity, topography; edaphic factors; biotic factors

**Week 11**

Ecosystem: Concept, components, properties and functions; Ecological energetics and Energy flow-food chain, food web, trophic structure; ecological pyramids concept of Productivity.

**Week 12**

Biogeochemical cycles: Concept, reservoir pool, gaseous cycles and sedimentary cycles.

Population: Growth and regulation.

**Week 13**

Origin of life.

Concept and evidences of organic evolution.

Theories of organic evolution.

**Week 14**

Concept of microevolution and concept of species

Concept of macro-and mega-evolution.

**Week 15**

Phylogeny of horse.

Evolution of man.