

DEPARTMENT OF ZOOLOGY
SAROJINI NAIDU COLLEGE FOR WOMEN

ACADEMIC CALENDAR

SEMESTER 3

CORE COURSE - V (ZOOACOR05T)
CHORDATES

UNITS	TOPICS	SUB TOPICS	ALLOTTED TEACHER	NO. OF CLASS	MONTH COVERED
1.	Introduction to Chordates	General characteristics and outline classification of Phylum Chordata.	MB	15 classes allotted to each teacher i.e. 15 x4 =60 classes	July
2.	Protochordata	General characteristics and classification of sub-phylum Urochordata and Cephalochordata up to Classes. Metamorphosis in Ascidia. Chordate Features and Feeding in Branchiostoma.	MB		August September
3.	Origin of Chordata	Dipleurula concept and the Echinoderm theory of origin of chordates. Advanced features of vertebrates over Protochordata.	SB1		July August
4.	Agnatha	General characteristics and classification of cyclostomes up to order.	SAB		July
5.	Pisces	General characteristics and classification of Chondrichthyes and Osteichthyes up to Subclasses Accessory respiratory organ, migration and parental care in fishes Swim bladder in fishes. Classification up to Sub-Classes.	SAB		August
6.	Amphibia	General characteristics and classification up to living Orders. Metamorphosis and parental care in Amphibia.	NK		July August
7.	Reptilia	General characteristics and classification up to living Orders. Poison apparatus and Biting mechanism in Snake.	NK		September November

8.	Aves	General characteristics and classification up to Sub-Classes. Exoskeleton and migration in Birds. Principles and aerodynamics of flight.	SAB		September November
9.	Mammals	General characters and classification up to living orders. Phylogenetic significance of Prototheria. Exoskeleton derivatives of mammals. Adaptive radiation in mammals with reference to locomotory appendages. Echolocation in Microchiropterans and Cetaceans.	SB1		September November
10.	Zoogeography	Zoogeographical realms, Plate tectonic and Continental drift theory, Distribution of birds and mammals in different realms.	SB1		August

CORE COURSE - V (ZOOACOR05P)
CHORDATES LAB

UNITS	TOPICS	SUB TOPICS	ALLOTTED TEACHER	NO. OF CLASS	MONTH COVERED
1.	Lab / field study of Protochordata	<i>Herdmania, Branchiostoma</i> , Colonial Urochordates; Sections of Balanoglossus through proboscis and branchiogenital regions, Sections of Amphioxus through pharyngeal, intestinal and caudal regions, <i>Herdmania spicules</i> .	MB		August September
2.	Agnatha	<i>Petromyzon, Myxine</i>	SAB		August
3.	Fishes	<i>Scoliodon, Sphyrna, Pristis, Torpedo, Chimaera, Mystus, Heteropneustes, Labeo, Exocoetus, Echeneis, Anguilla, Hippocampus, Tetraodon, Anabas, Flat fish.</i>	SN		August September
4.	Amphibia	<i>Ichthyophis/ Ureotyphlus, Necturus, Bufo, Hyla, Alytes, Salamandra.</i>	NK		August
5.	Reptilia	<i>Chelone, Trionyx, Hemidactylus, Varanus, Uromastix, Chamaeleon, Ophiosaurus, Draco, Bungarus, Vipera, Naja, Hydrophis, Zamenis, Crocodylus</i> Key for Identification of poisonous and non-poisonous snakes.	NK		September
6.	Aves	Study of six common birds from different orders (Stork, Owl / Falcon, Sun Bird, Jacanna, Duck)- types of beaks and claws.	SAB		September
7.	Mammalia	<i>Sorex, Bat (Insectivorous and Frugivorous), Funambulus, Loris, Herpestes, Erinaceous.</i>	SB1		August
8.		Mount of weberian ossicles of <i>Mystus</i> or Grass Carp, Pecten from Fowl head, Dissection of Fowl head (Dissections and mounts subject to permission)	SN		November

CORE COURSE - VI (ZOOACOR06T)
PHYSIOLOGY: CONTROLLING AND COORDINATING SYSTEMS

UNITS	TOPICS	SUB TOPICS	ALLOTTED TEACHER	NO. OF CLASS	MONTH COVERED
1.	Tissues	Structure, locations, classification and functions of epithelial tissues, connective tissues, connective tissues, muscular tissues and nerve tissues.	SB1	15 classes allotted to each teacher i.e. 15 x 4 =60 classes	July August
2.	Bone and Cartilage	Structure and types of bones and cartilages, Ossification.	SB1		August
3.	Nervous System	Structure of neuron, resting membrane potential, Origin of action potential and its propagation across the myelinated and unmyelinated nerve fibers; Types of synapse, Synaptic transmission and Neuromuscular junction; Reflex action and its types.	PM		July August September
4.	Muscular System	Histology of different types of muscle; Ultra structure of skeletal muscle; Molecular and chemical basis of muscle contraction; Characteristics of muscle fiber.	SB2		August September
5.	Reproductive System	Histology of testis and ovary; Physiology of Reproduction.	SAB		August
6.	Endocrine System	Histology and function of pituitary, thyroid, pancreas and adrenal; Classification of hormones; Mechanism of Hormone action; Signal transduction pathways for Steroidal and Non steroidal hormones; Hypothalamus (neuroendocrine gland) - principal nuclei involved in neuroendocrine control of anterior pituitary and endocrine system; Placental hormones.	SAB		September November

CORE COURSE- VI (ZOOACOR06P)
PHYSIOLOGY: CONTROLLING AND COORDINATING SYSTEMS LAB

UNITS	TOPICS	SUB TOPICS	ALLOTTED TEACHER	NO. OF CLASS	MONTH COVERED
1.	Recording of simple muscle twitch	Simple muscle twitch recording with electrical stimulation (or Virtual)	SB1+NK		September
2.	Preparation of temporary mounts	Squamous epithelium, Striated muscle fibers and nerve cells.	SB1+NK		August
3.	Study of permanent slides of	Mammalian skin, Cartilage, Bone, Spinal cord, Nerve cell, Pituitary, Pancreas, Testis, Ovary, Adrenal, Thyroid.	SAB		August
4.	Microtomy	Preparation of permanent slide of any five (Lung, Salivary gland, Stomach, Small Intestine, Large Intestine only) mammalian (white rat) tissues.	SAB		September November

**CORE COURSE- VII (ZOOACOR07T)
BIOCHEMISTRY**

UNITS	TOPICS	SUB TOPICS	ALLOTTED TEACHER	NO. OF CLASS	MONTH COVERED
1.	Fundamentals of biochemical reactions and metabolism	Ionization of water, weak acids and bases, buffering and pH changes in living systems. Metabolism: Catabolism and Anabolism, Compartmentalization of metabolic pathways, Shuttle systems and membrane transporters; ATP as "Energy Currency of cell"; coupled reactions; Use of reducing equivalents and cofactors; Intermediary metabolism and regulatory mechanisms.	TP	15 classes allotted to each teacher i.e. 15 x 4 =60 classes	July-August
2.	Carbohydrates	Structure and Biological importance: Monosaccharides, Disaccharides, Polysaccharides; Derivatives of Monosaccharides. Carbohydrate metabolism: Glycolysis, Citric acid cycle, Pentose phosphate pathway, Gluconeogenesis.	NK		July-August
3.	Lipids	Structure and Significance: Physiologically important saturated and unsaturated fatty acids, Triacylglycerols, Phospholipids, Sphingolipid, Glycolipids, Steroids, Eicosanoids and terpenoids. Lipid metabolism: β -oxidation of fatty acids; Fatty acid biosynthesis.	NK		September-november
4.	Proteins	Amino acids Structure, Classification, General and Electro chemical properties of α -amino acids; Physiological importance of essential and non-essential amino acids Proteins Bond stabilizing protein structure; Levels of organization Protein metabolism: Transamination, Deamination, Urea cycle, Fate of C-skeleton of Glucogenic and Ketogenic amino acids.	TP		September
5.	Nucleic Acids	Structure: Purines and pyrimidines, Nucleosides, Nucleotides, Nucleic acids. Types of DNA and RNA, Complementarity of DNA, Hypo-Hyperchromaticity of DNA. Outlines of nucleotide metabolism.	MB		August September

6.	Enzymes	Nomenclature and classification; Cofactors; Specificity of enzyme action; Isozymes; Mechanism of enzyme action; Enzyme kinetics; Derivation of Michaelis-Menten equation, Lineweaver-Burk plot; Factors affecting rate of enzyme-catalyzed reactions; Enzyme inhibition; Allosteric enzymes and their kinetics; Strategy of enzyme action- Catalytic and Regulatory (Basic concept with one example each)	SRH		August
7.	Oxidative Phosphorylation	Redox systems; Review of mitochondrial respiratory chain, Inhibitors and un-couplers of Electron Transport System.	SRH		September November

**CORE COURSE- VII (ZOOACOR07P)
BIOCHEMISTRY**

UNITS	TOPICS	SUB TOPICS	ALLOTTED TEACHER	NO. OF CLASS	MONTH COVERED
1.		Qualitative tests of functional groups in carbohydrates, proteins and lipids.	MB		August
2.		Paper chromatography of amino acids.	SRH		September
3.		Quantitative estimation by Lowry Method.	SAB		August
4.		Demonstration of proteins separation by SDS-PAGE.	SRH		August
5.		Study of the enzymatic activity of Trypsin and Lipase.	SRH		September
6.		Performing the Acid and Alkaline phosphatase assay from serum/ tissue.	SRH		November

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