

YOGODA SATSANGA PALPARA MAHAVIDYALAYA

DEPARTMENT OF ZOOLOGY

TEACHING PLAN*YEAR : 2023-2024 *HONOURS					
Semester	Paper code and name	Unit/Module	Teacher	No of Lecture	To be completed by
Semester-I	MJ-1T Systematics and Diversity of Life Protists to Chordates	Unit-1: Products of evolutionary process	Mr. Ayan Kumar Bhunia	07	1 st Month
		Unit-3: Diversity in Protists		05	1 st & 2 nd Month
		Unit-4: General characteristics and classification up to classes, of Platyhelminthes, Basic organizations with reference to parasitic adaptation & adaptive radiation in flatworm.		05	2 nd Month
		Unit-5: Diversity in pseudocoelomate and coelomate Non chordates: *Ecdysozoa: Characteristics of the representative taxa. *Basic organizations with reference to parasitic adaptation & adaptive radiation in roundworm. * General characteristics and classification of Annelida * Basic organization & diversity in annelids with special reference to metamerism.		06	2 nd & 3 rd Month
		Unit 6. Diversity in Hemichordata & lower Chordates.		05	3 rd & 4 th Month
Unit 7. Diversity in vertebrates: Anamniotes: *Emergence of land vertebrates; Amphibian diversity and adaptability to	03	4 th Month			

Semester-I	MJ-1T Systematics and Diversity of Life Protists to Chordates	dual mode of life; Classification of Amphibia upto order			
		Unit 2. Basics of systematics & classification	Mr. Supravat Maiti	07	1 st Month
		Unit 5. Diversity in pseudocoelomate and coelomate Non chordates: * General characteristics and classification of Arthropoda. *Basic organization & diversity in arthropods with special reference concept of arthropodisation & appendage evolution; Adaptive radiations in Crustacea, Chelicerata & Insecta; Basic idea of fossil arthropod - Trilobita & Myriapoda.		07	1 st & 2 nd Month
		Unit 8. Diversity in vertebrates: Amniotes: * Classification of Aves upto subclasses & Mammalia upto living order (Young, 1981) * Adaptive radiations in birds & mammals; Concept of volant, arboreal, cursorial, fossorial & secondary aquatics adaptations. * Origin of Birds & Mammals. * Features of flying birds & running birds. * Special features of Monotremes & Marsupials with evolutionary significance; Features of living primates – Prosimi & Anthropoidea.		03	2 nd Month
				04	2 nd & 3 rd Month
				02 01	3 rd Month 3 rd Month
		04	4 th Month		
	Unit 4. Diversity in acoelomate Metazoa: * General characteristics and classification up to classes:	Miss. Puja Panda	06	1 st Month	

Semester-I	MJ-1T Systematics and Diversity of Life Protists to Chordates	<p>Porifera, Cnidaria, Ctenophora.</p> <ul style="list-style-type: none"> * Special features & structural diversity in sponges with special reference to cell types; *Special features of cnidarians with reference to polymorphism and division of labour; Coral reefs with diversity, formation, function & conservation. *Affinity of Ctenophora. <p>Unit 5. Diversity in pseudocoelomate and coelomate Non chordates:</p> <ul style="list-style-type: none"> * General characteristics and classification of Mollusca & Echinodermata upto class (Rupert & Barnes, 1994). * Basic organization and diversity in Mollusca with reference to torsion in mollusca with respect to disruption of bilateral symmetry & its significance *Affinity of Echinodermata *General characteristics, affinity & evolutionary significance of Onychophora. <p>Unit 7. Diversity in vertebrates: Anamniotes:</p> <ul style="list-style-type: none"> * Basic organization and diversity of fishes with reference to aquatic adaptation & evolutionary transitions; Classification of Chondrichthyes & Osteichthyes upto subclasses (Romer 1959) <p>Unit 8. Diversity in vertebrates: Amniotes:</p> <ul style="list-style-type: none"> * Classification of Reptilia upto living order. 	Miss. Puja Panda		
				02	1 st Month
				04	2 nd Month
				04	2 nd Month
				05	3 rd Month

Semester-I	MJ-1T Systematics and Diversity of Life Protists to Chordates	* Adaptive radiations in reptiles. * Features of venomous & non venomous snake, distribution & type of snake venom with antidote in India.			
	MJ-1T Systematics and Diversity of Life Protists to Chordates (Lab)	1.Basic requirements for laboratory work: Knowledge about the parts of microscope with their function & setting of microscopes; Knowledge of calibration, magnification & drawing with the help of camera lucida, ocular & stage micrometer with determination of magnification 2.Basic idea of fixatives, preservatives & stains with preparation method for study of museum specimen, significance of study of museum specimen 3.Study of animals through identification of models, photographs, slides and museum specimens in the laboratory with details on their classification upto phylum/class/subclass/order as indicated in theory, along with biogeography, adaptive features, economic/medical/ ecological importance and diagnostic features: * Amoeba, Euglena, Paramecium, Plasmodium vivax, P. falciparum, Entamoeba, Giardia, Noctiluca, Elphidium, Trypanosoma, Opalina (at least 5) * Fasciola hepatica, Teania solium, Echinococcus, Schistosoma, Ascaris Wuchereria bancrofti, Ancylostoma * Nereis, Aphrodite, Sabella,	Mr. Ayan Kumar Bhunia	06	1 st Month
				06	1 st & 2 nd Month
				09	2 nd & 3 rd Month

Semester-I	MJ-1T Systematics and Diversity of Life Protists to Chordates (Lab)	Chaetopterus, Arenicola, Leech, Tubifex, Earthworm (at least 5) * Balanoglossus, Salpa, Doliolum, Ascidia, Branchiostoma, Myxine, Petromyzon * Uraeotyphlus, Ichthyophis, Necturus, Cryptobranchus, Tylotriton, Hyla, Alytes, Rhachophorus			
		<p>3. Study of animals through identification of models, photographs, slides and museum specimens in the laboratory with details on their classification upto phylum/class/subclass/order as indicated in theory, along with biogeography, adaptive features, economic/medical/ecological importance and diagnostic features:</p> <p>* Carinoscorpius, Scorpion, Balanus, Sacculina, Crab, Macrobrachium, Penaeus, Squilla, Eupagurus, Scolopendra, Julus, Termite queen, Silk moth, Honey bee (three casts), Sitophilus, Tribolium, Lady bird beetle, Wasp, Locust, Grasshopper, Dragon fly, Stick insect, Mosquito, Cimex, Pediculus, Lepisma, Belostoma, Daphnia, Cyclops, Argulus, Peripatus (at least 10) * Pistaculla, Passer, Kingfisher, Spilopelia (spotted dove), Milvus (kite), Black Cormorant, Cacaetua, Ploceus, Orthotomus, Copsychus (oriental magpie) Coppersmith Barbet (at least 5) * Bandicota, Hystrix, Funambulus, Pteropus, Manis, Cavia, Lemur (at least 2)</p> <p>4. Study of animals in nature – Concept of the use of photographic device, sound recorder, GPS & binocular through demonstration or</p>	Mr. Supravat Maiti	09	1 st & 2 nd Month
				06	2 nd Month

Semester-I	MJ-1T Systematics and Diversity of Life Protists to Chordates (Lab)	<p>handling.</p> <p>5.Observation & records of different animals from college campus or nearby any terrestrial field (forest, grassland, hill or mountain area etc.) or water body (pond, river, lake, sea etc.) or zoological park or museum.</p> <p>6.Comparison & weighting of characters of any two species of animal belonging to same genera or different genera but same family.</p> <p>7.Method of collection of any five species at least from three different phyla/classes (preferably from arthropoda, mollusca, fish, reptile, bird and mammals).</p>	Mr. Supravat Maiti	06	3 rd Month
					06
		<p>3.Study of animals through identification of models, photographs, slides and museum specimens in the laboratory with details on their classification upto phylum/class/subclass/order as indicated in theory, along with biogeography, adaptive features,economic/medical/ecological importance and diagnostic features:</p> <p>* Sycon, Euplectella, Euspongia (bath sponge), Neptune’s cup, (at least 1)</p> <p>* Obelia, Hydra, Aurelia, Physalia, Porpita, Tubipora, Corallium (red coral), Gorgonia, Madripora (horn coral), Fungia (musroom coral), Brain coral, Sea anemone, Sea pen, Beroe (at least 5)</p> <p>* Chiton, Achatina, Aplysia, Patella, Dentalium, Doris, Oyster, Mussel, Sepia, Loligo, Octopus (at least 8)</p> <p>* Sea star, Brittle star, Antedon, Sea cucumber, Echinus (at least 2)</p>	Miss.Puja Panda	09	1 st & 2 nd Month

Semester-I	MJ-1T Systematics and Diversity of Life Protists to Chordates (Lab)	* Scoliodon, Sphyrna, Trigon, Torpedo, Raja, Prystis, Chimaera, Labeo rohita, Catla, Mystus, Heteropneustes, Clarias, Wallago, Notopterus, Tenualosa, Exocoetus, Anabas, Sucker fish, Flat fish, Tetrodon, Hippocampus (at least 10) * Chelone, Trionyx, Hemidactylus, Varanus, Uromastix, Calotes, Mabuya, Gekko, Chameleo, Draco, Phrynosoma, Ophiosaurus, Bungurus, Naja, Daboia, Amphisma, Zamenis(Ptyas), Natrix, Ahatulla, Chrysopelea, Hydrophis, Crocodylus, Gavialis (at least 8) 8.Assessment of relationship by constructing a cladogram using any five animals belonging to a clade. 9.Preparation of key for identification of venomous and non-venomous snakes; Preparation of key on any group (preferably insects, fishes & birds of different feeding habit (planktonivorus, detritivorous, frugivorus, carnivorous, omnivorus, insectivorous, piscivorous, graminivorous etc.)	Miss.Puja Panda	06	2 nd Month
				06	2 nd & 3 rd Month
	SEC-1 Apiculture	5. Studies on the physical and chemical nature of Honey. 6. Preparation of Honey based products.	Mr. Ayan Kumar Bhunia	03	2 nd & 3 rd Month
		3. Studies on the special structure of bee hives and beekeeping equipments. 4. Studies on various diseases of adult Honeybees.	Mr. Supravat Maiti	06	2 nd & 3 rd Month
1. Identification of different species of honeybees. Identification of different working groups of honey bees. Study the morphology and sexual dimorphism of		Miss. Puja Pand	04	2 nd Month	

		honey bees 2. Studies on pollen basket, mouth parts, sting apparatus, wax gland of worker honey bees. 7. Visit to an apiculture farm and preparation a project report on apiculture.		04	3 rd Month 3 rd Month
Semester-II	MJ-2T Cell Biology	Unit III: Cytoplasmic organelles I Unit V: Cytoskeletal structures	Dr. Priyanka Rai	10 07	1 st & 2 nd Month 3 rd Month
		Unit I: Cell theory and its modern version and interpretation. General structure of prokaryotes, bacteria, archaea and eukaryotes. Unit II: Plasma Membrane (structure and function): Unit IV: Cytoplasmic organelles II:	Mr. Ayan Kumar Bhunia	02 10 08	1 st Month 1 st & 2 nd Month 3 rd Month
		Unit VII: Cell Cycle: Unit VIII: Cell signalling:	Mr. Supravat Maiti	10 07	1 st & 2 nd Month 3 rd & 4 th Month
		Unit VI: Nucleus: Unit IX: Tools and techniques used to study cell	Miss. Puja Panda	07 07	1 st & 2 nd Month 3 rd Month
	MJ-2P Cell Biology (Lab)	1. Cell viability study by Trypan Blue Exclusion method.	Dr. Priyanka Rai	06	2 nd Month
		3. Preparation of temporary stained squash of onion root tip to study various stages of mitosis.	Mr. Ayan Kumar Bhunia	06	2 nd Month
		2. Preparation of chromosome squashes from grasshopper/cockroach testes for the observation of stages of meiosis.	Mr. Supravat Maiti	06	3 rd Month
		4. Preparation of permanent slide to show the presence of	Miss. Puja Panda	06	3 rd Month

Semester-II		Barr body in human female blood cells/cheek cells.			
	SEC-2 Aquarium fish keeping	1. Identification of fresh water indigenous and exotic ornamental fishes. Identification of marine indigenous and exotic aquarium fishes. 7. Field visit to an ornamental fish farm and preparation of a field report.	Dr. Priyanka Rai	06	2 nd & 3 rd Month 3 rd Month
		4. Feed formation and preparation of pelleted diet for aquarium fishes. Live fish food organism for ornamental fishes. 5. Ornamental fish breeding practice.	Mr. Ayan Kumar Bhunia	06	3 rd Month 06
		6. Studies on different disease of ornamental fishes.	Mr. Supravat Maiti	04	4 th Month
		2. Construction and installation of modern age aquahome. 3. Studies on Aquarium plants.	Miss. Puja Panda	08 04	2 nd Month 3 rd Month
	MI-2T Insect Vector & Diseases	Unit 3: Insects as Vectors Unit 5: Siphonaptera as Disease Vectors	Dr. Priyanka Rai	07 07	1 st & 2 nd Month 3 rd & 4 th Month
		Unit 1: Introduction to Insects Unit 2: Vector and vector bionomics	Mr. Ayan Kumar Bhunia	05 07	1 st Month 2 nd & 3 rd Month
		Unit 4: Dipteran as Disease Vectors Unit 8: Vector management:	Mr. Supravat Maiti	09 07	1 st & 2 nd Month 3 rd & 4 th Month
		Unit 6: Siphunculata as Disease Vectors Unit 7: Hemiptera as Disease Vectors	Miss. Puja Panda	07 07	1 st & 2 nd Month 3 rd & 4 th Month

Semester-II		2. Study of following insect vectors through permanent slides/ photographs: Aedes, Culex, Anopheles, Pediculus humanus capitis, Phithirus pubis, Xenopsylla cheopis, Cimex lectularius, Phlebotomus argentipes, Musca domestica through permanent slides/ photographs.	Mr. Ayan Kumar Bhunia	09	3 rd & 4 th Month
		1. Study of mouth parts of different insects.	Mr. Supravat Maiti	03	3 rd Month
		3. Study of different diseases transmitted by above insect vectors.	Miss. Puja Panda	06	3 rd Month
		4. Submission of a project report on any one of the insect vectors and disease transmitted.		06	4 th Month
Semester-III	CC-5T Chordates	Unit-2: Protochordata	Mr. Ayan Kumar Bhunia	04	1 st Month
		Unit-4: Agnatha		04	2 nd Month
		Unit-6: Amphibia		06	3 rd Month
		Unit-8: Aves		07	4 th month
		Unit-3: Origin of chordate	Mr. Supravat Maiti	03	1 st Month
		Unit-9: Mammals		03	1 st Month
		Unit-10: Zoogeography		05	4 th Month
		Unit-1: Introduction to Chordates	Miss. Puja Panda	05	1 st & 2 nd Month
		Unit-5: Pisces		06	3 rd Month
		Unit-7: Reptilia		06	4 th Month
	CC-5P Chordates (Lab)	Identification of museums specimens-	Mr. Ayan Kumar Bhunia		
		1. Protochordata		03	1 st Month
		2. Agnatha		03	2 nd Month
		4. Amphibian		03	3 rd month
		7. Pecten from Fowl head		03	4 th month
		Identification of museums specimens-	Mr. Supravat Maiti		
		6. Mammalian		06	2 nd Month
		8. Dissection of Tilapia		10	3 rd & 4 th Month

		Identification of museums specimens- 5. Reptilia	Miss. Puja Panda	06	1 st Month
CC-6T Animal Physiology		Unit-5: Reproductive System Unit-6: Endocrine System	Mr. Ayan Kumar Bhunia	12 16	1 st & 2 nd Month 3 rd & 4 th Month
		Unit-1: Tissues Unit-2: Bone & Cartilage	Mr. Supravat Maiti	08 12	1 st Month 2 nd & 3 rd Month
		Unit-3: Nervous System Unit-4: Muscular System	Miss. Puja Panda	08 07	1 st & 2 nd Month 3 rd & 4 th Month
		4.Study of permanent slides	Mr. Ayan Kumar Bhunia	09	2 nd & 3 rd Month
CC-6P Animal Physiology (Lab)		3. Preparation of temporary mounts 5. Microtomy: Preparation of permanents slide	Mr.Supravat Maiti	15 09	1 st & 2 nd Month 3 rd & 4 th Month
		1.Recording of simple muscle twitch with electrical stimulation 2. Demonstration of the unconditioned reflex action	Miss. Puja Panda	06 06	1 st Month 2 nd Month
CC-7T Biochemistry		Unit-3: Proteins Unit-4:Nucleic Acids	Mr. Ayan Kumar Bhunia	11 10	1 st & 2 nd Month 3 rd Month
		Unit-1: Carbohydrates Unit-2: Lipids	Mr. Supravat Maiti	12 09	2 nd & 3 rd Month 4 th Month
		Unit-5: Enzymes Unit-6: Oxidative Phosphorylation	Miss. Puja Panda	06 08	1 st Month 2 nd & 3 rd Month
CC-7P Biochemistry (Lab)		2.Paper chromatography of amino acids 3.Quantitative estimation of Lowry Methods	Mr. Ayan Kumar Bhunia	06 06	1 st Month 4 th Month

		1. Qualitative test of carbohydrate protein & lipids 4. Protein separation by SDS-PAGE	Mr. Supravat Maiti	10 10	1 st & 2 nd Month 2 nd & 3 rd Month
		5. Enzymatic activity of Trypsin & Lipase 6. To perform Acid & Alkaline phosphatase assay from serum/tissue	Miss. Puja Panda	09 09	2 nd Month 3 rd & 4 th Month
	SEC-1T Apiculture	Unit-1: Biology of Bees Unit-2: Rearing of Bees Unit-3: Disease & Enemies Unit-4: Bee Economy Unit-5: Entrepreneurship in Apiculture	Miss. Puja Panda	04 04 03 03 02	1 st Month 2 nd Month 3 rd Month 4 th Month 3 rd & 4 th Month
	GE-3T Aquatic Biology	Unit-3: Marine Biology Unit-4: Management of Resources	Mr. Ayan Kumar Bhunia	08 10	1 st & 2 nd Month 3 rd & 4 th Month
		Unit-1: Aquatic Biomes Unit-2: Freshwater Biology	Mr. Supravat Maiti	10 09	1 st Month 2 nd Month
	GE-3P Aquatic Biology (Lab)	3. Determine the amount of Turbidity, Dissolved Oxygen, Free carbon dioxide 4. Instruments used in Limnology	Mr. Ayan Kumar Bhunia	15 06	1 st to 3 rd Month 3 rd & 4 th Month
		1. Determine the area of a lake 2. Identify the macrophytes, phytoplanktons, zooplanktons	Mr. Supravat Marti	03 06	1 st Month 2 nd Month
Semester-IV	CC-8T Comparative Anatomy of Vertebrates	Unit-7: Nervous System Unit-8: Sense Organs	Dr. Priyanka Rai	04 04	1 st Month 1 st Month
		Unit-1: Integumentary System Unit-5: Circulatory System	Mr. Ayan Kumar Bhunia	04 04	1 st Month 1 st Month
		Unit-2: Skeletal System Unit-4: Respiratory System	Mr. Supravat Maiti	06 04	1 st Month 1 st & 2 nd Month

		Unit-3: Digestive System Unit-6: Urinogenital System	Miss. Puja Panda	06 06	1 st Month 1 st & 2 nd Month
	CC-8P Comparative Anatomy of Vertebrates (Lab)	1.Study of placoid, cycloid, ctenoid scales 2.Study of disarticulated skeleton of Toad, Pigeon, Guinea pig 4.Identification of mammalian skulls	Mr. Ayan Kumar Bhunia	03 12 03	1 st Month 1 st & 2 nd Month 3 rd Month
		3.Demonstration of Carapace Plastron of turtle	Dr. Priyanka Rai	06	1 st Month
		5. Dissection of Tilapia	Mr. Supravat Marti	09	1 st & 2 nd Month
		CC-9T Animal Physiology	Unit-3: Physiology of circulation : components of Blood and their functions; structure and functions of Hoemoglobin. Unit-5: Thermoregulation & Osmoregulation	Dr. Priyanka Rai	04 05
		Unit-3: Physiology of circulation Unit-4: Physiology of heart	Mr.Ayan Kumar Bhunia	06 08	2 nd Month 2 nd & 3 rd Month
		Unit-2: Physiology of respiration	Mr. Supravat Maiti	08	2 nd & 3 rd Month
		Unit-1: Physiology of digestion Unit-6: Renal physiology	Miss.Puja Panda	08 04	2 nd & 3 rd Month 3 rd Month
	CC-9P Animal Physiology (Lab)	3.Estimation of haemoglobin using haemoglobinometer	Dr. Priyanka Rai	06	2 nd Month
		1.Determination of ABO blood group 2.Enumeration of RBC & WBC using haemocytometer	Mr.Ayan Kumar Bhunia	03 06	1 st Month 3 rd Month

		4. Preparation of haemin & haemochromogen crystals	Mr. Supravat Maiti	06	2 nd Month
		5. Recording of blood pressure	Miss.Puja Panda	06	1 st Month
	CC-10T Immunology	Unit-1: Overview of Immune System	Dr. Priyanka Rai	04	3 rd Month
		Unit-2: Innate & Adaptive immunity		06	3 rd & 4 th Month
		Unit-6: Cytokines		03	4 th Month
		Unit-3: Antigen	Mr.Ayan Kumar Bhunia	06	3 rd Month
		Unit-4: Immunoglobulin		08	4 th Month
		Unit-5: Major Histocompatibility Complex	Mr. Supravat Maiti	08	3 rd & 4 th Month
		Unit-7: Complement System		06	4 th Month
		Unit-8: Hypersensitivity		04	4 th Month
		Unit-9: Immunology of diseases	Miss.Puja Panda	04	4 th Month
		Unit-10: Vaccines		06	4 th Month
	CC-10P Immunology (Lab)	3.Preparation of stained blood film	Mr.Ayan Kumar Bhunia	06	4 th Month
		4. ABO blood group determination		03	1 st Month
		5.Demonstration of ELISA	Mr. Supravat Maiti	09	4 th Month
		1.Demonstration of lymphoid organs	Dr. Priyanka Rai	06	3 rd Month
		2. Histological study through slides		06	4 th Month
	SEC-2T Sericulture	Unit-3: Rearing of Silkworm	Dr. Priyanka Rai	06	3 rd & 4 th Month
		Unit-1: Introduction to Sericulture	Mr.Ayan Kumar Bhunia	05	4 th Month
		Unit-2: Biology of Silkworm	Miss.Puja Panda	04	2 nd Month
		Unit-4: Pests & Diseases		02	3 rd Month
		Unit-5: Entrepreneurship in Sericulture			4 th Month

	GE-4T Environment & public Health	Unit-4: Waste Management Technologies	Dr. Priyanka Rai	08	1 st & 2 nd Month
		Unit-5: Diseases: Minamata disease, Typhoid, Filariasis.		04	2 nd Month
		Unit-3: pollution	Mr. Ayan kumar	04	1 st Month
		Unit-5: Diseases : Tuberculosis, Asthama, Cholera.	Bhunia	04	2 nd Month
	Unit-1: Introduction	Mr. Supravat Maiti	06	1 st Month	
	Unit-2: Climate Change		04	2 nd Month	
	GE-4P Environment & Public Health (Lab)	1.To determine SO ₄ , NO ₃ , in soil & water	Mr. Ayan kumar Bhunia	09	1 st to 4 th Month
		1.To determine P ^H , Cl in soil & water	Mr. Supravat Maiti	09	1st to 4th Month
Semester-V	CC-11T Molecular Biology	Unit-1: Nucleic Acids	Mr.ayan Kumar	10	1 st Month
		Unit-4: Translation		10	2 nd Month
		Unit-8: Molecular Techniques	Bhunia	08	3 rd & 4 th Month
		Unit-2: DNA Replication	Mr. Supravat Maiti	10	1 st Month
	Unit-3: Transcription		07	2 nd Month	
	Unit-5: Post transcriptional Modification		07	3 rd Month	
	Unit-6: Gene Regulation		10	4 th Month	
	Unit-7: DNA Repair Mechanism		10	5 th Month	
	CC-11P Molecular Biology (Lab)	1.Demonstration of polytene & lampbrush chromosome	Mr. Ayan Kumar Bhunia	06	1 st Month
		2.Isolation & quantification of Genomic DNA 3.Agarose gel electrophoresis for DNA	Mr. Supravat Maiti	09 12	1 st & 2 nd Month 2 nd & 3 rd Month
	CC-12T Genetics	Unit-1: Mendelian Genetics	Mr. Ayan Kumar Bhunia	10	1 st Month
		Unit-2: Linkage, Crossing Over, Chromosomal Mapping		12	2 nd Month
		Unit-3: Mutation		13	3 rd Month
		Unit-7: Transposable Genetic Elements	Mr. Supravat Maiti	12	1 st & 2 nd Month

		Unit-4: Sex Determination Unit-5: Extra-chromosomal Inheritance Unit-6: Recombination in Bacteria & Viruses	Miss. Puja Panda	04 04 06	2 nd Month 2 nd Month 4 th Month
	CC-12P Genetics (Lab)	2.Linkage maps Based on conjugation 3.Identification of chromosomal aberration 4.Pedigree analysis of some human inherited traits	Mr. Supravat maiti	12 12 09	1 st & 2 nd Month 2 nd & 3 rd Month 3 rd & 4 th Month
		1.Chi-square analyses	Miss. Puja Panda	06	1 st & 2 nd Month
	DSE-1T Fish & Fisheries	Unit-1: Fish Introduction & Classification Unit-2: Morphology & physiology Unit-3: Fisheries Unit-4: Aquaculture Unit-5: Fish in research	Miss. Puja Panda	03 04 12 11 10	1 st Month 2 nd Month 3 rd Month 4 th Month 5 th Month
	DSE-1P Fish & Fisheries (Lab)	1.Morphometric & meristic characters of fishes 2.Study of museum fishes 3.Study of different types of scales 4.Study of craft & gears used in Fisheries 5.Water quality criteria for Aquaculture 6.Study of air breathing organs 7.Project Report on visit to any fish farm	Miss. Puja Panda	06 06 03 06 03 06 03	1 st Month 2 nd Month 3 rd Month 4 th Month 5 th Month 2 nd & 3 rd Month 3 rd & 4 th month
	DSE-2T Animal Biotechnology	Unit-1: Introduction of Animal Biotechnology Unit-2: Molecular Techniques In Gene manipulation	Mr. Ayan Kumar Bhunia	15 15	1 st & 2 nd Month 3 rd & 4 th Month
		Unit-3: Genetically Modified Organisms Unit-4: Culture Techniques & Application	Mr. Supravat maiti	15 15	2 nd Month 4 th Month

	DSE-2P Animal Biotechnology (Lab)	7. Project report on animal cell culture	Mr. Ayan Kumar Bhunia	06	4 th Month
		1. Genomic DNA isolation from E.coli 2. Plasmid DNA isolation from E.coli 3. Restriction digestion of plasmid DNA 4. Construction of circular & linear restriction map 5. Calculation of transformation efficiency 6. To study different techniques	Mr. Supravat Maiti	03	1 st month
				03	2 nd Month
				03	3 rd Month
				06	4 th Month
				03	5 th Month
10	3 rd & 4 th Month				
Semester-VI	CC-13T Developmental Biology	Unit-1: Introduction of Development Biology	Dr. Priyanka Rai	08	1 st Month
		Unit-3: Late Embryonic Development	Dr. Priyanka Rai	08	2 nd Month
		Unit-2: Early Embryonic Development	Mr. Ayan Kumar Bhunia	14	1 st & 2 nd Month
		Unit-4: Post Embryonic Development	Mr. Supravat Maiti	06	1 st Month
	CC-13P Developmental Biology (Lab)	1. Study of whole mounts of developmental stages of chick 4. Project report on Drosophila culture 2. Study of developmental stages & life cycle of Drosophila 3. Study of Different section of placenta	Mr. Ayan Kumar Bhunia	06	1 st Month
				06	2 nd Month
				09	1 st Month
	CC-14T Evolutionary Biology	Unit-3: Geological time scale Unit-7: Extinction Unit-8: Origin & Evolution of Man	Dr. Priyanka Rai	06	1 st Month
				04	2 nd Month
				04	3 rd Month

		Unit-1: Life's Beginnings	Mr. Ayan Kumar Bhunia	07	1 st Month
		Unit-2: Historical review of Evolutionary concepts		07	2 nd Month
		Unit-4: Sources of variation		02	3 rd Month
		Unit-5: Population genetics	Mr. Supravat Maiti	10	2 nd & 3 rd Month
		Unit-6: Species concept	Miss. Puja Panda	07	2 nd Month
		Unit-9: Phylogenetic trees		07	3 rd Month
	CC14P Evolutionary Biology (Lab)	1. Study of fossils from models/ pictures	Mr. Ayan Kumar Bhunia	06	3 rd Month
		3. Study & verification of Hardy – Weinberg laws	Mr. Supravat Maiti	09	1 st & 2 nd month
		4. Graphical representation & interpretation of data of height/ weight		06	3 rd month
		2. Study of homology & analogy from suitable specimens	Miss. Puja Panda	06	1 st & 2 nd Month
	DSE-3T Endocrinology	Unit-2: Epiphysis, Hypothalamo – hypophysial Axis	Dr. Priyanka Rai	08	3 rd Month
		Unit-3: Peripheral Endocrine Glands	Mr. Ayan Kumar Bhunia	08	3 rd & 4 th Month
		Unit-4: Regulation of Hormone Action	Mr. Supravat Maiti	09	3 rd Month
		Unit-1: Introduction to Endocrinology	Miss. Puja Panda	04	3 rd Month
	DSE-3P Endocrinology (Lab)	5. Designing of primer of any hormone	Dr. Priyanka Rai	03	3 rd Month
		2. Study of permanent slides of all endocrine glands	Mr. Ayan Kumar Bhunia	09	2 nd Month
		3. Microtomy & Slide preparation Of any endocrine glands		06	3 rd & 4 th Month

		4.Estimation of plasma level of any hormone using ELISA	Mr. Supravat Maiti	09	3 rd Month
		1.Dissect & display of Endocrine glands in laboratory bred rat	Miss. Puja Panda	06	3 rd Month
	DSE-4T Wild Life Conservation & Management	Unit-5: Aims & objectives of wildlife conservation	Dr. Priyanka Rai	04	3 rd Month
		Unit-6: Management planning of wildlife in protected areas		06	4 th Month
		Unit-1: Introduction to Wild life	Mr. Ayan Kumar	06	3 rd Month
		Unit-2: Evaluation & management of Wildlife	Bhunias	09	4 th Month
		Unit-3: Management of habitats	Mr. Supravat Maiti	04	3 rd & 4 th Month
		Unit-4: Population estimation		04	4 th Month
		Unit-7: Man & Wildlife	Miss. Puja Panda	04	3 rd Month
		Unit-8: Protected areas		04	4 th Month
	DSE-4P Wild Life Conservation & Management (Lab)	3.Familiarization & study of animal evidences in the field	Dr. Priyanka Rai	06	4 th Month
		4. Demonstration of different field techniques for flora & fauna		06	4 th Month
		1.Identification of flora, mammalian fauna, avian fauna, herpeto-fauna	Mr. Supravat Maiti	09	4 th Month
		2.Demonstration of basic equipment needed in wildlife studies use		06	4 th Month
		5. Different types of method for wild life study	Miss. Puja Panda	09	4 th Month
		6.Trail/ transect monitoring for abundance & diversity estimation of mammals & bird (direct & indirect evidences)		06	4 th Month

.....THE END.....