TEACHING PLAN

Faculty name: **Dr Deep Chandan Chakraborty**

Postgraduate Department of Zoology, Asutosh College

UNDERGRADUATE						
SEMESTER	**AUGUST**	**SEPTEMBER**	**OCTOBER**	**NOVEMBER**	**DECEMBER**	**JANUARY**
1st Semester H (Classes started from 19-09-2022)		**THEORY** Introductory Class on Molecular Biology (CLASS 1) Nucleic Acid: Concept and features (CLASS 2)	Puja Vacation	**THEORY** Nucleic Acid: Structural organization - Double helix, Chargaff Rule, anti-parallelity, grooves (CLASS 3) Nucleic Acid: physicochemical properties – T_m, DNA-RNA hybrid, DNA Disassociation (CLASS 4) Gene Regulation – Operon concept – Lac & Trp operon idea (CLASS 5) **PRACTICALS** Introductory Class on Molecular Biology practical (CLASS 1) DNA isolation hands on (CLASS 2-3)	**THEORY** Gene Regulation – Lactose Operon – primary and secondary regulations (CLASS 6) Gene Regulation – Lac Operon problems, Attenuation (CLASS 7) Gene Regulation – Tryptophan Operon problems, Attenuation (CLASS 8) Regulation of Transcription in eukaryotes: Activators, enhancers, silencer, repressors (CLASS 9) **PRACTICALS** Histological staining of DNA and RNA in prepared slides (CLASS 4)	**THEORY** Regulation of Transcription in eukaryotes: miRNA mediated gene silencing (CLASS 10) Epigenetic Regulation: DNA Methylation, Histone Methylation & Acetylation (CLASS 11) **PRACTICALS** Practise (CLASS 5) Course complete
1st Semester G			Puja Vacation			
3rd Semester H	**THEORY** Introductory Class on Biochemistry (CLASS 1) Carbohydrate structure (CLASS 2) Glycolysis – pathways and	**THEORY** Glycogenesis and Glycogenolysis– pathways and control (CLASS 4) Neoglucogenesis – pathway and Pentose Phosphate pathway (CLASS 5) Krebs Cycle –	Puja Vacation	**THEORY** Electron Transport chain – oxidative phosphorylation, ATP synthesis, proton motive force (CLASS 7) **PRACTICALS** Provided Google form to fix animal name for each student and schedule of presentation and report		

	control (CLASS 3)	regulation and importance (CLASS 6) **PRACTICALS** Explained about Power point presentation on study of habit, habitat or behaviour of any one animal by student - write-up format given (DAY 1)		submission dates (DAY 2) Internal Assessment team A – (DAY 3) Internal Assessment team B – (DAY 4) Internal Assessment team C – (DAY 5)		
3rd Semester G		**THEORY** Carbohydrate metabolism – introduction (CLASS 1) Glycolysis, Krebs cycle (CLASS 2)	Puja Vacation	Electron Transport Chain (CLASS 3)		
5th Semester H	**THEORY** Introduction to Ecology Autecology and synecology, Levels of organization (CLASS 1)	**THEORY** Laws of limiting factors, Study of Physical factors, The Biosphere (CLASS 2) Applied Ecology - Types & level of biodiversity Mega-diversity countries, Biodiversity Hot spot (CLASS 3) **PRACTICALS** Introductory class on Ecology practical (CLASS 1)	Puja Vacation	**THEORY** Applied Ecology - Flagship species, Keystone species, Wildlife Conservation (in situ and ex situ conservation), concept of protected areas. Red data book, Problem of corridor. (CLASS 4) Applied Ecology - Indian wild life act & Schedule. Concept of corridor, advantages (CLASS 5) Applied Ecology - Threats to survival and conservation strategies for Tiger, Olive Ridley, White Rumped Vulture (CLASS 6) **PRACTICALS** Determination of population density in a natural/hypothetical community by quadrate method (CLASS 2)		

				Calculation of Shannon-Weiner diversity index for the same community (CLASS 3)		
5th Semester G			Puja Vacation			
POSTGRADUATE ZOOLOGY						
SEMESTER	**AUGUST**	**SEPTEMBER**	**OCTOBER**	**NOVEMBER**	**DECEMBER**	**JANUARY**
1st Semester			Puja Vacation	**THEORY** DNA replication and regulation - Enzymes involved in prokaryotic and eukaryotic replication and gene amplification (CLASS 1) Role of Non-coding RNA in prokaryotic and eukaryotic DNA replication (CLASS 2) Behavioural Ecology - Ecological specialization and generalization, Evolution of Sex (CLASS 3) Behavioural Ecology - Parental investment (CLASS 4)	**THEORY** Ecological Economics - Ecosystem services, types and valuation (CLASS 5) Ecological footprint analysis (CLASS 6) Eco-restoration – theories and applications (CLASS 7) Assignments verification (CLASS 8)	
3rd Semester Core		**THEORY** Conservation of Habitats and landscape– Problems of Habitat loss – Isolation and Fragmentation, Edge influence (CLASS 1) Managing Habitat connectivity, Planning for Reserve Design, Habitat Management for Non Reserve lands (CLASS 2)	**THEORY** Process and pattern of Biodiversity – theories explaining global patterns of biodiversity; Tracking Biodiversity using Indicator species- Taxon based Biodiversity indicators (CLASS 3)	**THEORY** Conservation at Genetic levels – Problems of Inbreeding and Genetic drift in small populations; Measuring Genetic Diversity of populations, Managing Genetic Diversity for conservation. Process and pattern of Biodiversity – Biodiversity using Indicator species- Structure and Function-based Biodiversity Indicators (CLASS 4)		
3rd Semester		Biodiversity and	Functional diversity	Processes in the		

Elective paper		Ecosystem function Introductory lecture on Biodiversity Ecosystem Function (CLASS 1) Statement of purpose discussion (CLASS 2) Discussion on project idea – Haldi river hydro ecology (CLASS 3) Theories on relation between biodiversity and ecosystem function Species Complementarity, Sampling effect, Redundancy (CLASS 4) Decline of global biodiversity and loss of ecosystem function. (CLASS 5)	and ecosystem functioning. (CLASS 6) The economics of biodiversity and ecosystem function (CLASS 7).	landscape- Corridors (CLASS 8) Theories in landscape ecology- Hierarchy theory and the structure of the landscape, Percolation theory (CLASS 9) Theories in landscape ecology- Metapopulation theory, The systems source sink (CLASS 10)		

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DEPARTMENT OF

TEACHING PLAN FOR SEMESTER

NAME OF FACULTY : LOPAMUDRA MUKHERJEE

PAPER : PART 1 SEM -1 CC2 MOLECULAAR BIOLOGY (ZOOA-CC1-2,TH)

LECTURES ALLOTED: TH- 27

ALLOTED SYLLABUS: ZOOA-CC-1-P (NONCHORDATES PACTICALS)

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
UNIT-2(3)	DNA REPLICATION
UNIT-3(2)	TRANSCRIPTION
UNIT-4(2)	TRANSLATION
PRACTICAL(3)	IDENTIFICATION WITH REASON SYSTEMATIC POSITION
TOPIC/SUBTOPIC:	

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DEPARTMENT OF

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NAME OF FACULTY : LOPAMUDRA MUKHERJEE

PAPER : PART II SEM -3 CC6 ANIMAL PSYCHOLOGY (ZOOA-CC3-6,TH)

(ZOOA-CC3-6P)PRACTICAL

LECTURES ALLOTED: - 24

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
UNIT-2	BONE AND CARTILAGE
UNIT-3	NERVOUS SYSTEM
UNIT-4	MASCULAR SYSTEM
PRACTICAL	IDENTIFICATION WITH REASONS
TOPIC/SUBTOPIC:	

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DEPARTMENT OF

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NAME OF FACULTY : LOPAMUDRA MUKHERJEE

PAPER : PART III SEM -5 CC12 PRINCIPLE OF GENETICS (ZOOA-CC-5-12,TH)
PRACTICAL (ZOOA-CC35-12P)

LECTURES ALLOTED: 14

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
UNIT-6(1)	GENETIC FINE STRUCTURE
UNIT-3(4)	MUTATIONS
PRACTICAL	PEDIGREE ANALYSIS
TOPIC/SUBTOPIC:	

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR M.SC. 3 SEMESTER ENVS

NAME OF FACULTY : TAPAN KUMAR ROY

PAPER : CBCC ZOOLOGY

LECTURES ALLOTED:

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
1 -7	**1. Outline of animal classification** Linnaean hierarchy and species concept Phylogenetic reconstruction, characters and character states, cladistic and phenetic methods (Excluding characters and its transition and basics of phenetics) Molecular taxonomy and evolutionary theories
8-10	Biodiversity indicator- Taxon based indicators. Surrogate species. Global pattern of biological diversity, endemism and mega diversity centres. Wildlife resources of India, conservation framework and status of threatened taxa
TOPIC/SUBTOPIC:	

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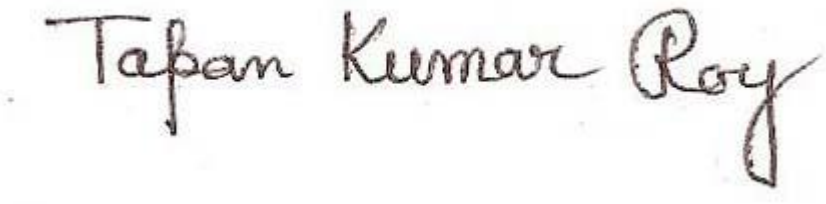

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR M.SC. SEMESTER 1

NAME OF FACULTY : TAPAN KUMAR ROY

PAPER : ZCT-101

LECTURES ALLOTED: 15

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
1-5	Invertebrate defense against predators and parasites
6-10	The language of Insect communication- Chemical mode of communication, Acoustic communication, Bioluminiscence
11-16	Chemical mimicry of Insects- Courtship and reproduction, Kin selection and aggression, Interpretations of signaling pathways
TOPIC/SUBTOPIC:	

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR M.SC. SEMESTER

NAME OF FACULTY : TAPAN KUMAR ROY

PAPER : ZCT-311

LECTURES ALLOTED: 14

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
1-6	Conservation of Populations –Concept of Effective population numbers and Minimum viable population;Population viability analysis and making conservation decisions,Wild life Population management and restoration.
7-12	Selection, designing and management of protected areas - Criteria for measuring conservation value of areas, Practical approaches to protected area designation; Designing protected areas; Managing protected areas; Monitoring change in protected areas.
TOPIC/SUBTOPIC:	

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TEACHING PLAN FOR M.SC. SEMESTER

NAME OF FACULTY : TAPAN KUMAR ROY

PAPER : ZCT-312

LECTURES ALLOTED: 09

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
1-4	Insect sociality and physiology – Colony optimization theories, hypothesis and social algorithms, Concepts of insect bioenergetics, Development and hormonal regulations
5-9	Insect –plant Interaction – Interaction frequency dynamics and dependent factors, Regulation of bio-molecules and active ingredients, ,Plant and Insect resistance
TOPIC/SUBTOPIC:	

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR M.SC. SEMESTER 3

NAME OF FACULTY : TAPAN KUMAR ROY

PAPER : ZET-318

LECTURES ALLOTED: 50

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
	Agricultural Entomology: **Insect pest survey:** Identification, Methods/Techniques, Pest surveillance and assessment, Status ranking, Forecasting, Limitations. **Crop and stored grain pests:** Principles and applications of integrated pest management, EIL-ETL dynamics, Action threshold, Pest spectrum, Secondary outbreak, Pest quarantine. **Control measures:** Physical, Cultural, Chemical, Biological, Genetical, Biotechnological and Biorational methods of pest control. Application of artificial intelligence in IPM
	Physiological Entomology: **Feeding potential:** Feeding potential of insects, Feeding indices and relationships, Concepts on crop selection and switching (from phytochemicals to insect digestion). **Reproductive potential:** Reproductive potential of insect, Calculation and assay, Responsible factors, Role in pest management and crop-yield prediction. **Diapause and quiescence:** Dormancy mechanism in insects and ecological significances.
	Insect Toxicology: **Insect pesticides**: Properties and functional group variation of chemical pesticides, bio-insecticides, neonicotinoids, fumigants, IGRs, attractants, repellents. **Application of pesticides:** Contact and systemic insecticides, Dose-response relationship, Dose standardization, Testing method/technique, Toxicity evaluation. **Pesticide efficacy:** Metabolism of insecticides, CNS-AChoE action pathway, Antidotes, Nanocides: formulation, delivery technology, residual effects.
	Ecological Entomology: **Insect as bio-indicator:** Bio-indicator potential of insects for ecological surveillance and bio-monitoring. **Soil entomology:** Diversity of soil micro-arthropods, Role of soil micro-arthropods in soil heath analysis. **Insect-plant interaction:** Bipartite and tripartite interactions, Interaction frequency and net-

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	working: assessment, analyze and signification, Concept of plant volatiles for bio-pesticide formulation, Theories of co-evolution. Plant resistance to insects.
	Behavioural Entomology: **Chronobiology and Unusual behaviour:** Biological rhythm in insects (foraging, reproduction and infestation), Periodicity in migration of locusts, Impacts of catastrophic earthquakes on insect communities. **Sociobiology:** Concept of social evolution in insects, Role of cuticular hydrocarbon profiling and biogenic amines for insect recognition/aggression, Application of insect societal rules and behavioral algorithm for human welfare. **Insect cognition and engineering:** Neural basis of insect foraging: role of mushroom bodies, Odometry and insect navigation, visual cognition for pollination success, Thermoregulation and ventilation in termite mound.
	Functional Entomology: Applications of insect flight aerodynamics to micro air-vehicles Insect acoustics: a tool for taxonomy Bio sensing technology for pest detection.
TOPIC/SUBTOPIC:	
	Economic Entomology: Entomophagism: present and future prospect. Entomotherapy: present and future prospect. Bioprospecting of insects
	Forensic and Medical Entomology: **Forensic Entomology:** Insects for forensic importance, Role in forensic investigation (time and cause). **Medical Entomology:** Causative agents and mode of transmission for vector-borne diseases (Dengue, Chikungunya, Malaria), **Public health importance:** Control and management of Vector-borne diseases by Integrated Vector Management.

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DEPARTMENT OF

TEACHING PLAN FOR SEMESTER

NAME OF FACULTY: DR SRIPARNA DATTA RAY

PAPER: CC 2 P, CC 12 (TH AND PRAC) AND PG (SEM 1 AND 3)

LECTURES ALLOTED:

ALLOTED SYLLABUS: DETAILS PROVIDED BELOW

TOPIC/SUBTOPIC: UNDERGRADUATE	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
1	CC 2 P: Demonstration of polytene and lampbrush chromosome from photograph
2	CC 2 P: Isolation and quantification of genomic DNA from goat liver.
3	CC 2 P: Agarose gel electrophoresis for DNA.
4	CC 12: Unit 2: Linkage, Crossing Over and Linkage Mapping 8 Linkage and Crossing, Complete & Incomplete Linkage, Measuring Recombination frequency and linkage map construction using three factor crosses, Interference and coincidence Sex linkage in Drosophila (White eye locus) & Human (Haemophilia)
5	Unit 5: Extra-chromosomal Inheritance 2 Kappa particle in Paramoecium, Shell spiralling in snail
6	Unit 6: Genetic Fine Structure 2 Complementation test in Bacteriophage (Benzer's experiment on rII locus)
7	CC 12 P: Chi-square analyses for genetic ratio test
8	CC 12 P: Identification of chromosomal aberration in Drosophila and man from photograph
TOPIC/SUBTOPIC: POSTGRADUATE	
1	ZCT 103: Cell death mechanisms 5.1 Autophagy 5.2 Apoptosis 5.3 Anoikis
2	ZCT 104: Somatic cell genetics. Cell fusion, Heterokaryon selection &hybridoma technology, Chromosome mapping

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3	ZCP 105: Drosophila genetic crosses,
4	ZCP 105: Induction of mutation in Drosophila by P-M Mutagenesis
5	ZCP 105: Karyotyping
6	ZET 317: Zonations, Characteristics, Morphometry of fresh water resources; Stratification and dynamics of oxygen, nitrogen, phosphorus and inorganic carbon. Water quality for fish production; Coastal, marine, Mangrove ecosystem and fisheries potential
7	ZET 317: Freshwater, marine and coastal aquaculture: Advancements in technology for finfish and shellfish culture; Modern hatcheries and managements; raceways, cages, Pen, enclosures, recirculating systems, Intensive Fish Hub; Integrated Aquaculture, Processing and preservation technology of shrimps and fish.
8	ZET 317: Fish genetics and biotechnology: Principles of genetics, mechanism of inheritance, structure of gene, mutation and sex determination in fish; cryopreservation, polyploidy in fish, production of sex reversed fish, transgenic fish; selective breeding.
9	ZCT 311: Conservation at Genetic levels –Problems of Inbreeding and Genetic drift in small populations; Measuring Genetic Diversity of populations, Managing Genetic Diversity for conservation
10	ZCT 312: Physiological homeostasis: Positive and negative feedback, Controlled variable, Set point

Sriparna Datta Ray

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR SEMESTER 1GENERAL

NAME OF FACULTY : TAPAN KUMAR ROY

PAPER : CC1

LECTURES ALLOTED: 6

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
1-2	**Unit 1: Kingdom Protista** General characters and classification up to classes (Levine et. al., 1980); Locomotory Organelles and locomotion in *Amoeba* and *Paramecium*
3-6	**Unit 7: Phylum Arthropoda** General characters and classification up to classes (Ruppert and Barnes, 1994, 6th Ed.); Eye in Cockroach, Metamorphosis in Lepidoptera.
TOPIC/SUBTOPIC:	

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR SEMESTER 1

NAME OF FACULTY : TAPAN KUMAR ROY

PAPER : CC1

LECTURES ALLOTED: 18

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
1-4	**Unit 1: Basics of Animal Classification** Definitions: Classification, Systematics and Taxonomy; Taxonomic Hierarchy, Taxonomic typesCodes of Zoological Nomenclature; Principle of priority; Synonymy and Homonymy; Concept ofclassification – three kingdom concept of Carl Woese, 1977 and five kingdom concept of Whittaker, 1969
5-8	**Unit 2: Protista and Metazoa** **Protozoa** General characteristics and Classification up to phylum (according to Levine *et. al.*, 1980) Conjugation in *Paramoecium.*
9-18	**Unit 4: Cnidaria** General characteristics and Classification up to classes (Ruppert and Barnes, 1994, 6th Ed.), Metagenesis in *Obelia*; Polymorphism in Cnidaria; Corals and coral reef diversity, Role of symbiotic algae in reef formation. Conservation of coral and coral reefs.
	Practical Study of whole mount of *Euglena, Amoeba* and *Paramoecium*
TOPIC/SUBTOPIC:	

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TEACHING PLAN FOR SEMESTER 3

NAME OF FACULTY : TAPAN KUMAR ROY

PAPER : CC-3

LECTURES ALLOTED: 08

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
1-8	**Unit 1: Nerve and muscle** Structure of a neuron, resting membrane potential, Origin of Action potential and its propagation in myelinated and non-myelinated nerve fibres, Ultra-structure of skeletal muscle, Molecular and chemical basis of muscle contraction
TOPIC/SUBTOPIC:	

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR SEMESTER 3 GENERAL

NAME OF FACULTY : TAPAN KUMAR ROY

PAPER : SEC APICULTURE

LECTURES ALLOTED: 30

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
1-2	**Unit 1: Biology of Bees** Classification and Biology of Honey Bees Social Organization of Bee Colony
3-16	**Unit 2: Rearing of Bees** Artificial Bee rearing; Apiary, Beehives - Newton and Langstroth, Bee Pasturage; Selection of Bee Species for Apiculture; Bee Keeping Equipment; Methods of Extraction of Honey; Indigenous and Modern
17-22	**Unit 3: Diseases and Enemies** Bee Diseases and Enemies Control and Preventive measures
23-24	**Unit 4: Bee Economy** Products of Apiculture Industry and its Uses ;Honey, Bees Wax, Propolis, Pollen etc
25-30	**Unit 5: Entrepreneurship in Apiculture** Bee Keeping Industry - Recent Efforts, Modern Methods in employing artificial Beehives for cross
TOPIC/SUBTOPIC:	

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR SEMESTER 3

NAME OF FACULTY : TAPAN KUMAR ROY

PAPER : SEC SERICULTURE

LECTURES ALLOTED: 30

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
1-6	**Unit 1: Introduction** Sericulture: Definition, history and present status; Silk route Types of silkworms, Distribution and Races Exotic and indigenous races Mulberry and non-mulberry Sericulture
7-10	**Unit 2: Biology of Silkworm** Life cycle of *Bombyx mori* Structure of silk gland and secretion of silk
11-20	**Unit 3: Rearing of Silkworms** Selection of mulberry variety and establishment of mulberry garden Rearing house and rearing appliances. Disinfectants: Formalin, bleaching powder, RKO Silkworm rearing technology: Early age and Late age rearing Types of mountages Spinning, harvesting and storage of cocoons
21-27	**Unit 4: Pests and Diseases** Pests of silkworm: Uzi fly, dermestid beetles and vertebrates Pathogenesis of silkworm diseases: Protozoan, viral, fungal and bacterial Control and prevention of pests and diseases
28-30	**Unit 5: Entrepreneurship in Sericulture** Prospectus of Sericulture in India: Sericulture industry in different states, employment, potential inmulberry and non-mulberry sericulture, Visit to various sericulture centres.
TOPIC/SUBTOPIC:	

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Tapan Kumar Roy

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR SEMESTER 3

NAME OF FACULTY : TAPAN KUMAR ROY

PAPER : CC5

LECTURES ALLOTED: 18

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
1-2	**Unit 1: Introduction to Chordates** General characteristics and outline classification of Phylum Chordata (Young, 1981)
3-9	**Unit 2: Protochordata** General characteristics and classification of sub-phylum Urochordata and Cephalochordata up to Classes (Young, 1981). Metamorphosis in *Ascidia*. Chordate Features, structure of pharynx and feeding in *Branchiostoma*
10-11	**Unit 3: Agnatha** General characteristics and classification of cyclostomes up to order (Young, 1981)
12-18	**Unit 4: Pisces** General characteristics and classification up to living sub classes (Young, 1981); Accessoryrespiratory organ, Migration in fishes;Parental care in fishes; Swim bladder in fishes.
	Practical: Dissection of brain and pituitary – *ex situ*, digestive and Urino-genital system of *Tilapia* Pecten from Fowl head
TOPIC/SUBTOPIC:	

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR SEMESTER 3

NAME OF FACULTY : TAPAN KUMAR ROY

PAPER : CC7

LECTURES ALLOTED:

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
	Practical:
	1. Qualitative tests for carbohydrates, proteins and lipids
	2. Qualitative estimation of Urea & Uric acid
	3. Quantitative estimation of water soluble proteins following Lowry Method
TOPIC/SUBTOPIC:	

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR SEMESTER 5 GENERAL

NAME OF FACULTY : TAPAN KUMAR ROY

PAPER : ZOOG-DSE-A-5-1-TH

LECTURES ALLOTED: 10

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
1- 8	**Unit 5: Insect of Economic Importance** Biology, Control and Damage caused by *Heliocoverpa armigera, Pyrilla perpusilla, Sitophilus oryzae* and *Tribolium casteneum*.
9-10	**Unit 6: Insect of Medical Importance** Medical Importance and control of *Anopheles*
	Practical Study of insect damage to different plant parts/stored grains through damaged products/photographs.
	Identifying feature and economic importance of *Helicoperva; Heliothis armigera,Papilio demoleus, Pyrilla perpusilla, Callosobruchus chinensis, Sitophilus oryzae* and *Tribolium castaneum*
TOPIC/SUBTOPIC:	

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR SEMESTER 5

NAME OF FACULTY : TAPAN KUMAR ROY

PAPER : CC11

LECTURES ALLOTED: 20

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
1- 20	**Unit 2: Population:** Unitary and Modular populations Unique and group attributes of population: Demographic factors, life tables, fecundity tables, survivorship curves, dispersal and dispersion. Geometric, exponential and logistic growth, equation and patterns, r and K strategies Population regulation - densitydependent and independent factors, Population Interactions, Gause's Principle with laboratory and field examples, Lotka-Volterra equation for competition.
	Practical Study of an aquatic ecosystem: Phytoplankton and zooplankton, Measurement of area, temperature, salinity, determination of pH, and Dissolved Oxygen content (Winkler's method), Chemical Oxygen Demand and free CO_2
TOPIC/SUBTOPIC:	

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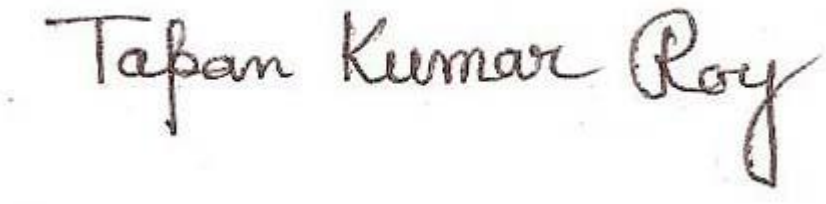

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR SEMESTER-I

NAME OF FACULTY: Dr. A. R. Md. Mustafizur Rahaman

PAPER: ZOOA-CC1-1-TH

LECTURES ALLOTED: 6 + 2 = 8

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
6	Unit 3: Porifera.
2	Unit 5: Ctenophora.
TOPIC/SUBTOPIC:	
Unit 3: Porifera.	General characteristics and Classification up to classes (Ruppert and Barnes, 1994, 6th Ed.); Canal system and spicules in sponges
Unit 5: Ctenophora.	Ctenophora, general characteristics

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR SEMESTER-III

NAME OF FACULTY: Dr. A. R. Md. Mustafizur Rahaman

PAPER: ZOOA-CC3-6TH (Animal physiology)

LECTURES ALLOTED: 7

ALLOTED SYLLABUS: 16 + 4 = 20

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
4	Unit 1: Tissues
16	Unit 6: Endocrine System

TOPIC/SUBTOPIC:	
Unit 1: Tissues	Structure, location, classification and functions of epithelial tissue, connective tissue, muscular tissue and nervous tissue
Unit 6: Endocrine System	Histology and function of thyroid, pancreas and adrenal. Function of pituitary 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; Placental hormones

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR SEMESTER-III

NAME OF FACULTY: Dr. A. R. Md. Mustafizur Rahaman

PAPER: ZOOA-CC3-6-p (Animal physiology Practical)

LECTURES ALLOTED: 50 (50hrs)

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
5	Practical 2
20	Practical 3
25	Practical 4
TOPIC/SUBTOPIC:	
2	Preparation of temporary mounts: Squamous epithelium, Striated muscle fibres and nerve cells
3	Study of permanent slides of Mammalian Skin, Spinal cord, Pancreas, Testis, Ovary, Adrenal, Lung, pyloric stomach, cardiac stomach, Thyroid, small intestine and large intestine of mammal (white rat)
4	Microtomy: Preparation of permanent slide of any five mammalian (Goat/white rat) tissues

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TEACHING PLAN FOR SEMESTER-III

NAME OF FACULTY: Dr. A. R. Md. Mustafizur Rahaman

PAPER: ZOOA-CC3-7-TH (Fundamentals of Biochemistry)

LECTURES ALLOTED: 7 + 13 = 20

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
7	Unit-2: Lipids
13	Unit-5: Enzymes
TOPIC/SUBTOPIC:	
Unit-2: Lipids	Structure and Significance: Physiologically important saturated and unsaturated fatty acids, Triacylglycerols, Phospholipids, Sphingolipid, Glycolipids, Steroids, Eicosanoids and terpinoids. Lipid metabolism: β-oxidation of fatty acids - a. Palmitic acid {saturated (C 16:0)}, b. Linoleic acid {unsaturated (C 18:2)}; Fatty acid biosynthesis
Unit-5: 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.

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TEACHING PLAN FOR SEMESTER-III

NAME OF FACULTY: Dr. A. R. Md. Mustafizur Rahaman

PAPER: ZOOA-CC7-3-P (Biochemistry Lab)

LECTURES ALLOTED: 60 (60 hrs.)

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
30	Practical-1
10	Practical-2
10	Practical-4
TOPIC/SUBTOPIC:	
Practical-1	Qualitative tests for carbohydrates, proteins and lipids
Practical-2	Qualitative estimation of Urea & Uric acid
Practical-4	Quantitative estimation of water soluble proteins following Lowry Method

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR SEMESTER-V

NAME OF FACULTY: Dr. A. R. Md. Mustafizur Rahaman

PAPER: ZOOA-DSE(B)-5-1-TH (Endocrinology).

LECTURES ALLOTED: 6 + 12 + 12 + 12 + 8 = 50

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
6	Unit-1
12	Unit-2
12	Unit-3
12	Unit-4
8	Unit-5
TOPIC/SUBTOPIC:	
Unit-1	General idea of Endocrine systems, Classification, Characteristic and Transport of Hormones, Neuro-secretions and Neuro-hormones: Examples and Functions
Unit-2	Structure and functions of hypothalamus and Hypothalamic nuclei, Regulation of neuroendocrine glands, Feedback mechanisms, Hypothalamo-Hypophyseal-Gonadal Axis. Structure of pituitary gland, Hormones and their functions, Hypothalamo-hypophyseal portal system
Unit-3	Structure, Hormones and Functions of Thyroid gland, Parathyroid, Adrenal, Pancreas, Ovary and Testis. Disorders of endocrine glands (*Diabetes mellitus* type I & Type II; Graves' Disease).
Unit-4	Mechanism of action of steroidal, non-steroidal hormones with receptors (cAMP, IP3-DAG), Calcium and Glucose homeostasis in mammals. Bioassays of hormones using RIA & ELISA, Estrous cycle in rat and menstrual cycle in human.
Unit-5	Functions of Prolactin in Fishes, Amphibia & Birds Function of Melanotropin in Teleost fishes, Amphibians and Reptiles.

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DEPARTMENT OF ZOOLOGY

TEACHING PLAN FOR SEMESTER-V

NAME OF FACULTY: Dr. A. R. Md. Mustafizur Rahaman

PAPER: ZOOA-DSE(B)-5-1-P (Endocrinology Lab)

LECTURES ALLOTED: 60 (60 hrs.)

ALLOTED SYLLABUS:

TOPIC/SUBTOPIC:	
LEC. NO.	PROPOSED TOPIC(S) TO BE TAUGHT
15	Practical-1
15	Practical-2
15	Practical-3
15	Practicla-4
TOPIC/SUBTOPIC:	
Practical-1	Dissect and display of Endocrine glands in laboratory bred rat.
Practical-2	Study of the permanent slides of all the endocrine glands
Practical-3	Tissue fixation, embedding in paraffin, microtomy and slide preparation of any endocrine gland.
Practicla-4	H-E staining of Histological slides.

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