

Maulana Azad College
Department of Zoology
Lesson Plan 2019-21
Postgraduate Zoology

Semester	Period of Semester	Tentative Dates of University Exam* (*follow the latest notification by CU)	Name of the Faculty	Course Code	Paper Name	Brief Description of the Topics	No. of Lectures
Sem-1	Jun 19 - Jan 20	follow the latest notification by CU	Dr. Sanjukta Manna	ZCT 101	Non-chordate Biology	1. Evolution of metazoans	2
			Dr. Sanjukta Manna			2. Types of invertebrate feeding	2
			Dr. Animesh Panigrahi			3. Biological and medicinal importance of sponges	2
			Dr. Rajarshi Ghosh			4. Biology of Entoprocta and Cycliophora	2
						5. Mechanics of invertebrate movement/locomotion ... flight	2
						6. Factors influencing respiration	2
						7. Invertebrate defense against predators and parasites	2
			Dr. Panchali Sengupta			8. Regulation of reproductive process	2
			Dr. Panchali Sengupta			9. Organization of nervous system	2
			Dr. Animesh Panigrahi			10. Regeneration in Cnidaria and Annelida	2
			Dr. Animesh Panigrahi			11. Thermoregulation and Osmoregulation in different invertebrate groups	4
			Dr. Abhishek Mukherjee	ZCT 102	Ecological Theories	1. Population Ecology	2
			Dr. Abhishek Mukherjee			2. Ecological Communities	2
			Prof. Pulak Lahiri			3. Evolutionary and Behavioral Ecology	2
			Dr. Panchali Sengupta	ZCT 103	Molecular Cell Biology	1. Plasma membrane	2
			Dr. Animesh Panigrahi			2. Structure and function of animal tissues	2
			Dr. Nabanita Ghosh			3. The cytoskeleton, cellular transport, extracellular matrix	2
						4. Cell signaling and cell-cell interaction	2
						5. Cell death mechanisms	2

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		Dr. Subir Chandra Dasgupta			6. Staining and dyes in identification of specific tissues	2		
					7. Tools and techniques in molecular and cell biology	2		
		Dr. Sujit Kumar Bhowal + Dr. Susanta Roy Karmakar	ZCT 104	Genetics	1. Chromatin Dynamics	2		
		Dr. Susanta Roy Karmakar			2. DNA replication and regulation	2		
		Dr. Susanta Roy Karmakar			3. Regulation of gene expression	2		
		Dr. Sujit Kumar Bhowal			4. Translation & Post Translational events	2		
		Dr. Subir Chandra Dasgupta			5. Recombination & repair	2		
		Dr. Rajarshi Ghosh			6. Transposable Genetic Element	2		
		Dr. Sujit Kumar Bhowal			7. Microbial Genetics	2		
		Dr. Subir Chandra Dasgupta			8. Somatic cell genetics	2		
		Dr. Nabanita Ghosh + Dr. Sanjukta Manna			ZCT 105	Parasitology	1. Human clinical and veterinary parasitology	2
							2. Community medicine	2
			3. Host parasite interaction	2				
			4. Vector biology with special reference to Malaria and Kala-azar	2				
		Dr. Dipak Kumar Som	ZCT 106	Insect Biology	1. Food and digestion, feeding potential of insects in response to food availability	2		
					2. Excretory mechanism of insects			
					3. Tracheal and plastron respiration of insects	2		
					4. Insect immune defense	2		
					5. Metamorphosis, diapauses and their interrelationship and regulation	2		
					6. Atypical modes of reproduction			
					7. Stridulation and its biological significance	2		
					8. Bioluminescence	2		

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			Dr. Abhishek Mukherjee + Dr. Sanjukta Manna	ZCP 107	Laboratory Course for Core Subjects	1. Special structures, dissections and mounting of specimens	6
			Dr. Abhishek Mukherjee + Dr. Sanjukta Manna			2. Comparative anatomy of Excretion & Nervous systems in Annelid, Insect and Molluscan models	6
			Dr. Animesh Panigrahi			3. Analysis of aquatic habitat and community	6
			Dr. Abhishek Mukherjee + Dr. Rajarshi Ghosh			4. Analysis of terrestrial habitat and community	6
			Dr. Susanta Roy Karmakar			5. Drosophila genetic crosses, Induction of mutation in Drosophila by P-M Mutagenesis, preparation of polytene chromosome, Karyotyping	6
			Dr. Sujit Kumar Bhowal + Dr. Nabanita Ghosh			6. DNA isolation and Agarose Gel Electrophoresis	6
			Dr. Sujit Kumar Bhowal + Dr. Nabanita Ghosh			7. Restriction digestion	6
			Dr. Animesh Panigrahi			8. Identification of mammalian tissue sections	6
			Dr. Sujit Kumar Bhowal			9. Tissue fixation, microtomy and double staining of tissue sections	6
						10. Sessional work and 11. Viva voce	

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					4. Antigen Recognition	2
					5. Cell Mediated Immunity	2
					6. Humoral Immunity	2
			Dr. Rajarshi Ghosh	ZCT 211 Biochemistry and Genetic Engineering	1. Amino acidsMetabolic disorders	2
			Prof. Debasish Bhattacharya		2. Enzymes	2
					3. Bioenergetics	2
					4. Vitamins and minerals	2
					5. Chemistry of free radicals and antioxidants	2
			Dr. Arpita Mukherjee + Dr. Sujit Kumar Bhowal		6. Recombinant DNA technology	2
			Dr. Arpita Mukherjee		7. Genomics, Proteomics & Bioinformatics	2
			Dr. Arpita Mukherjee		8. Gene therapy & Pharmacogenomics	2
			Dr. Abhishek Mukherjee		9. Molecular techniques	2
			Dr. Abhishek Mukherjee	ZCT 212 Endocrinology	1. Pheromones	2
			Dr. Panchali Sengupta		2. GI tract hormones	2
			Dr. Nabanita Ghosh		3. Thymic hormones and cell immunity	2
			Dr. Panchali Sengupta		4. Pineal gland structure, biosynthesis of melatonin, diurnal variations of pineal gland functions	2
			Dr. Panchali Sengupta		5. Hormones and human health	2
			Dr. Subir Chandra Dasgupta	ZCT 213 Aquatic Biology	1. Deep Sea Environment...intertidal ecosystem	2
			Dr. Subir Chandra Dasgupta		2. Chemical cues for orientation...aquatic environment	2
			Dr. Rajarshi Ghosh		3. Respiration and energy yield ... aquaic environments	2
			Dr. Rajarshi Ghosh		4. Molecular and integrative physiology of reproduction and larval recruitment of aquatic biota	2

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			Dr. Animesh Panigrahi	ZCT 214	Laboratory Course for Core Subjects	1. Morphometric analyses of different fish specimen and interpretation of food habit and respiratory efficiency	6
			Dr. Animesh Panigrahi			2. Collection of different swim bladder from different fish specimen (collected from market) and comparative study on functional efficiency of swim bladders	6
			Dr. Rajarshi Ghosh			3. Study of adaptive features and interpretation of significance from morphology of preserved specimen	6
						4. Determination of glucose in different patho-physiological condition	6
			Dr. Nabanita Ghosh + Dr. Rajarshi Ghosh			5. Estimation of total protein from tissues of animal model	6
			Dr. Sujit Kumar Bhowal + Dr. Susanta Roy Karmakar			6. DNA isolation and agarose gel electrophoresis	6
			Dr. Abhishek Mukherjee			7. Thin layer chromatography	6
			Dr. Sujit Kumar Bhowal + Dr. Panchali Sengupta			8. Processing and double staining of different stages of estrous cycle of rats	
			Dr. Dipak Kumar Som + Dr. Panchali Sengupta			9. Identification of endocrine gland sections	6
			Dr. Sanjukta Manna			10. Identification of parasitic forms	6
			Dr. Sanjukta Manna			11. Dissection and identification of histological slides of spleen and thymus	6
			Dr. Nabanita Ghosh			12. Immunization Protocol Demonstration of Thioglycolate induced peritonitis (cell infiltration and inflammatory exudates)	6
			Dr. Rajarshi Ghosh			13. Identification and demonstration of Primary and secondary lymphoid organ	6
			Dr. Rajarshi Ghosh			14. Haemagglutination	6
			Dr. Sujit Kumar Bhowal + Dr. Nabanita Ghosh			15. ELISA method	6
			Dr. Sujit Kumar Bhowal + Dr. Nabanita Ghosh			16. Immunofluorescence	6
						17. Sessional Work (Internal Evaluation) & 18. Viva-Voce	

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Sem-3	Jun 20 - Jan 21	follow the latest notification by CU	Dr. Dipak Kumar Som	ZCT 315	Taxonomy & Biostatistics	1. Characters and character states	2
			Prof. Biswatosh Sengupta			2. Taxa and species	2
						3. Approaches in classification	2
						4. Trends in Phylogenetic reconstruction	2
						5. Descriptive Statistics	2
						6. Sampling and Analysis	2
			Prof. Pulak Lahiri	ZCT 316	Animal Behavior and Wildlife Biology	1. Genes and Behaviour	2
			Prof. Tarak Nath Khan			2. Cooperation and conflict	2
						3. Foraging	2
						4. Aggression	2
						5. Wildlife habitat ecology	2
						6. Protected area concept	2
						7. Conservation biology of important wild animals	2
						8. Basic Concept of Wildlife Biology	2
						9. Wildlife conservation Indian perspective	2
10. Protected Area Concept	2						
11. Wildlife Habitat Ecology	2						
12. Wildlife sampling	2						
13. Peoples' participation in wildlife activities	2						
Dr. Abhishek Mukherjee	ZCT 317	Laboratory Course for Core Subjects	Developing habitat description, mapping and elevation, learning operations for	6			

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						estimation of wildlife populations, and description of wildlife populations. Addressing social issues of conservation	
			Dr. Rajarshi Ghosh + Dr. Subir Chandra Dasgupta	ZCT 319	ELECTIVE PAPERS	Entomology And Wildlife Biology	Full Semester
			Dr. Abhishek Mukherjee	ZCT 323		Resource Ecology	
			Dr. Dipak Kumar Som	ZCT 324		Applied Insect Science	
			Dr. Sujit Kumar Bhowal + Dr. Susanta Roy Karmakar+ Dr. Subir Chandra Dasgupta	ZCT 325		Molecular Cell Biology	
			Dr. Nabanita Ghosh + Dr. Sanjukta Manna	ZCT 329		Applied Immunology	
			Prof. Debasish Bhattacharya	GROUP -A		Choice Based Credit Courses (CBCC)	Fundamentals of Biochemistry CBCCA3
			Prof. Partha Roy+ Dr. Subhasish Panda	GROUP -B	Fundamentals of Plant Science CBCCB4		

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Sem-4	Jan 21 - Jun 21	follow the latest notification by CU	Dr. Abhishek Mukherjee	ZCT 432	Applied Ecology	1. Ecology of invasive species	2
			Dr. Rajarshi Ghosh			2. Bioremediation and environmental biotechnology	2
			Dr. Abhishek Mukherjee			3. Ecosystem services, biodiversity and ecological economics	2
						4. Biological control-theory and application	2
						5. Harvesting populations- theory and applications	2
						6. Ecological restoration including succession	2
			Dr. Dipak Kumar Som	ZCT 433	Evolution	1. Natural Selection and Adaptation	2
			Dr. Dipak Kumar Som			2. Evolutionary Process	2
			Dr. Susanta Roy Karmakar			3. Gene Frequencies in Population	2
			Dr. Dipak Kumar Som			4. Patterns and trends in evolution	2
			Dr. Dipak Kumar Som			5. Species and Speciation	2
			Dr. Subir Chandra Dasgupta	ZCT 434	Comparative Animal Physiology	1. Principles of animal physiology	2
			Dr. Subir Chandra Dasgupta			2. Physiological homeostasis	2
			Dr. Subir Chandra Dasgupta			3. Thermal physiology	2
			Dr. Nabanita Ghosh			4. Physiology of excretion	2
Dr. Sanjukta Manna	5. Physiology of Circulation and Respiration	2					
Dr. Abhishek Mukherjee	7. Physiology of behaviour	2					

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				ZCT 435	Laboratory Course for Core Subjects	1. Trait analyses of an invasive species	6
		Dr. Dipak Kumar Som	2. Pollen transport by any common insect pollinator			6	
		Dr. Abhishek Mukherjee	3. Water quality assessment for determination of trophic state of a pond			6	
		Dr. Dipak Kumar Som	4. Construction of phylogenetic tree from supplied data			6	
		Dr. Nabanita Ghosh + Dr. Rajarshi Ghosh	5. Enzymatic method for determining Amylase activity (Comparative)			6	
			6. Sessional (Internal assessment) and				
			7. Viva-voce				