



## Department of Zoology

### Maulana Azad College

8, Rafi Ahmed Kidwai Road, Kolkata - 700013  
 Email: [zoology@maulanaazadcollegekolkata.ac.in](mailto:zoology@maulanaazadcollegekolkata.ac.in)  
 Website: <https://maulanaazadcollegekolkata.ac.in>

Syllabus: [View](#)

### Curriculum / Lesson Plan : 2022-23

#### Undergraduate Honours / General Course (CBCS) under University of Calcutta

Semester, [Honours / General], [Period of Semester]	Course Code	Course Name	Brief Description of the Topics	Name of the Faculty	No. of Lectures
Sem - I Honours (July - December), 2022	ZOOA-CC- 1-1-TH	Non-Chordate I: Protists to Pseudocoelomates	Unit 1: Basics of Animal Classification	Dr. Dipak Kumar Som	2
			Unit 2: Protista and Metazoa	Dr. Sanjukta Manna	7
			Unit 3: Porifera	Dr. Dipak Kumar Som	3
			Unit 4: Cnidaria	Dr. Rajarshi Ghosh	5
			Unit 5: Ctenophora	Dr. Rajarshi Ghosh	2
			Unit 6: Platyhelminthes	Dr. Panchali Sengupta	3
			Unit 7: Nematoda	Dr. Panchali Sengupta	3
	ZOOA-CC- 1-1-P	Non-Chordate I- Lab	Study of whole mount of specimens	Dr. Sanjukta Manna, Dr. Panchali Sengupta	5
			Identification with reason & Systematic position of specimens (Amoeba to Vorticella)	Dr. Sanjukta Manna, Dr. Rajarshi Ghosh	5
			Identification with reason & Systematic position of selected specimens (Sycon to Ascaris)	Dr. Panchali Sengupta	5
			Staining/mounting of any protozoa/helminth from gut of Periplaneta	Dr. Sanjukta Manna, Dr. Rajarshi Ghosh	3
	ZOOA-CC- 1-2-TH	Molecular Biology	Unit 1: Nucleic Acids	Dr. Susanta Roy Karmakar	3
			Unit 2: DNA Replication	Dr. Susanta Roy Karmakar	4
			Unit 3: Transcription	Dr. Susanta Roy Karmakar	4
			Unit 4: Translation	Dr. Sujit Kumar Bhowal	4
			Unit 5: Post Transcriptional Modifications and Processing of Eukaryotic RNA	Dr. Sujit Kumar Bhowal	4
			Unit 6: Gene Regulation	Dr. Nabanita Ghosh	3
			Unit 7: DNA Repair Mechanisms	Dr. Sujit Kumar Bhowal	2
			Unit 8: Molecular Techniques	Dr. Sujit Kumar Bhowal	2
	ZOOA-CC- 1-2-P	Molecular Biology Lab	Demonstration of polytene and lamp brush chromosome from photograph	Dr. Subir Chandra Dasgupta	5
Isolation and quantification of genomic DNA from goat liver			Dr. Sujit Kumar Bhowal	5	
Agarose gel electrophoresis for DNA			Dr. Sujit Kumar Bhowal	5	
Histological staining of DNA and RNA in prepared slides			Dr. Nabanita Ghosh	5	



## Department of Zoology

### Maulana Azad College

8, Rafi Ahmed Kidwai Road, Kolkata - 700013  
 Email: [zoology@maulanaazadcollegekolkata.ac.in](mailto:zoology@maulanaazadcollegekolkata.ac.in)  
 Website: <https://maulanaazadcollegekolkata.ac.in>

Syllabus: [View](#)

### Curriculum / Lesson Plan : 2022-23

#### Undergraduate Honours / General Course (CBCS) under University of Calcutta

Semester, [Honours / General], [Period of Semester]	Course Code	Course Name	Brief Description of the Topics	Name of the Faculty	No. of Lectures
Sem - I General (July - December), 2022	Z00G-CC1-1-TH	Animal Diversity	17 Units	Dr. Panchali Sengupta, Dr. Rajarshi Ghosh	15
	Z00G-CC1-1-P	Animal Diversity lab	3 Units	Dr. Panchali Sengupta	20
Sem - II Honours (January - June), 2023	Z00A-CC-2-3-TH	Non-Chordates II - Coelomates	Unit 1: Introduction-Evolution of Coelom	Dr. Rajarshi Ghosh	2
			Unit 2: Annelida	Dr. Sanjukta Manna	5
			Unit 3: Arthropoda	Dr. Dipak Kumar Som	8
			Unit 4: Onychophora	Dr. Rajarshi Ghosh	2
			Unit 5: Mollusca	Dr. Rajarshi Ghosh	5
			Unit 6: Echinodermata	Dr. Panchali Sengupta	4
			Unit 7: Hemichordata	Dr. Subir Chandra Dasgupta	2
	Z00A-CC-2-3-P	Non-Chordates II - Lab	Study of specimens	Dr. Panchali Sengupta Dr. Rajarshi Ghosh Dr. Abhishek Mukherjee	7
			Anatomy study	Dr. Sanjukta Manna Dr. Sujit Kumar Bhowal	5
	Z00A-CC-2-3-TH	Cell Biology	Unit 1: Plasma Membrane	Dr. Sujit Kumar Bhowal	3
			Unit 2: Cytoplasmic Organelles I	Dr. Susanta Roy Karmakar	3
			Unit 3: Cytoplasmic Organelles II	Dr. Abhishek Mukherjee	4
			Unit 4: Cytoskeleton	Dr. Nabanita Ghosh	2
			Unit 5: Nucleus	Dr. Subir Chandra Dasgupta	4
			Unit 6: Cell Cycle	Dr. Nabanita Ghosh	5
Unit 7: Cell signaling			Dr. Nabanita Ghosh	4	



## Department of Zoology

### Maulana Azad College

8, Rafi Ahmed Kidwai Road, Kolkata - 700013  
 Email: [zoology@maulanaazadcollegekolkata.ac.in](mailto:zoology@maulanaazadcollegekolkata.ac.in)  
 Website: <https://maulanaazadcollegekolkata.ac.in>

Syllabus: [View](#)

### Curriculum / Lesson Plan : 2022-23

#### Undergraduate Honours / General Course (CBCS) under University of Calcutta

Semester, [Honours / General], [Period of Semester]	Course Code	Course Name	Brief Description of the Topics	Name of the Faculty	No. of Lectures
	ZOOA-CC-2-3-P	Cell Biology Lab	4 topics	Dr. Sujit Kumar Bhowal + Dr. Subir Chandra Dasgupta, Dr. Nabanita Ghosh, Dr. Rajarshi Ghosh, Dr. Susanta Roy Karmaakar	6
Sem - II General (January - June), 2023	ZOOG-CC2-2-TH	Comparative Anatomy & Developmental Biology	7 Units	Dr. Panchali Sengupta Dr. Rajarshi Ghosh	9
	ZOOG-CC2-2-P	Comparative Anatomy & Developmental Biology Lab	4 topics	Dr. Panchali Sengupta	6
	ZOOA-CC-3-5-TH	Chordata	Unit 1: Introduction to Chordates	Dr. Rajarshi Ghosh	2
			Unit 2: Protochordata	Dr. Rajarshi Ghosh	4
			Unit 3: Agnatha	Dr. Dipak Kumar Som	2
			Unit 4: Pisces	Dr. Rajarshi Ghosh	4
			Unit 5: Amphibia	Dr. Nabanita Ghosh	4
			Unit 6: Reptilia	Dr. Sujit Kumar Bhowal	4
			Unit 7: Aves	Dr. Sanjukta Manna	4
			Unit 8: Mammals	Dr. Abhishek Mukherjee	4
	ZOOA-CC-3-5-P	Chordata Lab	Identification of specimens: Protochordata, Agnatha	Dr. Rajarshi Ghosh	5
			Fishes	Dr. Rajarshi Ghosh	3
			Amphibia	Dr. Nabanita Ghosh	3
			Reptilia	Dr. Sujit Kumar Bhowal	3
			Mammalia	Dr. Abhishek Mukherjee	3
			Dissection of brain and pituitary – ex situ, digestive and Urino-genital system of Tilapia.	Dr. Rajarshi Ghosh + Dr. Sanjukta Manna	2
Pecten from Fowl head	Dr. Sanjukta Manna	2			
Power point presentation on study of habit, habitat or behaviour of any one animal by student – for internal assessment only	Dr. Sanjukta Manna	2			



## Department of Zoology

### Maulana Azad College

8, Rafi Ahmed Kidwai Road, Kolkata - 700013  
 Email: [zoology@maulanaazadcollegekolkata.ac.in](mailto:zoology@maulanaazadcollegekolkata.ac.in)  
 Website: <https://maulanaazadcollegekolkata.ac.in>

Syllabus: [View](#)

### Curriculum / Lesson Plan : 2022-23

#### Undergraduate Honours / General Course (CBCS) under University of Calcutta

Semester, [Honours / General], [Period of Semester]	Course Code	Course Name	Brief Description of the Topics	Name of the Faculty	No. of Lectures	
Sem - III Honours (July - December), 2022	ZOOA-CC-3-6-TH	Animal Physiology: Controlling and Co-ordinating System	Unit 1: Tissues	Dr. Subir Chandra Dasgupta	2	
			Unit 2: Bone and Cartilage	Dr. Subir Chandra Dasgupta	2	
			Unit 3: Nervous System	Dr. Dipak Kumar Som	2	
			Unit 4: Muscular system	Dr. Rajarshi Ghosh	2	
			Unit 5: Reproductive System	Dr. Nabanita Ghosh	3	
			Unit 6: Endocrine System	Dr. Panchali Sengupta, Dr. Dipak Kumar Som, Dr. Nabanita Ghosh	2	
	ZOOA-CC-3-6-P	Animal Physiology: Controlling and Co-ordinating System Lab	Recording of cardiac and simple muscle twitch with electrical stimulation	Dr. Abhishek Mukherjee	2	
			Preparation of temporary mounts	Dr. Susanta Roy Karmakar	1	
			Study of permanent slides of Mammalian tissues	Dr. Sujit Kumar Bhowal, Dr. Panchali Sengupta	5	
			Microtomy	Dr. Sujit Kumar Bhowal	10	
	ZOOA-CC-3-7-TH	Fundamentals of Biochemistry	Unit 1: Carbohydrates	Dr. Rajarshi Ghosh	4	
			Unit 2: Lipids	Dr. Rajarshi Ghosh	4	
			Unit 3: Proteins	Dr. Nabanita Ghosh	5	
			Unit 4: Nucleic Acids 10	Dr. Susanta Roy Karmakar	5	
			Unit 5: Enzymes	Dr. Dipak Kumar Som	5	
			Unit 6: Oxidative Phosphorylation	Dr. Abhishek Mukherjee	2	
			Fundamentals of Biochemistry Lab	Qualitative tests for carbohydrates, proteins and lipids	Dr. Abhishek Mukherjee	4
			ZOOA-CC-3-7-P	Qualitative estimation of Urea & Uric acid	Dr. Abhishek Mukherjee	2
		Paper chromatography of amino acids	Dr. Abhishek Mukherjee	3		
	Quantitative estimation of water soluble proteins following Lowry Method	Dr. Nabanita Ghosh + Dr. Rajarshi Ghosh	5			
ZOOA-SECA-3-2-TH	Sericulture	5 units	Dr. Abhishek Mukherjee, Dr. Dipak Kumar Som, Dr. Sanjukta Manna	5		
Sem - III General (July - December), 2022	ZOOG-CC3-3-TH	Physiology & Biochemistry	10 units	Dr. Panchali Sengupta, Dr. Rajarshi Ghosh	6	
	ZOOG-CC3-3-P	Physiology & Biochemistry lab	3 topics	Dr. Panchali Sengupta, Dr. Abhishek Mukherjee, Dr. Nabanita Ghosh	5	



## Department of Zoology

### Maulana Azad College

8, Rafi Ahmed Kidwai Road, Kolkata - 700013  
 Email: [zoology@maulanaazadcollegekolkata.ac.in](mailto:zoology@maulanaazadcollegekolkata.ac.in)  
 Website: <https://maulanaazadcollegekolkata.ac.in>

Syllabus: [View](#)

### Curriculum / Lesson Plan : 2022-23

#### Undergraduate Honours / General Course (CBCS) under University of Calcutta

Semester, [Honours / General], [Period of Semester]	Course Code	Course Name	Brief Description of the Topics	Name of the Faculty	No. of Lectures
Sem - IV Honours (January - June), 2023	ZOOA-CC-4-8-TH	Comparative anatomy & Vertebrates	Unit 1: Integumentary System	Dr. Panchali Sengupta	5
			Unit 2: Digestive system	Dr. Sujit Kumar Bhowal	3
			Unit 3: Respiratory System	Dr. Abhishek Mukherjee	3
			Unit 4: Circulatory System	Dr. Rajarshi Ghosh	2
			Unit 5: Urinogenital System	Dr. Dipak Kumar Som	2
			Unit 6: Nervous system and sense organs	Dr. Sanjukta Manna	4
			Unit 7: Skeletal system	Dr. Panchali Sengupta	4
	ZOOA-CC-4-8-P	Comparative anatomy & Vertebrates Lab	Study of placoid, cycloid and ctenoid scales through permanent slides/photographs	Dr. Sanjukta Manna	3
			Study of disarticulated skeleton of toad, Pigeon, Guineapig (limb bones, vertebrae, limb and girdle)	Dr. Sujit Kumar Bhowal, Dr. Rajarshi Ghosh	5
			Comparative study of heart and brain, with the help of model/picture	Dr. Sujit Kumar Bhowal	4
			Identification of skulls: Pigeon, one herbivore (Guineapig) and one carnivore (Dog) animal	Dr. Sujit Kumar Bhowal	6
	ZOOA-CC-4-9-TH	Animal Physiology: Life sustaining systems	Unit 1: Physiology of Digestion	Dr. Sujit Kumar Bhowal	3
			Unit 2: Physiology of Respiration	Dr. Abhishek Mukherjee	3
			Unit 3: Physiology of Circulation	Dr. Rajarshi Ghosh	2
			Unit 4: Physiology of Heart	Dr. Panchali Sengupta	4
			Unit 5: Thermoregulation & Osmoregulation	Dr. Subir Chandra Dasgupta	4
			Unit 6: Renal Physiology	Dr. Nabanita Ghosh	2
	ZOOA-CC-4-9-P	Animal Physiology: Life sustaining systems Lab	6 topics	Dr. Rajarshi Ghosh, Dr. Abhishek Mukherjee, Dr. Dipak Kumar Som	10
	ZOOA-CC-4-10-TH	Immunology	Unit 1: Overview of Immune System	Dr. Sanjukta Manna	3
			Unit 2: Innate and Adaptive Immunity	Dr. Sanjukta Manna	4
Unit 3: Antigens			Dr. Nabanita Ghosh	3	
Unit 4: Immunoglobulins			Dr. Nabanita Ghosh	5	
Unit 5: Major Histocompatibility Complex			Dr. Nabanita Ghosh	3	
Unit 6: Cytokines			Dr. Nabanita Ghosh	2	
Unit 7: Complement System			Dr. Sujit Kumar Bhowal	3	
Unit 8: Hypersensitivity			Dr. Sanjukta Manna	4	
Unit 9: Vaccines			Dr. Sanjukta Manna	4	



## Department of Zoology

### Maulana Azad College

8, Rafi Ahmed Kidwai Road, Kolkata - 700013  
 Email: [zoology@maulanaazadcollegekolkata.ac.in](mailto:zoology@maulanaazadcollegekolkata.ac.in)  
 Website: <https://maulanaazadcollegekolkata.ac.in>

Syllabus: [View](#)

### Curriculum / Lesson Plan : 2022-23

#### Undergraduate Honours / General Course (CBCS) under University of Calcutta

Semester, [Honours / General], [Period of Semester]	Course Code	Course Name	Brief Description of the Topics	Name of the Faculty	No. of Lectures
	ZOOA-CC-4-10-P	Immunology Lab	3 topics	Dr. Sanjukta Manna and Dr. Nabanita Ghosh	10
	ZOOA-SEC(B)-4-1-TH	Aquarium Fish Keeping	5 units	Dr. Rajarshi Ghosh, Dr. Abhishek Mukherjee	8
	ZOOG-CC4-4-TH	Genetics & Evolutionary Biology	8 units	Dr. Panchali Sengupta, Dr. Rajarshi Ghosh, Dr. Subir Chandra Dasgupta	10
	ZOOG-CC4-4-P	Genetics & Evolutionary Biology Lab	5 topics	Dr. Panchali Sengupta, Dr. Abhishek Mukherjee, Dr. Nabanita Ghosh	8
Sem - V Honours (July - December), 2022	ZOOA-CC5-11-TH	Ecology	5 Units	Dr. Abhishek Mukherjee	12
	ZOOA-CC5-11-TH	Ecology Lab	3 topics	Dr. Abhishek Mukherjee, Dr. Sujit Kumar Bhowal, Dr. Panchali Sengupta	10
	ZOOA-CC5-12-TH	Principle of Genetics	Unit 1: Mendelian Genetics and its Extension	Dr. Susanta Roy Karmakar	6
			Unit 2: Linkage, Crossing Over and Linkage Mapping	Dr. Susanta Roy Karmakar	4
			Unit 3: Mutations	Dr. Dipak Kumar Som + Dr. Subir Chandra Dasgupta	6
			Unit 4: Sex Determination	Dr. Nabanita Ghosh	4
			Unit 5: Extra-chromosomal Inheritance	Dr. Sujit Kumar Bhowal	2
			Unit 6: Genetic Fine Structure	Dr. Subir Chandra Dasgupta	2
			Unit 7: Transposable Genetic Elements	Dr. Rajarshi Ghosh	4
	ZOOA-CC5-12-P	Principle of Genetics Lab	Chi-square analyses, chromosomal aberration in Drosophila and man from photograph, Pedigree analysis	Dr. Susanta Roy Karmakar, Dr. Sujit Kumar Bhowal	10
ZOOA-DSE(A)-5-1-TH	Parasitology	6 Units	Dr. Sanjukta Manna, Dr. Nabanita Ghosh	25	
ZOOA-DSE(A)-5-1-P	Parasitology Lab	5 topics	Dr. Sanjukta Manna	20	



## Department of Zoology

### Maulana Azad College

8, Rafi Ahmed Kidwai Road, Kolkata - 700013  
 Email: [zoology@maulanaazadcollegekolkata.ac.in](mailto:zoology@maulanaazadcollegekolkata.ac.in)  
 Website: <https://maulanaazadcollegekolkata.ac.in>

Syllabus: [View](#)

### Curriculum / Lesson Plan : 2022-23

#### Undergraduate Honours / General Course (CBCS) under University of Calcutta

Semester, [Honours / General], [Period of Semester]	Course Code	Course Name	Brief Description of the Topics	Name of the Faculty	No. of Lectures
	ZOOA-DSE(B)-5-1-TH	Endocrinology	5 Uni	Dr. Panchali Sengupta	25
	ZOOA-DSE(B)-5-1-P	Endocrinology Lab	4 topics	Dr. Panchali Sengupta	20
Sem - VI Honours (January - June), 2023	ZOOA-CC-6-13-TH	Developmental Biology	Unit 1: Early embryonic development	Dr. Sanjukta Manna, Dr. Nabanita Ghosh, Dr. Abhishek Mukherjee, Dr. Panchali Sengupta	10
			Unit 2: Late embryonic development	Dr. Panchali Sengupta	5
			Unit 3: Post embryonic development	Dr. Subir Chandra Dasgupta	4
			Unit 4: Implications of developmental biology	Dr. Sujit Kumar Bhowal	6
	ZOOA-CC-6-13-P	Developmental Biology Lab	4 topics	Dr. Sanjukta Manna, Dr. Panchali Sengupta, Dr. Sujit Kumar Bhowal, Dr. Susanta Roy Karmaakar	20
	ZOOA-CC-6-14-TH	Evolutionary Biology	9 Units	Dr. Panchali Sengupta, Dr. Susanta Roy Karmaakar, Dr. Abhishek Mukherjee, Dr. Subir Chandra Dasgupta, Dr. Dipak Kumar Som	25
	ZOOA-CC-6-14-P	Evolutionary Biology Lab	3 topics	Dr. Dipak Kumar Som	10
	ZOOA-DSE(A)-6-2-TH	Animal Biotechnology	Unit 1: Introduction	Dr. Susanta Roy Karmaakar	2
			Unit 2: Molecular techniques in gene manipulation	Dr. Sujit Kumar Bhowal, Dr. Rajarshi Ghosh, Dr. Abhishek Mukherjee,	10
			Unit 3: Genetically modified organisms	Dr. Sujit Kumar Bhowal	6
Unit 4: Culture techniques and application			Dr. Nabanita Ghosh	5	



## Department of Zoology

### Maulana Azad College

8, Rafi Ahmed Kidwai Road, Kolkata - 700013  
Email: [zoology@maulanaazadcollegekolkata.ac.in](mailto:zoology@maulanaazadcollegekolkata.ac.in)  
Website: <https://maulanaazadcollegekolkata.ac.in>

Syllabus: [View](#)

### Curriculum / Lesson Plan : 2022-23

#### Undergraduate Honours / General Course (CBCS) under University of Calcutta

Semester, [Honours / General], [Period of Semester]	Course Code	Course Name	Brief Description of the Topics	Name of the Faculty	No. of Lectures
	ZOOA-DSE(A)-6-2-P	Animal Biotechnology Lab	3 topics	Dr. Nabanita Ghosh, Dr. Sujit Kumar Bhowal, Dr. Abhishek Mukherjee, Dr. Subir Chandra Dasgupta	20
	ZOOA-DSE(B)-6-2-TH	Fish & Fisheries	Unit 1: Introduction and classification	Dr. Dipak Kumar Som	2
			Unit 2: Morphology & physiology	Dr. Rajarshi Ghosh	7
			Unit 3: Fisheries	Dr. Rajarshi Ghosh	5
			Unit 4: Aquaculture	Dr. Dipak Kumar Som	8
			Unit 5: Fish in research	Dr. Subir Chandra Dasgupta	3
	ZOOA-DSE(B)-6-2-P	Fish & Fisheries lab	7 topics	Dr. Sanjukta Manna, Dr. Rajarshi Ghosh, Dr. Abhishek Mukherjee	15

Head  
Department of Zoology  
Maulana Azad College

P.G. Department of Zoology  
Maulana Azad College  
Govt. of West Bengal  
Kolkata - 700013