Km. Mayawati Govt. Girls P.G. College, Badalpur, G.B. Nagar

Dept of Zoology:

Assignments: M.Sc.-Ist Semester 2024-25

Instructions for assignments

- *Mark of Each Assignment: 5 (Deduction of Marks: 1 mark deducted for Late Submission and 1 for late personation.), Prsenation:5*
- Upload your assignments and project before due date on google classroom https://classroom.google.com/c/NzAzMDc0MTIwNTY4?cjc=zq4idlx **(Class code-** zq4idlx)
- *Presentation mode (online/offline) will be update before presentation date depending upon situations.*
- *Submit your project title upto 25-10-2024 to Dr. Prof D.C. Sharma, He will allot Project supervisor*
- *The teacher will revert your evaluated assignments and internals by email, you can check and raise your point of view (if any) within one week, after that marks will be uploaded.*
- Tentative date of internals: November Ist week
- *All student presentations were recorded online and uploaded on Zoology Department YouTube account. Make a video of your assignments and upload it on Zoology Department YouTube account with the help of Miss. Sumbul Zehra, Miss Jyoti Sharma and Miss Himanshi*

Class Roll Number	Name of Student	B050701T : Evolutionary and Taxonomic Approaches			B050702T : Animal Diversity- Non-Chordata			B050703T : Biochemistry			B050704T : Cell and Molecular Biology		
		Ms. Neetu SIngh and Miss. Himanshi			*Ms. Neetu Singh and Miss. Sumbul Zehra*			*Prof.. Dinesh C. Sharma and Miss. Himanshi*			*Prof.. Dinesh C. Sharma and Miss. Jyoti Sharma*		
		Assignment & Presentation			*Assignment & Presentation*			*Assignment & Presentation*			*Assignment & Presentation*		
		Topic of assignment	Submission Last date	Presentation Date	Topic of assignment	Submission Last date	Presentation Date	Topic of assignment	Submission Last date	Presentation Date	Topic of assignment	Submission Last date	Presentation Date
1	AISHWARYA KASHYAP	**Explore the historical development and future scope of biosystematics in modern biology.**	17 Oct 24	21 Oct 24	Explore the types and evolutionary significance of coelom formation	19 Oct 24	23 Oct 24	Explain the different types of stabilizing interactions in molecules.	22 Oct 24	25 Oct 24	Define the cell theory. How has it evolved over time, and what are its modern implications in biology?	24 Oct 24	26 Oct 24
2	ANCHAL	Analyze different theories of biological classification and their relevance in current taxonomy.	17 Oct 24	21 Oct 24	Analyze different types of body symmetry, such as radial, bilateral, and asymmetry	19 Oct 24	23 Oct 24	Describe the structure and function of carbohydrates in biological systems.	22 Oct 24	25 Oct 24	Compare and contrast the ultrastructure of prokaryotic and eukaryotic cells. Highlight key differences in organelle composition and function.	24 Oct 24	26 Oct 24
3	ANJU RANI	Discuss the hierarchical structure of taxa and the challenges in categorizing higher taxa.	17 Oct 24	21 Oct 24	(Focus on organisms that undergo metagenesis, such as cnidarians.	19 Oct 24	23 Oct 24	How do the chemical structures of lipids contribute to their biological functions?	22 Oct 24	25 Oct 24	**Discuss the origin and function of mitochondria. How does the endosymbiotic theory explain the presence of mitochondria in eukaryotic cells?**	24 Oct 24	26 Oct 24
4	DEEPALI BHATI	Overview of the rules and principles governing zoological nomenclature.	17 Oct 24	21 Oct 24	Investigate how protozoa move using pseudopodia, cilia, or flagella	19 Oct 24	23 Oct 24	Explain the role of proteins in biological systems.	22 Oct 24	25 Oct 24	Explain the structure and roles of the endoplasmic reticulum (ER). Differentiate between rough and smooth ER in terms of their structure and function.	24 Oct 24	26 Oct 24
5	IQRA SAIFI	Study how behavior influences species classification and its importance in evolutionary biology.	17 Oct 24	21 Oct 24	Discuss various reproduction methods in protozoa, such as binary fission and conjugation	19 Oct 24	23 Oct 24	What are nucleic acids, and how do their structures support their functions?	22 Oct 24	25 Oct 24	Describe the structure and function of the Golgi complex. What role does it play in protein modification and transport within the cell?	24 Oct 24	26 Oct 24

6	IRAM SAIFI	Investigate the role of cytogenetic information in species classification and evolutionary studies	17 Oct 24	21 Oct 24	Examine the composition of sponge skeletons and their ability to regenerate lost parts.	19 Oct 24	23 Oct 24	Describe the function of vitamins in biochemical processes.	22 Oct 24	25 Oct 24	What are lysosomes, peroxisomes, and centrosomes? Discuss their structure, functions, and how they contribute to cellular maintenance.	24 Oct 24	26 Oct 24
7	KM KAJAL	Assess the applications of molecular tools in taxonomy and phylogenetic analysis.	17 Oct 24	21 Oct 24	Study the different forms, such as medusa and polyp, within the life cycle of cnidarians.	19 Oct 24	23 Oct 24	What is the Ramachandran plot, and why is it important for understanding protein structure?	22 Oct 24	25 Oct 24	Outline the phases of the cell cycle. How is the cell cycle regulated, and what happens when this regulation is disrupted?	24 Oct 24	26 Oct 24
8	LAKSHMI BHATI	Compare various species concepts and their implications in taxonomy and evolutionary studies.	17 Oct 24	21 Oct 24	Explore the formation of coral reefs and their ecological roles, along with threats like bleaching	19 Oct 24	23 Oct 24	Differentiate between the secondary, tertiary, and quaternary structures of proteins.	22 Oct 24	25 Oct 24	Explain the ultrastructure of biomembranes. How do their structures enable various types of transport across the membrane?	24 Oct 24	26 Oct 24
9	NEHA BHATI	**Evaluate how subspecies, varieties, and morphs contribute to biological diversity.**	17 Oct 24	21 Oct 24	Analyze the evolutionary affinities of Ctenophora with other non-chordate phyla.	19 Oct 24	23 Oct 24	What is the significance of protein domains, motifs, and folds in protein function?	22 Oct 24	25 Oct 24	Describe the structure of the nuclear envelope and nucleolus. What are their primary roles within the nucleus?	24 Oct 24	26 Oct 24
10	NIDHI CHOUDHARY	Explore the differences between microevolutionary changes and macroevolutionary patterns.	17 Oct 24	21 Oct 24	Investigate the various adaptations of helminths that allow them to live as parasites.	19 Oct 24	23 Oct 24	Explain the different conformations of nucleic acids, including A-, B-, and Z-DNA.	22 Oct 24	25 Oct 24	Discuss the types, structure, chemical composition, and functions of chromosomes. How do these contribute to inheritance and gene expression?	24 Oct 24	26 Oct 24
11	PRACHI CHAUDHARY	Analyze case studies of adaptive radiation, focusing on the diversification of species in new environments	17 Oct 24	21 Oct 24	Study the significance of segmentation in annelids and how it contributes to movement and other functions.	19 Oct 24	23 Oct 24	Discuss the role of tRNA and micro-RNA in gene expression and regulation.	22 Oct 24	25 Oct 24	What is the cytoskeleton? Describe the structure and functions of microtubules, actin filaments (microfilaments), and intermediate filaments.	24 Oct 24	26 Oct 24
12	PRIYA BHATT	**Study the fossilization process and its significance in understanding evolutionary history.**	17 Oct 24	21 Oct 24	Examine the evolution and function of excretory systems in different annelid classes	19 Oct 24	23 Oct 24	What are the principles of enzyme catalysis?	22 Oct 24	25 Oct 24	Compare the structure and function of cilia and flagella. How do they differ in prokaryotes and eukaryotes?	24 Oct 24	26 Oct 24
13	RAKHI	Trace the evolutionary history of humans using fossil evidence and genetic data.	17 Oct 24	21 Oct 24	Analyze the role of the exoskeleton in arthropods and how it contributes to their success.	19 Oct 24	23 Oct 24	Describe enzyme kinetics and the significance of the Michaelis-Menten equation.	22 Oct 24	25 Oct 24	Discuss the fine structure of DNA and the key processes involved in DNA replication. What mechanisms exist for DNA repair?	24 Oct 24	26 Oct 24
14	RIYA NAGAR	Discuss how abiotic and biotic factors drive the evolutionary process.	17 Oct 24	21 Oct 24	Explore how crustaceans breathe, focusing on the gills and other respiratory adaptations.	19 Oct 24	23 Oct 24	Explain the mechanisms of enzyme regulation.	22 Oct 24	25 Oct 24	Explain the processes of transcription and post-transcriptional modifications in eukaryotic cells. How do they differ from prokaryotic transcription?	24 Oct 24	26 Oct 24
15	SAKSHI	**Critically evaluate the major theories of organic evolution (Lamarckism, Darwinism, Neo-Darwinism).**	17 Oct 24	21 Oct 24	Study the different larval forms and their role in the life cycle and evolution of crustaceans.	19 Oct 24	23 Oct 24	What are isozymes, and what role do they play in metabolism?	22 Oct 24	25 Oct 24	Describe the translation process and the post-translational modifications that proteins undergo. Why are these modifications important?	24 Oct 24	26 Oct 24

16	SANJANA GARG	Examine the factors that influence the geographic distribution of animals and their evolutionary implications.	**17 Oct 24**	**21 Oct 24**	Investigate how and why gastropods undergo torsion, and the subsequent process of detorsion.	**19 Oct 24**	**23 Oct 24**	Describe the catabolism of carbohydrates and its importance in energy production.	**22 Oct 24**	**25 Oct 24**	Explain the concept of the genetic code. How is it related to the processes of transcription and translation?	**24 Oct 24**	**26 Oct 24**
17	SHIVANGI BHATI	Explore the role of isolating mechanisms in the process of speciation.	**17 Oct 24**	**21 Oct 24**	Discuss the unique skeletal structure of echinoderms and the role of larval forms in their evolutionary history.	**19 Oct 24**	**23 Oct 24**	Discuss the role of beta-oxidation in breaking down fatty acids.	**22 Oct 24**	**25 Oct 24**	What are transposons, and how do they contribute to genetic variability? Provide examples of their functions in prokaryotic and eukaryotic genomes.	**24 Oct 24**	**26 Oct 24**
18	SHIVANI BHATI	Investigate examples of convergent evolution and its impact on evolutionary theory.	**17 Oct 24**	**21 Oct 24**	Explore the evolutionary relationships of hemichordates with both echinoderms and chordates.	**19 Oct 24**	**23 Oct 24**	Explain the anabolic processes of glycogenesis and gluconeogenesis.	**22 Oct 24**	**25 Oct 24**	Define cell adhesion molecules (CAMs). Discuss the difference between Ca++-dependent and Ca++-independent cell-cell adhesion.	**24 Oct 24**	**26 Oct 24**
19	SHWETA NAGAR	Compare the processes of natural selection and sexual selection in shaping species.	**17 Oct 24**	**21 Oct 24**	Examine the evolutionary affinities of these minor non-coelomate phyla.	**19 Oct 24**	**23 Oct 24**	Describe the principles of biophysical chemistry related to pH and buffers.	**22 Oct 24**	**25 Oct 24**	What are cell junctions, and what roles do they play in maintaining tissue integrity and cell communication?	**24 Oct 24**	**26 Oct 24**
20	TANISHA KAPASIYA	Assess the concept of molecular clocks and their utility in studying evolutionary divergence.	**17 Oct 24**	**21 Oct 24**	Investigate the affinities of chaetognaths and their place in the animal kingdom.	**19 Oct 24**	**23 Oct 24**	Discuss the principles of bioenergetics and oxidative phosphorylation.	**22 Oct 24**	**25 Oct 24**	Discuss the role of cell surface receptors in cell-cell signaling. How do second messenger systems function in transmitting signals within the cell?	**24 Oct 24**	**26 Oct 24**
21	TANU BHATI	Explore the mechanisms behind gene divergence and the evolution of novel proteins and genes.	**17 Oct 24**	**21 Oct 24**	Analyze the evolutionary position and characteristics of these minor coelomate phyla.	**19 Oct 24**	**23 Oct 24**	What is the role of biological energy transducers in cellular metabolism?	**22 Oct 24**	**25 Oct 24**	Explain the kinase signaling pathways and their role in signal transduction from the plasma membrane to the nucleus. How do these pathways regulate gene expression?	**24 Oct 24**	**26 Oct 24**

Prof. (Dr.) Divya Nath
Principal

Prof. (Dr.) Dinesh C. Sharma
HOD-Zoology