



Sri Arvind Mahila College, Patna

Accredited by NAAC with B⁺ Grade

(A Constituent Unit of Patliputra University, Patna)



4 Years Bachelor of Arts B.A. (Hons.) in Zoology under CBCS

Course Outcomes (Major Courses)

S.No.	UG Semester	Course	Course Outcomes
1.	I	MJC-1 Diversity of Non-Chordata	<p>CO-1: Learn about the importance of systematics, taxonomy, and structural organization of non-chordates.</p> <p>CO-2: Understand & Appreciate the diversity of non-chordates living in varied habits and habitats.</p> <p>CO-3: Understand evolutionary history and relationships of different non-chordates through functional and structural affinities.</p> <p>CO-4: Critically analyse the organization, complexity and characteristic features of non chordates.</p> <p>CO-5: Recognize the life functions and the ecological roles of the animals belonging to different phyla.</p> <p>CO-6: Enhance collaborative learning and communication skills through practical sessions, teamwork, group discussions, assignments, and projects.</p>
2.	II	MJC-2 Diversity of Chordates	<p>CO-1: Understand different classes of chordates, level of organization and evolutionary relationship between different subphyla and classes, within and outside the phylum. CO-2: Study about diversity in animals making students understand about their distinguishing features.</p> <p>CO-3: Appreciate similarities and differences in life functions among various groups of animals in Phylum Chordata.</p> <p>CO-4: Comprehend the circulatory, nervous and skeletal system of chordates.</p> <p>CO-5: Know about the habit and habitat of chordates in marine, freshwater and terrestrial ecosystems.</p>
3.	III	MJC-3 Comparative Anatomy	<p>CO-1: Explain comparative account of the different vertebrate systems</p>

			<p>CO-2: Understand the pattern of vertebrate evolution, organization and functions of various systems.</p> <p>CO-3: Learn the comparative account of integument, skeletal components, their functions and modifications in different vertebrates.</p> <p>CO-4: Understand the evolution of heart, modification in aortic arches, structure of respiratory organs used in aquatic, terrestrial and aerial vertebrates; and digestive system and its anatomical specializations with respect to different diets and feeding habits.</p> <p>CO-5: Learn the evolution of brain, sense organs and excretory organs to a complex, highly evolved form in mammals;</p> <p>CO-6: Learn to analyze and critically evaluate the structure and functions of vertebrate systems, which helps them to discern the developmental, functional and evolutionary history of vertebrate species.</p>
4.	III	MJC-4 Physiology	<p>CO-1: Know the principles of normal biological function in human body.</p> <p>CO-2: Outline basic human physiology and correlate with histological structures.</p> <p>CO-3: Comprehend and analyse problem-based questions on physiological aspects.</p> <p>CO-4: Recognize and explain how all physiological systems work in unison to maintain homeostasis in the body; and use of feedback loops to control the same.</p> <p>CO-5: Learn an integrative approach to understand the interactions of various organ systems resulting in the complex overall functioning of the body.</p>
5.	IV	MJC-5 Cell Biology	<p>CO-1: Understand fundamental principles of cell biology.</p> <p>CO-2: Explain structure and functions of cell organelles involved in diverse cellular processes.</p> <p>CO-3: Appreciate how cells grow, divide, survive, die and regulate these important processes.</p> <p>CO-4: Comprehend the process of cell signaling and its role in cellular functions.</p>

			<p>CO-5: Have an insight of how defects in functioning of cell organelles and regulation of cellular processes can develop into diseases.</p> <p>CO-6: Learn the advances made in the field of cell biology and their applications.</p>
6.	IV	MJC-6 Endocrinology	<p>CO-1: Understand endocrine system and the basic properties of hormones.</p> <p>CO-2: Appreciate the importance of endocrine system and the crucial role it plays along with the nervous system in maintenance of homeostasis.</p> <p>CO-3: Gain insight into the molecular mechanism of hormone action and its regulation.</p> <p>CO-4: Know the regulation of physiological process by the endocrine system and its implication in diseases.</p> <p>CO-5: Gain knowledge about the prevalent endocrine disorders and critically analyze their own and their family's health issues.</p>
7.	IV	MJC-7 Ecology	<p>CO-1: Demonstrate an understanding of key concepts in ecology with emphasis on historical perspective, role of physical factors and concept of limiting factors.</p> <p>CO-2: Comprehend the population characteristics, dynamics, growth models and interactions.</p> <p>CO-3: Understand the community characteristics, ecosystem development and climax theories.</p> <p>CO-4: Know about the types of ecosystems, food chains, food webs, energy models and ecological efficiencies.</p> <p>CO-5: Apply the basic principles of ecology in wildlife conservation and management.</p> <p>CO-6: Inculcate scientific quantitative skills, evaluate experimental design, read graphs, and analyse and use information available in scientific literature</p>
8.	V	MJC-8 Biochemistry	<p>CO1- To understand the structure, classification and importance of Carbohydrates and Proteins.</p> <p>CO2- To understand the structure and significance of physiologically important Lipids.</p>

			<p>CO3- To understand the basic structure and types of DNA and RNA, Base pairing, denaturation and renaturation of DNA.</p> <p>CO4- To understand the types of Kinetics.</p>
9.	V	MJC-9 Genetics	<p>CO 1- To explain and discuss the genetic variation through linkage and crossing over.</p> <p>CO 2- To describe sex-linked, sex limited and sex influenced inheritance.</p> <p>CO 3- To understand the Concept behind genetic disorder, gene mutations and molecular basis of mutations and to explain the criteria for extra-chromosomal inheritance.</p> <p>CO 4- To describe the molecular mechanisms of recombination in bacteria and to explain and distinguish the concept of transposable genetic elements in prokaryotes and eukaryotes. To Solve genetic based problems.</p>
10.	VI	MJC-10 Developmental Biology	<p>CO1- To describe the mechanism of gametogenesis, fertilization and blocks to polyspermy.</p> <p>CO2- To explain early embryonic development in frog and chick.</p> <p>CO3- To understand the concepts of late embryonic development in model organisms.</p> <p>CO4 - To describe post embryonic development such as metamorphosis and regeneration with suitable examples and apply important experiments and project work.</p>
11.	VI	MJC-11 Evolution	<p>CO 1- To understand the basis of origin of life such as: chemogeny, RNA world, biogeny and evolution of eukaryotes.</p> <p>CO 2- To obtain the various evolutionary concepts and heritable variation and to understand concept of species, isolating mechanisms, modes of speciation and adaptive radiation.</p> <p>CO 3- To explain and different types of fossils, geological time scale, climatic conditions, hominid characteristics, primate phylogeny and evolution of horse and man.</p> <p>CO 4- To understand Hardy-Weinberg principle of genetic equilibrium and its destabilizing forces such as Natural selection, Mutation, Migration and genetic drift.</p>

12.	VI	MJC-12 Animal Behaviour	<p>CO 1- To understand various pattern of animal behaviours such as stereotyped, instinct, learnt, associative behaviour along with operant conditioning and habituation imprinting and to explain the concept of social and sexual behaviour.</p> <p>CO 2- To provide the concept of biological rhythm, photoperiod and regulation of seasonal reproduction of vertebrates and role of melatonin.</p> <p>CO 3- To understand the relevance of biological clock in terms of chronopharmacology, chronomedicine and chronotherapy.</p> <p>CO 4- To develop the skill in this course by performing practical works such as studying nest and nesting habitat of birds and social insects and other significant experiments.</p>
13.	VII	MJC-13 Molecular Biology	<p>CO 1- To understand Central dogma of molecular biology. Explain and distinguish mechanism of replication, transcription and translation in prokaryotes and eukaryotes.</p> <p>CO 2- To understand and explain the post transcriptional modifications in eukaryotes.</p> <p>CO 3- To explain and differentiate the mechanism of gene expression and regulation in prokaryotes and eukaryotes</p> <p>CO 4- To describe the concept of regulatory RNAs, Ribo-switches and RNA interference and to enhance skill in molecular biology through relevant experiments.</p>
14.	VII	MJC-14 Research Methodology	<p>CO1: Develop the skill of contextualization of knowledge and critical thinking</p> <p>CO2: Choose appropriate methods of research aims and objectives</p> <p>CO3: Apply ethical principle in research work.</p> <p>CO4: Understand the philosophy of research integrity and publication ethics.</p>
15.	VII	MJC-15 Immunology and Microbiology	<p>CO 1- To explain cells and organs of the immune system, innate and adaptive immunity.</p> <p>CO 2- To describe autoimmunity with reference to rheumatoid arthritis and tolerance and AIDS.</p> <p>CO 3- To understand antigens and its type, structure and functions of immunoglobulins,</p>

			<p>antigen-antibody interactions and immunoassays (such as ELISA and RIA).</p> <p>CO 4- To explain structure and functions major histocompatibility complex, know the concept of hypersensitivity and vaccines.</p> <p>CO 5- To understand the microbial basis of diseases.</p>
16.	VIII	MJC-16 Instrumentation and Biometry	<p>CO1: To understand the principles and working of various instruments used in biological experimentation.</p> <p>CO2: Gain insight of relationship between mathematics and biology</p> <p>CO3: To present their data in statistically reliable form</p> <p>CO4: To test their hypothesis using different models</p> <p>CO5: To correlate their data with different factors</p>