

Kohima Science College, Jotsoma

Department of Zoology

Program Outcomes (POs), Programme Specific Outcomes (PSOs)

& Course Outcomes (COs)

for

Bachelor of Science

&

Master of Science

in Zoology

Programme Outcomes (POs) of B.Sc Zoology

- Equip with the knowledge of animal classification & diversity, ecology, economic importance of animals.
- Learn the fundamental of physiology, cell and molecular biology, genetics, biochemistry, endocrinology, and parasitology.

Programme Outcomes (POs) of M.Sc Zoology

- Equip with in depth knowledge in animal physiology, biochemistry, cell & molecular biology, genetic, endocrinology, animal ecology and parasitology.
- Learn fish biology, entomology and limnology.

Programme Specific Outcomes (PSOs) of B.Sc Zoology

Semester	PSO 1
I	Know the taxonomic positions and characteristics, life cycles, and even the parasitic mode of important lower animals.
	Conceptual knowledge of ecology and its important attributes; biodiversity and its conservation and scope tourism sector.
	Comprehensive understanding of water ecosystem, types and their biomes; impact on water quality by different wastes.
II	PSO 2
	-Distinguish the general features and classification of phylums Annelida, Arthropoda, Mollusca and Echinodermata.
	- Acquaint with the structure and function of various cell organelles, cell division and cell signalling.
III	-Understand Environmental hazard and it sources, climatic change and its effect, pollutants, waste management technologies and some common diseases.
	PSO 3
	Know the origin of chordate, general descriptions of Pisces, Amphibian, Reptilia, Aves and Mammals.
	Know the types of tissues, physiology of nervous and muscles, reproduction and endocrine system.
	Comprehend the structure and functions of carbohydrates, lipids, proteins, nucleic acid and enzymes.
Biology of bee; their diseases and enemies. Prospect in economy and entrepreneurship.	
Know the physiology of digestion, excitable tissue, respiration, excretion, circulation, endocrine and reproduction.	
IV	PSO 4
	Know the anatomy of vertebrates; integumentary,circulatory,digestive, respiratory.urinogenital and nervous systems; sense organs in vertebrates.
	Conceptual knowledge of the Mechanism involved in digestion,respiration,blood, renal and heart.
	Understand the metabolism of carbohydrates, protein, lipids and protein; mechanisms involved in oxidative phosphorylation.
	-Know important diagnostic methods in blood and urine; infectious and non-infectious diseases including tumours .
	-Understand the importance of Macro- and micronutrients; deficiencies and their effect on health. Contemporary life-styles, parasitic microorganisms and health.
V	PSO 5
	Understand the concept of DNA as a genetic material and their behavior.
	Understand mendelian genetics; Mutation, role of chromosomes in sex determination; recombinant bacteria and viruses.
	Understand the historical evolution of ethology and chronobiology; biological Rhythm and clocks and its effect on animal behavior.
Know the anatomy of male and female reproduction; Hormones and its role in fertilization and reproductive health.	
VI	PSO 6
	Know the different stages of embryonic development and its implications.
	Understand the theories of evolution of life; population genetics.
	Comprehend the classification, morphology and physiology of fish; Inland fisheries and its sustainable aquaculture.
Realize the broad concept of immune system; immunoglobulins, types of vaccines.	

Programme Specific Outcomes (PSOs) of M.Sc Zoology

Semester	PSO 1
I	Understand the principles of genetics and cytogenetics
	Know the principles of animal physiology
	Understand the concept and principles of biosystematics and evolutionary process
	Understand the concept and principles of developmental biology
II	PSO 2
	Conceptual understanding of the principles in cell & molecular biology
	Understand the principle of biochemistry
	Understand the concept and principles of proteomic & enzymology
	Understand Immunology; types of Immunoglobulins.
III	PSO 3
	Understand life cycle, morphology, infection and mode of control of various parasites.
	Understand the principle and techniques in biology : bioinformatics and statistical analysis.
	Understand the anatomy of fish, taxonomy, breeding and biodiversity.
	Know the classification of insect, morphological characters, physiology-structure functions and metabolism.
	Students take up a project/field studies in real time scenario and analyse the outcome based on the data they collect.
IV	PSO 4
	Understand the concept of ecology; biodiversity measurements, conservation and management. Community structure.
	Know important animal behaviours; biological rhythms/clock.
	Understand the fisheries of India; its by-products; fish diseases.
	Understand the eusocial insects; insect pest and various control measures.
	Research topics are assigned, supervised and submitted in hard and soft copy format.

Course Outcomes (COs) of B.Sc Zoology

Semester	Course	COs	
I	Core 1 Non-Chordates I	CO1	To describe the general characters, classification and life cycles of selected species from Protozoa, Porifera, Cnidaria, Ctenophora, Platyhelminthes, Nematelminthes
	Core 2 Principle of Ecology	CO2	To explain the population and its attributes, characteristics of community, structure and functions of ecosystem and concept of biodiversity and wildlife conservation. To perform various physico-chemical experiment.
	GE 1 Aquatic Biology	CO3	To explain the properties of freshwater, marine and estuarine ecosystem, pollutions and its management.
II	Core 3 Non-chordates II	CO4	To describe the general characters and classification of Annelida, Arthropoda, Mollusca, Echinodermata
	Core 4 Cell Biology	CO5	To describe the structure and functions of Endoplasmic Reticulum, Golgi apparatus, Lysosome, Mitochondria, Peroxisomes Cytoskeleton/ Nucleus. To write an account on cell division and cell signalling.
	GE 2 Environment and public health	CO6	To explain the source and effect of various pollutions and to describe the cause, symptom and control of various diseases.
III	Core 5 Diversity of Chordates	CO7	To write the general characteristics, classification of chordate, pisces, amphibia, reptilian, aves and mammals.
	Core 6 Physiology: Controlling and Coordinating Systems	CO8	To explain the structure and functions of various tissues, nervous, muscular, reproductive, and endocrine system.
	Core 7 Fundamentals of Biochemistry	CO9	To explain the structure properties and functional significance of carbohydrates, lipids, protein, nucleic acid and enzymes.
	SEC 1 Apiculture	CO10	To write the morphology of honeybee, modern bee hive, various diseases and enemies, products of apiculture industry,
	GE 3 Human Physiology	CO11	To describe the digestion and absorption of carbohydrate, fats and protein. To explain the structure of neuron and its propagation, transport of gases, mechanism of urine formation, structure of heart, various endocrine glands
IV	Core 8 Comparative Anatomy of Vertebrates	CO12	Realize the importance of integumentary, circulatory, digestive, respiratory, urinogenital and nervous systems in vertebrates. Types of sense organs in vertebrates will be broadly understood.
	Core 9 Physiology: Life Sustaining Systems	CO13	To explain the structure and mechanism of digestion and respiration, circulation, excretion and blood components.
	Core 10	CO14	Comprehensive knowledge of the metabolism

	Biochemistry of Metabolic Processes		involved in carbohydrates, protein, lipids and protein breakdown. Familiarize the mechanisms involved in oxidative phosphorylation
	SEC 2 Medical Diagnostics	CO15	To distinguish various diagnostic methods in blood and urine analysis; know infectious and non-infectious diseases. Get an extensive impression of tumours and their impact on health.
	GE 4 Food, Nutrition and Health	CO16	To explain the macro- and micronutrients and health benefits as well as problems associated with their presence or absence will be recognised. Life-styles diseases as well as diseases due to parasitic microorganisms will be identified.
V	Core 11 Molecular Biology	CO17	To describe the process of DNA replication, transcription and translation. Write the post transcriptional modifications and processing of eukaryotic RNA. Explain the regulation in gene and DNA repair mechanism.
	Core 12 Principles of genetics	CO18	To explain linkage, crossing over and chromosomal mapping. Write the different types of gene mutation. Explain the different types of recombination in bacteria and viruses.
	DSE 1 Animal behavior and chronobiology	CO19	To describe the various patterns of behavior. What are the different types of social and sexual behavior? Explain biological Rhythm and clocks
	DSE 2 Reproductive Biology	CO20	To describe the gonadal hormones and the mechanism of hormones action in reproduction. Explain the functional anatomy of male and female reproduction. Write the process of fertilization in reproductive biology.
VI	CORE 13 Development Biology	CO21	To describe the history and different stages of embryonic development and its implications.
	CORE 14 Evolutionary Biology	CO22	To describe the evolutionary concept, theories, population genetics, products of evolution, origin and evolution of man and its phylogenetic trees.
	DSE 3 Fish and Fisheries	CO23	To write the classification, morphology and physiology of fish and also inland fisheries and its sustainable aquaculture.
	DSE 4 Immunology	CO24	To describe the overview, types of immunity, immunoglobulins, complementary systems and types of vaccines.

Course Outcomes (COs) of M.Sc (Zoology)

Semester	Course	COs	
I	Core I Genetics & Cytogenetics	CO1	Acquire knowledge of genetics & cytogenetics and its application
	Core 2 Animal Physiology	CO2	Learn about animal physiology and the various physiological pathways and its importance
	Core 3 Biosystematics & Evolutionary Biology	CO3	Learn the concept and principles of taxonomy, biosystematics and process of biological evolution.
	Core 4 Developmental Biology	CO4	Acquires knowledge of animal development
II	Core 5 Cell & Molecular Biology	CO5	Learns about cell organelles and functions, the role of various molecules in the living system
	Core 6 Biochemistry	CO6	Understand the biological functions of various molecules, the biochemical pathways
	Core 7 Proteomic & Enzymology	CO7	Acquire knowledge of proteins and enzyme, role in the living systems.
	Core 8 Immunology	CO8	Learns about the body defense system and the various substances involved.
III	Core 9 Parasitology	CO9	Describe the life cycle, morphology, infection and mode of control of various parasites.
	Core 10 Techniques in Biology	CO10	Describe the various principles of biological techniques, biological databases and statistical analysis.
	DSE 1 Fish Biology - I	CO11	Write the modern trends in fish taxonomy, accessory respiratory organs and acid-base balance.
	DSE 1 Entomology - I	CO12	Describe the (1) structure and variation of mouthparts, antennae etc of insects. (2) various insect physiology.
	DSE 2 Field Work	CO13	Present the field work through PPT and submit a hard copy.
IV	Core 11 Ecology and Environmental Biology	CO14	Write the various environmental factors, population ecology, communities and productivity and anthropogenic impact.
	Core 12 Animal Behaviour and Chronobiology	CO15	Write the types of reflexes, types of learning and communication, parental care, circadian rhythm and applied chronobiology.
	DSE 3 Fish Biology - II	CO16	Write the wetland and estuarine fisheries, various types of fish preservation, different types of feed formulation and disease diagnostic tools.
	DSE 3 Entomology – II	CO17	Describe the mechanism of caste differentiation in eusocial insects, life cycle of economic insect, concept of IPM, types of insect injury to plant, venom and allergens.
	DSE 4 Dissertation	CO18	Present the research work through seminar and submit their hard copy through proper format.