# ZOOLOGY: PROGRAMME OUTCOMES

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| **Programme Specific Outcomes** | **BSc Zoology**<br><br>**PSO1.** Develop insight and improve their analytical communication and professional skills<br><br>**PSO2.** Understanding the morphology and functional characteristics at cellular and sub-cellular (molecular) level<br><br>**PSO3.** Enhancing the technical skills for experimental purposes |
| **Course Outcomes** | Course : **ZOH101, Course Title: ZOOLOGY THEORY**<br><br>**CO1** Understanding of relationships between organisms through Systematics and cell biology<br>**CO2** Describe type study<br>**CO3** Describe mammalian physiology<br>**CO4** Describe eugenics and evolution<br>**CO5** Elaborate ecology |
| | Course **ZOM101, Course Title: LOWER INVERTEBRATES**<br>Lower invertebrates, introduction, symmetry, coelom, acoelom and parasitism,<br>**CO1** Classify and characterize Phylum-Protozoa<br>**CO2** Classify and characterize Phylum-Porifera<br>**CO3** Classify and characterize Phylum-Coelenterata<br>**CO4** Classify and characterize Phylum-Platyhelminthes<br>**CO5** Classify and characterize Phylum-Neo-platyhelminthes |
| | Course **ZOM102, Course Title: HIGHER INVERTEBRATES**<br>General characteristics and Classification up to classes of each phylum:<br><br>**CO1** Introduction to Coelomates<br>**CO2** Introduction to Annelida<br>**CO3** Introduction to Arthropoda<br>**CO4** Introduction to Mollusca<br>**CO5** Introduction to Echinodermata |
| | Course **ZOH281, Course Title: BASICS OF NEUROSCIENCE**<br><br>**CO1** Introduction to Neuroscience<br>**CO2** Introduction to Nervous system<br>**CO3** Significance of Ion channels and neurotransmitters<br>**CO4** Understanding of cellular and Molecular neurophysiology<br>**CO5** Describe techniques to study brain |
| | **ZOM201, Course Title: CHORDATA I**<br><br>**CO1** Characteristics and Outline Classification of Protochordata<br>**CO2** Characteristics and Outline of Classification of Origin of Chordata<br>**CO3** Characteristics and Outline Classification of Pisces and Amphibia<br>**CO4** Characteristics and Outline Classification Reptiles and Aves<br>**CO5** Characteristics and Outline Classification of Mammalia |

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| | **ZOM202, Course Title: CHORDATA II**<br><br>Comparative vertebrate anatomy of the systems with respect to piscean, amphibian, reptilian, avian and mammalian<br><br>**CO1** Describe the anatomy of Integumentary System<br>**CO2** Describe the anatomy of Digestive System<br>**CO3** Describe the anatomy of Circulatory and Respiratory Systems<br>**CO4** Describe the anatomy of Urogenital System<br>**CO5** Describe the anatomy of Neuro-endocrine System |
| | **ZOM301, Course Title: ANIMAL ECOLOGY**<br><br>**CO1** Describe the history, introduction and nature of ecosystem<br>**CO2** Explain the biogeocycles and laws<br>**CO3** Describe population & community ecology<br>**CO4** Describe wild life conservation and management<br>**CO5** Develop understanding of aquatic ecology |
| | **ZOM302, Course Title: CELL BIOLOGY**<br><br>**CO1** Give the overview of cell<br>**CO2** Describe the structure and function of plasma membrane<br>**CO3** Structure, functions and interactions of cell organelles and inclusions<br>**CO4** Detail description of cell division<br>**CO5** Describe structure and function of chromosomes |
| | **ZOM303, Course Title: GENETICS**<br><br>**CO1** Explain Mendalism expanding Mendel's Laws<br>**CO2** Describe gene action<br>**CO3** Describe mutation, mutagenesis and repair<br>**CO4** Explain sex determining systems and dosage compensation<br>**CO5** Explain the process of gene expression and applications |
| | **ZOM401, Course Title: ANIMAL PHYSIOLOGY**<br><br>**CO1** Develop understanding for the fundamental concepts of physiology of digestion<br>**CO2** Develop understanding of blood vascular system<br>**CO3** Develop the fundamental concepts of physiology of respiration<br>**CO4** Familiarize students with renal physiology and muscle<br>**CO5** Develop basic understanding of endocrine system and its interactions with other systems |
| | **ZOM402, Course Title: EVOLUTION & ZOOGEOGRAPHY**<br><br>**CO1** Trace the Origin of life<br>**CO2** Established theories of evolution<br>**CO3** Correlate the theories with the evidences<br>**CO4** Explain the genetic basis of evolution<br>**CO5** Describe zoogeography |

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| | **ZOM403, Course Title: MICROBIOLOGY**<br><br>**CO1** Introduction to Microbiology<br>**CO2** Describe the types and molecular structure of viruses<br>**CO3** Describe the types and structure of bacteria<br>**CO4** Most prevalent microbial diseases<br>**CO5** Understanding of applied Microbiology |
| | **ZOM501, Course Title: BIOLOGICAL CHEMISTRY**<br><br>**CO1** Fundamental concept of bioenergetics in cellular processes<br>**CO2** Describe the structure of amino acids and proteins<br>**CO3** Describe the structure and function of enzymes<br>**CO4** Describe the structure of carbohydrates<br>**CO5** Describe the structure of lipids and nucleic acids |
| | **ZOM502, Course Title: PARASITOLOGY**<br><br>**CO1** Explain the phenomenon of living together and symbiosis<br>**CO2** Describe parasitism<br>**CO3** Describe the life histories of some protozoan and helminth<br>**CO4** Describe the life histories of arthropods<br>**CO5** Understanding of applied parasitology |
| | **ZOM503, Course Title: DEVELOPMENTAL BIOLOGY**<br><br>**CO1** Develop the basic concepts of development<br>**CO2** Explain the fundamental concept of embryogenesis<br>**CO3** Explain the fundamental concept of Organogenesis<br>**CO4** Describe the developmental model systems- invertebrates<br>**CO5** Describe the developmental model systems- vertebrates |
| | **ZOM504, Course Title: ENTOMOLOGY**<br><br>**CO1** Insect taxonomy to introduce students to fascinating world of insects<br>**CO2** Describe the general insect morphology<br>**CO3** Describe the insect physiology<br>**CO4** Fundamental understanding of insect pathology<br>**CO5** Insect's role as a source for commercial products (honey, wax, silk, lac and medicines), in forensic science; as vectors; in pest control |
| | **ZOM505, Course Title: WILDLIFE CONSERVATION & MANAGEMENT**<br><br>**CO1** Wildlife habitat studies will enable students to solve problems of conservation<br>**CO2** Describe habitat management<br>**CO3** Understanding of Conservation will help protection of wildlife<br>**CO4** Explain wildlife trade that may enhance the economy<br>**CO5** Wildlife legislation will systematically organize the understanding of wildlife conservation, trade and management |

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| | **ZOM601, Course Title: IMMUNOLOGY**<br><br>**CO1** Descrive the evolution of immunology, historical perspective<br>**CO2** Describe the fundamental concept of Innate and adaptive immunity<br>**CO3** Develop the basic concepts of Antigenicity and immunogenicity<br>**CO4** Describe the molecular structure and function of major histocompatibility complex<br>**CO5** Describe the types of hypersensitivity and mechanism of tolerance |
| | **ZOM602, Course Title: QUANTITATIVE BIOLOGY**<br><br>**CO1** Introduction to biostatistics<br>**CO2** Explain descriptive statistics<br>**CO3** Explain correlation and regression<br>**CO4** Explain graphical representation of data<br>**CO5** Fundamental concept of Hypothesis testing |
| | **ZOM603, Course Title: MOLECULAR GENETICS**<br><br>**CO1** Describe the fundamental concept of DNA Replication<br>**CO2** Describe the fundamental concept of Transcription<br>**CO3** Explain the molecular events in Translation<br>**CO4** Describe the types of Posttranslational modifications (PTM)<br>**CO5** Describe Gene Regulation and structure and function of Transposons |
| | **ZOM604, Course Title: Neurobiology**<br><br>**CO1** Understanding of Brain Architecture<br>**CO2** Fundamental concept of how brain develops-Developmental Neuroanatomy<br>**CO3** Fundamental concepts of Neurophysiology<br>**CO4** Fundamental concepts of Neuro-endocrinology<br>**CO5** Describe the Neurobiology of aging and sleep |

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| **Programme Specific Outcomes** | **MSc Zoology**<br><br>**PSO1.** Develop insight and improve their analytical communication and professional skills<br><br>**PSO2.** Understanding the morphology and functional characteristics at cellular and sub-cellular (molecular) level<br>**PSO3.** Focusing to prepare them with research-oriented approach in frontier areas of research in Zoology |
| **Course Outcomes** | **ZOM701, Course Title: CELL & MOLECULAR BIOLOGY**<br><br>**CO1** Explain the molecular structure and function of cell membrane<br>**CO2** Describe Genome Organization<br>**CO3** Explain the molecular events in DNA replication and Repair<br>**CO4** Explain the mechanism of RNA processing<br>**CO5** Explain the role of Mobile DNA Elements |
| | **ZOM702, Course Title: RESOURCE MANAGEMENT STRATEGIES**<br><br>**CO1** Describe the Environmental challenges<br>**CO2** Describe the impact of environmental challenges on climate change<br>**CO3** Describe alternative resources<br>**CO4** Explain the process of Bio-remediation<br>**CO5** Describe Resource Management and conservation policies |
| | **ZOM703, Course Title: TOXICOLOGY**<br><br>**CO1** Describe the applications of Toxicology<br>**CO2** Explain the mechanism of Toxicity (Xenobiotic Metablism)<br>**CO3** Explain organ Toxicity<br>**CO4** Explain specific responses of Toxicity: Mutagenesis<br>**CO5** Identify the classification of Toxic Substances |
| | **ZOM704, Course Title: INSTRUMENTATION & STATISTICAL APPLS.**<br><br>**CO1** Explain the concepts of microscopy<br>**CO2** Describe various separation techniques<br>**CO3** Describe the basic principle of spectrometry and radiography<br>**CO4** Describe various Immunological Techniques<br>**CO5** Describe biostatistical Techniques |
| | **ZOM705, Course Title: ENVIRONMENTAL PARASITOLOGY**<br><br>**CO1** Describe parasitism<br>**CO2** Describe environmental protozoology<br>**CO3** Describe the Trematodes<br>**CO4** Describe Cestodes and Nematodes<br>**CO5** Describe Parasitic Arthropodes |
| | **Course Number: ZOM801, Course Title: WILDLIFE TECHNIQUES**<br><br>**CO1** Understanding of basic wild life research techniques |

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| | **CO2** Explain Population Analysis<br>**CO3** Fundamental concept of Nutrition and Bioenergetics<br>**CO4** Describe Habitat Management<br>**CO5** Describe wild life health and disease monitoring |
| | **ZOM802, Course Title: BIOCHEMISTRY**<br><br>**CO1** Structure of biomolecule and bioenergetics<br>**CO2** Fundamental understanding of Proteins<br>**CO3** Explain Enzyme catalysis and kinetics<br>**CO4** Describe Metabolism-Catabolism<br>**CO5** Describe Metabolism-Anabolism |
| | **ZOM803, Course Title: ANIMAL BEHAVIOUR**<br><br>**CO1** Explain the relationship of behaviour and Cognition<br>**CO2** Explain Rhythmic behaviours<br>**CO3** Explain Social behaviours<br>**CO4** Explain feeding and Reproductive behavior<br>**CO5** Describe behavior assessment |
| | **ZOM804, Course Title: ADVANCED PHYSIOLOGY**<br><br>**CO1** Explain the molecular mechanism in muscle Physiology<br>**CO2** Describe various physiology disorders and their detection<br>**CO3** Explain hormones Regulation<br>**CO4** Explain thermoregulation<br>**CO5** Explain stress Regulation |
| | **ZOM805, Course Title: RECENT TRENDS IN BIOLOGY**<br><br>**CO1** Describe command and control System<br>**CO2** Describe cell-cell interactions and Biosignaling<br>**CO3** Develop the fundamental concepts of Quantum Biology<br>**CO4** Explain the mechanism of antibody diversity in immune system<br>**CO5** Understanding of Intellectual property Rights and Ethics |

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