

Department of Zoology.
Course objectives and Outcomes

F.Y.B.Sc.

Sem.-I		
Paper	Objectives	Outcome
ZOO 101- Animal Diversity I & ZOO 102 – Animal Diversity II	Identify and classify the animals in Animal Kingdom according to Phylum and appropriate distinguishing characteristics of all phyla	Students will be able to evaluate animals according to the level of organization, body plan, symmetry, germ layers, coelom development etc.
ZOO 103 – Practical Animal Diversity I & II	To classify animals with taxonomic keys and appreciate the diversity of Non-chordates and chordates living in diverse habit and habitat.	Students will be able to identify animals and will be able to describe their identifying characters.
Sem.-II		
ZOO 201 – Comparative anatomy of Vertebrates	To gain a knowledge base for understanding vertebrate anatomy levels of organization and related functions.	Students will be able to understand the basic structure, organization of anatomical systems and their modification in the major transitions in vertebrate evolution.
ZOO 202 – Developmental biology of vertebrates.	Outline and study the developmental stages in vertebrates.	Students will be able to understand developmental phenomenon.
ZOO 203 Practical – Comparative Anatomy and developmental biology	To learn and know about different systems and comparative account of the different	Students will be able study the general patterns and sequential developmental stages during

of Vertebrates	vertebrate systems	embryogenesis.
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S.Y.B.Sc.

Sem.-III		
ZOO 301- Physiology	To provide a course of study in mammalian principally human systems physiology. To expand on some areas touch on physiology of organisms and to introduce new & more complex physiological functions.	Understand the functions of important physiological systems including digestion, cardio respiratory, renal, nerve and muscle, reproductive and endocrine glands.
ZOO 302 - Biochemistry	The objective is to understand the fundamental chemical principles that govern complex biological systems.	Understanding of fundamental biochemical principles such as the structure, functions of biomolecules, metabolic pathways and regulation of biological, biochemical processes.
ZOO 303 - Physiology & Biochemistry	Be able to perform, analyze & report an experiments and observations in physiology and biochemistry.	Students will be able to apply and effectively communicate scientific reasoning and data analysis.
Skill Enhancement Course SEC I Apiculture	Students would be able disseminate subject knowledge along with necessary skills to suffice their capabilities for academia, entrepreneurship and Industry.	Through effective skill enhancement individuals become more capable, Compitent, and confident in themselves and are better able to reach the goals.

Sem.-IV		
ZOO 401 - Genetics	Students are able to learn, Mendels work on transmission trait, Genetic Variations, Mendelian genetics, Linkage, Crossing over and Chromosomal mapping, Mutations, Sex determination	An understanding of the clinical relevance of genetic concepts and the students will have the knowledge and skills.
ZOO 402 - Evolutionary Biology	Students will be able to learn history of life, Evolutionary theories, processes of evolutionary change, species concept, macroevolution, extinction.	Students will be able to describe history of life and development of evolutionary thought, mechanism by which evolution occurs, role of extinction in evolution.
ZOO 403 - Genetics & Evolutionary Biology	To provide conceptual background in the genetics and evolution.	Students will be able to apply concepts from genetics and evolution to their lives and community.
Skill Enhancement Course SEC II Medical Diagnostics	Students will be able know about diagnosis, monitoring, screening and prognosis.	Students will be aware regarding the health and health problems.

T.Y.B.Sc.

Sem.-V		
ZOO 501- Reproductive Endocrinology (Theory and Practical)	To develop and understanding of the anatomy and physiology of the reproductive system.	Students will be able to understand anatomy and physiology of reproductive system.
ZOO 502 – Cell and Molecular Biology	To understand structure and function of cell and	Students will be able to understand structure and

(Theory and Practical)	molecular organization of nucleic acids. To understand the tools and techniques in molecular biology.	function of different cell organelles and the molecular organization and role of nucleic acids.
ZOO 503 – Mammalian Histology (Theory and Practical)	To determine how tissues are organized at all structural levels, from cells and inter-cellular substances to organs.	Students will be able to identify a number of basic tissues, types from their microscopic appearance and are able to understand Histology
ZOO 504 – Animal Biotechnology (Theory and Practical)	To introduce students to the principles, practices and applications of Animal Biotechnology.	Students will be able to develop fundamental knowledge in Animal biotechnology and its application in laboratory and industry settings.
ZOO 505 – Public Health and Hygiene (Skill Enhancement Course)	To understand and improve the quality of life through prevention and treatment of disease including mental health.	Students will be able to identify current public health problems nationally and globally.
Zoo 506 (A) – Pest Management (Elective Course)	To understand control mechanism of pest with respect to lifecycle	Students will be able to identify different pests with the help of key.

Sem.-VI

ZOO 601 – Leech and Calotes (Theory and Practical)	To understand the morphology, anatomy and physiology of different systems of Leech and Calotes.	Students will be able to understand basic structures, organizations, anatomical systems and different functions.
ZOO 602 – Chick Embryology (Theory and Practical)	To understand knowledge of development by chick embryo as a model.	Students will be able to identify developmental stages of chick embryology.
ZOO 603 – Applied Zoology (Theory and Practical)	To train the students in a wide range with Applied Zoology to provide future careers.	Self-employment, research and innovation, work safely and effectively in the field and in laboratories.

ZOO 604 – Microtechnique (Theory and Practical)	To understand the theoretical and practical knowledge of processing tissue for histological examination.	Preparation of microscopical sections and smears from different body tissues and fluids. Preparation of all solutions and stains used for processing.
ZOO 605 – Research methodology (Skill Enhancement Course)	To understand systematic approach to research and also study of systematic approach to solving a research problem by applying appropriate research methods.	Students will be able to learn different techniques which are used during the performance of the experiment, surveys and tests, etc. To create efficiency for research.
ZOO 606 (B) – Sericulture (Elective Course)	To understand the knowledge about the cultivation of Mulberry, maintenance of the farm, seed technology, silkworm rearing and silk reeling.	This course offers employment and job opportunities in the public, private and government sector.

M.Sc.-I

Sem.-I		
ZOO 101-Structure and function of Invertebrates(THEORY + PRACTICAL)	To be familiar with the different non chordates and chordates phyla,their general and distinguishing characters. To compare and contrasts the life process in different phyla.	The Student will be familiar with the animal world that surround us. Students will be able to identify the invertebrates and vertebrates and classify them up to the class level.
ZOO 102- Cell and Developmental Biology (Theory+ practical)	To understand the basic concept of developmental biology. To acquire an in depth	The course will provide a broad area from embryology to developmental biology.

	knowledge of the relationship between gene and development as well as environment and development.	The students will be able to apply their understanding of embryonic development , reproductive function and fertilization ,hormonal regulation.
ZOO 103- Quantitative Biology (Theory + practical)	To learn about Key biostatistical concept and efficient tools for summarizing and plotting data , make decision in the presence of uncertainty.	The course will provide Knowledge of biostatistics approach used to analyze and presentation of data in biological research and other field with strong emphasis on major steps in pair wise multiple sequence alignment by dynamic programming.

Sem.-II

ZOO 201- Structure and function of vertebrates (Theory + practical)	To study how the different system evolved in their complexity.	Understood the classification and phylogeny of animals. Enriched knowledge on ecology of some important fishes, amphibian .
ZOO 202- Biochemistry and enzymology	To appreciate the chemical foundation of life processes. To understand the structure and metabolism of biologically significant molecules.	The course will provide an understanding of fundamental biochemical principles such as biomolecules,metabolic pathway and regulation of biological process.
ZOO 203-Tools and Techniques for Biology (Theory + practical)	To equip the learner to use the tools and techniques for project work research in biology.	Established methods of research and enquiry are employed to analyze the different aspects of these interaction.

M.Sc.-II

Sem.-III		
ZOO 301- Entomology (Theory + practical)	To familiarize the students with insects and arachnids and their external and internal features. To equip the students to identify insect and arachnids of economic importance.	Understand evolution and biodiversity generation through macro and micro evolutionary processes, including how these processes have formed and diversified insect. Gain appreciation of insect in society and human affair model system in insect biology.
ZOO 302 –Immunology and molecular biology (Theory + practical)	To identify the cellular and molecular basis of immune responsiveness This will emphasize the molecular mechanisms of DNA replication ,repair,protein synthesis.	Understand key component of the innate and adaptive immune response. Discuss the most significant discoveries and theories through the historical progress of biological scientific discoveries ,and their impact on the development of molecular biology.
ZOO 303- Genetics (theory + practical)	To provide a fundamental knowledge on genetics ,its law ,genes and chromosomes ,inheritance ,heredity, cause of genetics disorder and the method of gene transfer. How genetic information in the DNA is selectively expressed as functional protein.	The course will able to explain the fundamentals of genetics and mendelians law ,the concept of alleles,concept of linkage and crossing over of gene. To familiar with the variety of types of genetics data i.e genotyping expression, sequence data, chromosomal mapping etc.
Sem.-IV		
ZOO 401 – Entomology II (Theory + practical)	To acquire working skills for collecting ,mounting, and preserving	Develop and understanding of the distributions and

	insect.	abundances of organisms including insects and their interaction with each other and the environment. Learn modern techniques in insect science such as molecular biology ,bioinformatics and or imaging.
ZOO 402- Systematic And evolutionary biology (Theory+practical)	To understand the evidence that living species share descent from common ancestry and how this fact explain the traits of living species. To understand that evolution endetails changes in the genetic composition of populations.	The students will able to demonstrate an understanding of ecological relationships between organisms and their environment. Also be able to demonstrate an understanding of key concepts in evolutionary biology ,history of life on earth, and phylogenetic relationships between organisms and of structure function relationships in organisms.
ZOO 403- Skill in communication and Writing a research paper.(Theory+ practical)	Use scientific methods to develop hypotheses, design and execute experiments by selecting the appropriate research techniques.	Conceptualize research processes, data presentation, report writing and publication in journals. Demonstrate a broad range of research methodologies and their relevance to specific research problems.
ZOO 406- Project Work	Should include introduction, methodology, techniques, results, discussion, and bibliography.	Institutional cum industrial study tour report emphasizing theoretical aspects should be included. Evolution of the project report and viva voce will be open defense type through power point presentation.