

Department of Zoology
Name of Programme : B.Sc. Medical

Programme Outcomes

- PO 1 Critical Thinking:** The programme aims to give knowledge with facts and figures related to various subjects in pure sciences such as Physics, Chemistry, Botany, Zoology, Mathematics, Computer Science, Economics, Quantitative Techniques, Bio-informatics, Bio-technology etc.
- PO 2 Lifelong learning:** Enable the students to understand the basic concepts, fundamental principles, and the scientific theories related to various scientific phenomena and their relevance in the day-to-day life.
- PO 3 Logical experimentation:** The learners acquire the abilities in handling scientific instruments, scheduling and executing the experiments in laboratories and to draw logical inferences from the scientific experiments.
- PO 4 Creative thinking:** They become capable of thinking creatively, to propose innovative ideas in clarifying facts and figures and providing new solution to the problems.
- PO 5 Interdisciplinary approach:** To give them knowledge about developments in any science subject and how interdisciplinary approach helps in providing better solutions and new ideas for the sustainable developments.
- PO 6 Scientific aptitude:** The programme targets to develop scientific aptitude among the students to make them open- minded, critical and curious in order to deal with all aspects related to life.
- PO 7 Self reliant:** To make them capable of applying their acquired knowledge and able to work on their own hence make themselves self-reliant and self-sufficient.

Mapping of Course Outcomes

Semester-I and II

Paper: IA Cell Biology

COURSE OUTCOMES	SKILL	POs	BLOOM'S	ASSESSMENT
CO 1: Students will acquire detail knowledge of principles and working of different types of microscopes fixatives & staining techniques. .	Remember Understand	PO2,PO3	L1,L2	Quiz/Lab
CO2: Students will be able to understand and draw the structure of plasma membrane, enlist its functions and can explain different methods of transport across membrane.	Understand Apply	PO1,PO2	,L2,L3	Assignment/ Micrographs./Project
CO 3: Students will able to learn about structure of different cell organelles in detail and can enlist their different functions.	Understand Apply	PO1,PO2	,L2,L3	Assignment/Project/Class Test
CO 4: Students will be able to Analysee the process of transformation of normal cell into tumor & will understand the basics of Immune system.	Understand Analyse	PO1,PO4	L2,L4	Assignment./Project/Class test/PPT Presentation

Paper: IB Biodiversity

COURSE OUTCOMES	SKILL	POs	BLOOM'S	ASSESSMENT
CO 1: Students will be able to study different levels of biological diversity and the evolutionary links between different phyla.	Remember Understand.	PO1,PO2	L1,L2	Quiz/Assignment
CO 2: Students will understand about the scientific classification of invertebrates and can list different morphological features and economic importance of specimens of each phylum.	Understand Apply	PO1,PO2	L2,L3,L4	Flow charts of Classification/Assignment/ Class test
CO3: Students will learn detail study of one organism from each phylum Porifera to Annelida.	Understand Apply.	PO1,PO2	L2,L3	Identification and spotting/Assignment/class test
CO 4: Students come to know about to the pathogenic protozoans and Helminths & learn their life cycle , mode of transmission and parasitic adaptations	Apply Understand.	PO1,PO2	,L2,L3	Assignment /class test

Paper: IIB Biodiversity

COURSE OUTCOMES	SKILL	POs	BLOOMS	ASSESSMENT
CO 1: Students will be able describe general rules of classification of invertebrates.	Remember Understand.	PO1 PO2	L1,L2	Assignment
CO 2: Students will understand about the scientific classification of invertebrate fauna (Arthropoda to Echinodermata) and can list different morphological features and economic importance of specimens of each phylum.	Understand, Apply,	PO1 PO2	L2,L3	Flow charts of Classification/Assignment Class test
CO3: Students will learn detail study of one organism each from phylum Arthropoda to Hemichordata.	Understand, Apply.	PO1 PO2	L2,L3	Identification and spotting/Assignment class test
CO 4: Students will able to understand the phenomenon of social behaviour in insects, Pearl formation in Mollusca and Echinoderm larvae.	Remember Understand.	PO1 PO2,	L1,L2	Assignment

Paper: II A Ecology

COURSE OUTCOMES	SKILL	POs	BLOOM'S	ASSESSMENT
CO 1: Students will be able to understand the scope of ecology in biology and functional basis of animal ecology.	Remember Understand	PO1 PO2 PO5	L1 L2	Quiz/class test
CO 2: CO 2: Students will be able to summarize the structure and analyse the functioning of ecosystems, ecological succession, biogeochemical cycles, and concepts of limiting factors.	Analyse Understand	PO1 PO2	L2 L4	Project Report/
CO 3: The students can categorize various adaptations acquired by the organisms to survive in the particular habitats.	Understand Apply	PO1 PO2 PO4	L1 L2 L3	Assignment/Quiz/Class test
CO4:The students will know about inter and intra specific interactions & learn to analyse environment problems like environmental pollution and Consevation of resources	Understand Analyse	PO1 PO2 PO5	L1 L2	Assignment /Project report/Exam

Paper: IIIA (Evolution)

COURSE OUTCOMES	SKILL	POs	BLOOM'S	ASSESSMENT
CO 1: Students will be able to understand the concept of evolution, theories of organic evolution and highlighted the role of evidences in support of evolution.	Remember Understand	PO1 PO2 PO4	L1 L2	Class Discussion/Quiz
CO 2: Students will know about origin of life, concept of micro, macro, mega evolution & evolution of species.	Understand Analyse	PO1 PO2 PO6	L2 L3	Assignment /Class test.
CO 3: The students will learn about the fossils & extinction of reptiles & evolution of man.	Understand Remember.	PO1 PO2 PO6	L2 L4	Project Report/Class Test.
CO4: Students will be able to understand poison apparatus in snakes & dentition in mammals, migration and parental care.	Remember Understand	PO1,PO2,	L1,L2,	Project Report/Exam

Paper: IIB Biodiversity-III

COURSE OUTCOMES	SKILL	POs	BLOOM'S	ASSESSMENT
CO 1.Students will understand about the hierarchy and diversity of chordates, basic characteristic features of chordates and the organisms showing affinities with both Chordates and Non -chordates.	Remember Understand	PO1,PO2	L1,L2,L4	Assignment/Quiz
CO 2: Knowledge of Classification of Urochordata, Cephalochordata along with detail study of Amphioxus.	Remember Understand	PO1,PO2	L1,L2	Assignment/test.
CO 3: Classification of different vertebrate groups (Pisces to Mammals) up to order , their general features and economic importance	Remember Understand Apply	PO1,PO2	L1,L2,L3	Assignment/ Class Test.
CO 4: Students will learn about of structural organization and functioning of various systems in organisms belonging to different vertebrate classes, the detailed study of a representative specimen of each class	Understand Apply	PO1,PO2,PO4	L2,L3	Flow chart/Assignment Class test

Paper: IVA Biochemistry

COURSE OUTCOMES	SKILL	POs	BLOOM'S	ASSESSMENT
CO 1:To educate students about the basic principles and chemistry of living organisms, the scope of biochemistry in clinical diagnosis, manufacturing of biological products and treatment of diseases.	Understand, Apply, Analyse.	PO1 PO2 PO5	L2 L3 L4	Assignment/Quiz/Group discussion
CO 2: To familiarize the students to various biochemical pathways occurring in living systems, the importance of biomolecules.	Understand, Analyse.	PO2 PO3 PO5	L2 L4	Project report/Assignment
CO 3: To create awareness among the students regarding the biochemical functioning & classification of enzymes including the role of coenzymes in the normal functioning of enzymes.	Remember, Understand, Apply.	PO1 PO3. PO5	L1 L2 L3	Project report/Assignment/classTest.
CO 4: The students are acquainted with the structure and functions of macromolecules such as carbohydrates, lipids, proteins and nucleic acids as well as the nature.	Remember Understand.	PO1 PO2 PO5	L1 L2	Assignment

Paper: IV B Animal Physiology

COURSE OUTCOMES	SKILL	POs	BLOOM'S	ASSESSMENT
CO 1: Students will learn about the basic principles and fundamentals of animal physiology.	Remember, Understand	PO1 PO2 PO6	L1 L2	MCQ/Short answer questions
CO2: The students will be able to understand the physiology digestion, types of digestion and physiology of respiration .	Understand, Apply, Analyse.	PO1 PO2 PO6	L2 L3 L4	Assignment /Projects/class test.
CO 3:Students will understand the detailed physiology of excretion, circulation, etc.	Understand, Analyse.	PO1 PO2 PO6	L2 L4	Assignment /PPT/Class test
CO 4:Students will know about nervous coordination and integration of nervous system and can understand different endocrine glands and their disorders.	Remember, Understand, Analyse.	PO1 PO2 PO4	L1 L2 L4	PPT/Class test
CO5:Students will learn the practical techniques to study animal behaviour.	Understand, Analyse.	PO1 PO4 PO6	L2 L3 L4	Assignment/Project report/EXAM

Semester-V Paper: VA Developmental Biology

COURSE OUTCOMES	SKILL	POs	BLOOM'S	ASSESSMENT
CO 1: Students will develop critical understanding of fundamentals of developmental biology, various stages in the development of embryo and gametogenesis.	Remember Understand.	PO1 PO2 PO3	L1 L2	Assignment/Quiz
CO 2: The students can understand the role of organisers and inducers in the development of embryo, the basic concepts of determination, differentiation and gastrulation.	Understand, Apply,	PO1 PO2	L2 L3	Project/Assignment/Class test
CO 3: Students are able to know about the formation of foetal membranes, their role, and development of frog, chick and rabbit upto three germinal layers, their fate maps and the nature and physiology of placenta.	Remember, Understand.	PO1 PO2	L1 L2	Project Report/Assignment/Class test
CO 4: The students are able to understand the phenomenon of metamorphosis, regeneration, ageing and Death.	Remember. Understand.	PO1 PO2	L1 L2	Assignment/Class test

Paper: V B Genetics

COURSE OUTCOMES	SKILL	POs	BLOOM'S	ASSESSMENT
CO 1: Students will learn about the central role of genetics in the study of biology .	Remember Understand.	PO1 PO2 PO4	L1 L2	Group discussion/Quiz
CO 2: The students will come to know about genetic variation through crossing over, recombination and linkage, Analyse non-allelic gene interaction and modifications of Mendelian ratios.	Understand, Apply, Analyse.	PO1 PO2 PO4	L2 L3 L4	Numericals/Assignment/PPT Presentation/Class test
SCO 3: The students will be able to understand the molecular structure of genetic material, can enlist different steps of replication and transcription of DNA and expression of genes.	Remember, Understand, Apply.	PO1 PO2 PO6	L1 L2 L3	PPT /Numericals/Class test
CO 4: The students will learn with the phenomenon of extranuclear inheritance Understand concept of Mutations.Get well versed with Recombinant DNA technology.	Understand, Apply, Analyse.	PO1 PO2 PO4	L2 L3 L4	Assignment/Class test/Seminar
CO5:Apply principles of Mendelian inheritance and Population genetics	Understand, Apply.	PO2 PO4	L2 L3	Assignment/Class test/Seminar

Paper: VI A Medical Zoology

COURSE OUTCOMES	SKILL	POs	BLOOM'S	ASSESSMENT
CO 1: The students are able to definedifferent terms in parasitology ,Understand the disease causing potential of pathogenic microorganisms..	Remember Understand	PO1 PO2	L1 L2	Assignment/Quiz
CO2: Students will be able to describe the life cycle,mode of transmission and pathogenicity of parasitic protozoans and helminthes.	Understand, Apply, Analyse	PO1 PO2	L2 L3 L4	Lab activity/Assignment Projects/Class test.
CO 3:Students will know about different Arthropod vectors,their life cycles and control measures.	Understand, Remember	PO PO2	L2 L4 L5	Assignment/class test
CO 4: Students will be able toDefine terms in Immnology, Learn about innate and adaptive immunity.Understand structure and types of Immunoglobulins	Remember Understand, Analyse.	PO1 PO2 PO5	L1 L2 L4	Lab activity and Report/Class test
CO5.Demonstrate serodiagnostic assays and know about Vaccines.	Understand, Apply, Analyse.	PO2 PO5 PO7	L2 L3 L4.	Assignment/class test./EXAM

Paper: VI B- Medical Laboratory Technology

COURSE OUTCOMES	SKILL	POs	BLOOMS	ASSESSMENT
CO 1: The students will have the knowledge of laboratory safety rules, hazards and precautions Learn the maintenance of laboratory equipments and application.	Understand, Apply.	PO1 PO3 PO7	L1 L2 L3	Assignment/Class Discussion.
CO2: The students will learn techniques of collection, transportation and preservation of different clinical samples.	Understand, Apply, Analyse	PO1 PO3 PO7	L2 L3 L4	Lab activity/ Assignment Projects.
CO3:Students will be able to estimate and analyse different hematological tests.	Understand, Analyse, .	PO1,P O2,PO 3	L2,L4	Lab activity/ Assignment class test
CO 4: Students will learn about Bacteriology, different culture media and prepration of culture media.	Remember Understand.	PO1,P O2,PO 3	L1,L2.	Lab activity and Report
CO5:Students will learn about Histopathology and perform different biochemical tests.	Apply, Analyse,.	PO1,P O3,PO 7	L3,L4,L5.	Lab activity/ Assignment class test.

B.Sc. (BIO-TECHNOLOGY) (SEMESTER-I)**Paper: BT - 1 Zoology–A**

COURSE OUTCOMES	SKILL	POs	BLOOMS	ASSESSMENT
CO 1: The students will have the knowledge about the anatomy and physiology of human digestive system . Also enlist different digestive enzymes.	Remember Understand	PO1 PO2 PO3	L1 L2	Assignment/Report.
CO2: The students will be able to understand about circulatory system. System, explain process of Haemopoiesis and list blood clotting factors	Understand Analyse	PO1 PO2	L2 L4	Assignment /Projects/Class test.
CO3:Students will learn about Respiratory system of man. Transport of O2 and CO2,control of breathing.	Understand, Analyse.	PO1 PO2	L2 L4.	Assignment/class test
CO 4: Students will understand about structure of integumentary system & different skin derivatives in humans and their role.	Understand, Analyse.	PO1 PO2 PO3	L2 L4	Assignment /Class test

B.Sc. (BIO-TECHNOLOGY) (SEMESTER-II)**Paper BT-1 Zoology-B**

COURSE OUTCOME	SKILL	POs	BLOOMS	ASSESSMENT
CO 1: The students will understand about the Structure and physiology of excretory and Reproductive system	Remember Understand	PO1 PO2	L1 L2	Assignment
CO2: The students will know about endocrine glands and enlist different hormones.	Understand, Apply, Analyse.	PO1 PO2	L2 L3 L4	Lab activity/Assignment Projects/Class test.
CO3:Students will be able to explain & draw Nervous system and also know about structure and working of sense organs.	Understand, Analyse.	PO1 PO2	L2 L4	Assignment.
CO 4: Students will be able to describe structure of different types of muscles and summarize process of muscle contraction.	Remember Understand, Analyse.	PO1 PO2 PO4	L1 L2 L4	Project report/Class test

B.Sc. (BIO-TECHNOLOGY) (SEMESTER-III)**Paper BT - 2 Zoology–C**

COURSE OUTCOMES	SKILL	POs	BLOOMS	ASSESSMENT
CO 1: The students will define different terms in parasitology. Describe the life cycle, mode of transmission and pathogenicity of parasitic protozoans.	Remember Understand	PO1 PO2 PO3	L1 L2	Assignment/Class discussion Quiz.
CO2: The students will be able to learn Histopathological techniques. Familiar with diseases such as livers, cirrhosis, nephrosis, tumors, cancer, AIDS.	Understand, Analyse	PO1 PO2 PO3	L2 L4	Assignment /Projects/Class test.
CO3: Students will be able to understand arthropod vectors, their life cycles and control measures	Understand, Analyse,	PO1 PO2	L2 L4.	Assignment/class test
CO 4: Students will have the knowledge about AIDS, Hepatitis, Typhoid and Cholera, their occurrence and eradication programmes. Learn about Drug therapy and Drug resistance.	Remember Understand, Analyse.	PO1 PO2 PO3 PO7	L1 L2 L4	Lab activity and Report/Class test