JANATA MAHAVIDYALAYA, CHANDRAPUR
DEPARTMENT OF ZOOLOGY
M.Sc. ZOOLOGY DEGREE PROGRAM
Program specific outcomes (PSOs), Course outcomes (COs)

Program specific outcomes PSOs

After completion of M.Sc. in zoology, students will be able to-

PSO1: develop deeper understanding of key concepts of biology at biochemical, molecular and cellular level, physiology and reproduction at organism level, and ecological impact on animal behavior.

PSO2: Strengthen and learn genetics and cytogenetic principle in light of advancements in understanding human genome and genomes of other model organisms.

PSO3: Learn handling of DNA sequence data and its analysis which equips students to get employed in R & D and in the industry involved in DNA sequencing services, diagnostics and micro bio analysis.

PSO4: Elucidate animal-animal, animal-plant, animal-microbe interactions and the consequences to animals, humans and the environment.

PSO5: Develop an understanding of zoological science to its applications in medial entomology, apiculture, aquaculture, agriculture and modern medicine.

PSO6: develop theoretical and practical knowledge in handling the animals and using them as model organism.

PSO7: maintain high standards of learning in animal sciences and development of research aptitude.

Course Outcomes (COs):-

Semester I

Paper – I: ANIMAL STRUCTURE AND FUNCTION: INVERTEBRATES

After completion of this course students will be able -

CO1: To describe peculiar characters of Protozoa to Echinodermata.

CO2: To understand the role of various anatomical systems in invertebrate fauna.

CO3: To become familiar with the larval form and its significance.

CO4: To Understand the role of various anatomical systems in invertebrate fauna.

Paper –II: GENERAL PHYSIOLOGY

After completion of this course students will -

CO1: Become familiar with enzymes and its activity.

CO2: Become familiar with hemoglobin and its role during transport of gases.

CO3: Learn about mimicry and osmoregulation.

CO4: Be able to understand circulatory system and working of heart and ECG.

CO5: Be able to understand physiology and biochemistry of human system.

PAPER III: CELL BIOLOGY AND GENETICS

After completion of this course students will -

CO1: Develop deeper understanding of what life is and how it functions at cellular level.
CO2: Be able to explain cell interaction and the principles of cell theory.
CO3: know about Mendelian laws and population genetics.
CO4: Become familiar with **chromosomal** abnormalities leads to genetic disorders.

PAPER IV: REPRODUCTIVE BIOLOGY

After completion of this course students will -

CO1: Be able to understand the asexual and sexual reproduction in protozoans and insects.
CO2: Become familiar with the events in oogenesis and spermatogenesis.
CO3: know about test tube baby its advantages and disadvantages.
CO4: Learn about sexual behavior of mammals..

Practical – I and II: Structure and function of invertebrates and general physiology, cell biology, genetics and advance reproductive biology

After completion of this course students will be able-

CO1: To identify and classify the laboratory invertebrate Specimen and slides.
CO2: To Learn clinical procedure of blood analysis.
CO3: To Understand physiology of digestion experimentally and acquire the knowledge of handling spectrophometer and calorimeter.
CO4: To perform the cytological & genetic experiment

Semester II

PAPER V: ANIMAL STRUCTURE AND FUNCTION, VERTEBRATES.

After completion of this course students will be able -

CO1: To understand origin and ancestry of chordates (birds).
CO2: To understand the comparative anatomy of brain in vertebrates.
CO3: To identify the girdles and limbs of mammals.

Paper – VI: General and comparative endocrinology

After completion of this course students will -

CO1: understand the neuro endocrine coordinates and its mechanism in invertebrates.
CO2: Learn about thoracic endocrine, endocrine glands and its regulatory mechanisms.

Paper VII: Molecular biology and biotechnology

After completion of this course students will be able -

CO1: To understand genome organization, DNA damage repair and replication.
CO2: To understand fine structure of prokaryotic and eukaryotic gene and its regulation.
CO3: To Familiar with the tools and techniques used in genetic engineering.
CO4: To explain the role of cloning vectors in rDNA Technology.
CO5: To Familiar with the application of Genetic Engineering.

PAPER VIII: Advance developmental biology

After completion of this course students will -

CO1: know about foetal membrane and mammalian placenta on morphological and histological basis.
CO2: Understand ageing and cell death mechanism.
CO3: know about genetic disorder diagnosis, counseling and pregnancy termination techniques

Practical – III & IV: Structural function of vertebrates, endocrinology, molecular biology and developmental biology

After completion of this course students will -

CO1: be able to identify and classify the laboratory vertebrate Specimen and slides.

CO2: learn about axial and appendicular bones of fowl and rabbit.

CO3: Acquire the knowledge how microtomy practices perform for demonstration & staining procedure.

CO4: learn about how tools and techniques used in biochemical estimation.

Semester III

Paper – IX: Parasitology

After completion of this course students will -

CO1: Learn about various parasitic lives, mode of transmition, infection and treatment.

CO2: Understand toxins and antitoxins.

Paper X Immunology:

After completion of this course students will -

CO1: learn about cells involved in immune response, histocompatibility & graft transplantation.

CO2: Learn about autoimmune disease and various techniques in immunology.

Practical –V and VI: Parasitology and immunology

After completion of this course students will -

CO1: be able to perform the Gram +ve and Gram –ve bacteria and mast cell

CO2: Learn about how to diagnose the pregnancy in given sample

Paper XI (Special group fresh water aquaculture I)

After completion of this course students will -

CO1: become familiar with Topography, Planning and Construction of a fish farm.

CO2: Learn about physiochemical condition of pond water

CO3: become familiar with culturable species their breading behavior and management.

CO4: be able to explain the techniques in hatcheries & induce breeding.

Paper XII: (Special group aquaculture & rural development)

After completion of this course students will -

CO1: be able to understand economics, economic principles & application to aquaculture**.**

CO2: become familiar with prawn culture and pearl culture technology.

CO3: become aware about socio-economic status of fisherman community

CO4: become aware about fishery legislation and their role in fishery development.

Practical VI: (SPECIAL GROUP)

After completion of this course students will -

CO1: be able to analyze the physiochemical & biological parameters of water & soil .

CO2: develop ability to estimate primary productivity, fecundity of a fish.

Semester IV

Paper XIII: Biotechniques, Biostatics and Ethology

After completion of this course students will -

CO1: Acquire the knowledge of sterilization & separation technique for biomolecules.

CO2: develop Ability to analyze the given biostatistical data.

CO3: Learn about the animals' behavior.

Paper XIV: Toxicology and bioinformatics

After completion of this course students will -

CO1: Learn about various toxic elements and their impact on aquatic organism & on human health.

CO2: Learn various applications of bioinformatics.