

Course outcome: Semester- I

Core Course (CC- 1): Functional Biology of Invertebrates and Chordates

CO1 Get an in-depth understanding about Organization of coelom and its significance, patterns of feeding and digestion in invertebrates and types and significance of invertebrate larvae.

CO2 Knowledge about Respiratory pigments in different phylogenetic groups, Organs of Respiration in Invertebrates (Gills, Lungs, and Trachea) and Mechanism of Respiration in Invertebrates

CO3 Learn about Patterns of nitrogenous excretion in different phylogenetic groups.

CO4 Knowledge about Organs of excretion (Coelomoducts, nephridia, malpighian tubules and kidney), mechanism of osmoregulation and excretion in aquatic (freshwater and marine) and terrestrial animals, and mechanism of acid-base balance.

CO5 Acquire a thorough understanding of Thermoregulation, Muscle contraction, Neurotransmitters and Acoustico-lateral system.

Core Course (CC- 2): Molecular Cell Biology

- CO1- Understand the Molecular composition, arrangement, and functional consequences of bio-membrane.
- CO2 -Learn about transport across bio membrane, diffusion, active transport and membrane pumps (P-type pump, V-type pump and ABC transporter)
- CO3 -Learn about structure and dynamics of microtubules and microfilaments
- CO4-Learn the role of Kinesin and Dynein in intracellular transport
- CO5- Knowledge of Axonal transport and cell movement
- CO 6-Thorough knowledge of replication features of single stranded phages, mechanism and machinery of replication in eukaryotes
- CO 7- Understand a basic concept of DNA damage and repair mechanism and Transcription and Intra cellular protein trafficking.

Core Course (CC- 3): Genetics

- CO 1-Understand organization of prokaryotic and eukaryotic chromosome, centromeres, kinetochore and organization of telomere and its maintenance.
- CO 2-Learn about microbial genetics, transformation conjugation and mechanism of recombination.
- CO 3-Gain a brief knowledge of cell cycle and molecule are basis of cellular checkpoints.

CO 4- Know the techniques and methods in genetics for example: DNA sequencing DNA amplification, DNA fingerprinting and genome expression analysis.

Core Course (CC- 4) Practical

CO1- Student will gain on hand experience about a squash preparation using chironomus larva onion root tip for mitosis and mitotic index, grasshopper tests for meiosis and related features.

CO2- learn about experimental demonstration of in numeration of RBC in numeration of WBC.

CO3- Acquired knowledge about genetics after solving problems on mendelian principles and sex-linked inheritance, pedigree analysis in human.

CO4- Learn how to prepare class records charts models etc

Course outcome: Semester- II

Core Course (CC- 5): Environmental Science

CO 1-Provide a thorough knowledge of concept and dynamics of ecosystem which includes energy flow, biogeochemical cycle and hydrological cycle.

CO 2- Learn about principles pertaining to limiting factors concept and law of limiting factors.

CO 3-Provide the learner to refresh about population growth predation and regulation.

CO 4-Help in understanding global environmental issues as climate change carbon footprint water security and population biology.

Core Course (CC- 6) Bioinstrumentation & Biostatistics

CO1- Equipped the learner to use the tools and techniques for project work or researchwork

CO 2-knowledge of principles and uses of analytical instruments and different types of microscopes.

CO 3-get skills in histological and biochemical techniques.

CO 4-Knowledge of different Immunological techniques.

CO 5-Provide basic concepts of Biostatistics mean standard deviation a standard error analysis of variance.

CO 6-Understand rules of probability correlation regression and test of significance.

Core Course (CC- 7): Biochemistry

CO 1- Provide a thorough knowledge of bioenergetics which includes law of thermodynamics, internal energy, enthalpy entropy etc. Students will get knowledge of mitochondrial electron transport and oxidative phosphorylation.

CO2- Motivate D learner to refresh classification and nomenclature of enzyme mechanism of enzyme action, and non-genetic regulation of enzyme activity. student will also learn about free radicals, antioxidants, and detoxification.

CO3- Provide an overview of principles and Histology and histochemistry which includes different types of fixatives and dies.

Core Course (CC- 8): Biosystematics and Evolution

CO 1- Provide basic concept of bio systematics and taxonomy its importance and application in biology. it also includes trends in taxonomy and species concept.

CO 2- Student will get knowledge of genetic polymorphism variation in chromosome structure protein structure concept of natural selection which includes Darwinian and neo-Darwinian.

CO 3- Acquire knowledge of molecular evolution, molecular phylogenesis, neutral theory of molecular evolution and origin of new genes and evolution of multi gene family.

CO 4- This paper will provide a brief knowledge of mechanism of speciation and concept of population genetics.

CO 5- Student will also know about different destabilizing force of genetic equilibrium.

Core Course (CC- 9): Practical

CO1- Student will get knowledge practical knowledge of biochemical experiments

CO2- In practical classes they will identify and comment upon the different spots of evolutionary significance.

CO 3- Learn about histochemistry and different environmental studies.

CO 4- Gain practical knowledge of standard deviation standard error and correlation regression t- test.

Course outcome: Semester- III

Core Course (CC-10): Vertebrate Immunology

CO 1- Develop knowledge about innate and acquired immunity lymphocyte trafficking phagocytosis and inflammation.

CO 2- Student will get a brief idea of humoral immunity and cell mediated immunity.

CO 3- Provide a thorough knowledge of antigen antibody antigenicity and immunogenicity.

CO 4- Learn about MHC complex antigen antibody interaction and complement system.

CO 5-Give students an intensive and in depth learning in the field of immunology.

CO 6-Understand the basic concept of organization and expression of IG genes and immunological diseases.

CO 7-know the immune diffusion technique and ELISA.

Core Course (CC- 11): Gamete and Developmental Biology

CO 1-Understand cellular basis of spermatogenesis and biochemistry of semen, oogenesis , vitellogenesis and molecule events during fertilization.

CO 2-learn about multiple ovulation and embryo transfer technology, in vitro and superovulation.

CO 3-learn about basic concept of potency commitment specification induction competence and differentiation.

CO 4-knowledge of differentiation morphogenesis and oogenesis.

CO 5-learn a brief concept of stem cell biology.

Core Course (CC- 12): Vertebrate Endocrinology

CO 1-Understand aims and scope of endocrinology hypothalamic control of endocrinesystem, and chemical nature and cross features of hormones.

CO 2-learn about the hormones involved in reproduction and hormonal regulation of reproductive cycle.

CO 3-Motivate students to learn biosynthesis of steroid hormones amino acid derived hormones and simple peptide hormones.

CO 4-Understand the basic concept of hormone receptors and general principles of hormone actions.

Core Course (CC- 13): Animal Behavior

CO1-Familiarise the learner to basics of animal behaviour, ethology patterns of behaviour and approaches and methods in the study of behaviour.

CO 2-Learn about social behaviour reproductive behaviour and biological rhythm.

CO 3- learn about how to control hormones and behaviour and ecological aspects of behaviour which includes habitat selection, optimal foraging theory and aggressive behaviour.

CO4Understand courtship and parental behaviour evolution of sex and reproductive strategies.

Core Course (CC- 14): Practical

CO 1-To familiarise with immunological experiments like determination of blood group using ABD antisera, preparation of blood film and identification of blood cells of immunological importance and hormonal assessment of T3 /testosterone