

Course Outcomes:

At the time of graduation, the students will be able to-

PSO1: Understand concept of cell biology and genetics

PSO2: Study various phylum and their classification

PSO3: Understand mammalian physiology

PSO4: Recognize relationship between structure and function at all levels: molecular, cellular, and organismal

PSO5: Understand the chemistry and structure of all biological macromolecules including proteins and nucleic acids, determine their biological properties

PSO6: Understand nature and basic concepts of physiology, biochemistry, ecology, evolution and biotechnology

PSO7: Study animal diversity, including knowledge of specification, classification and evolutionary relationship of major groups of animals

PSO8: Understand biological, chemical and physical features of environment, e.g. terrestrial, freshwater, marine, host that animals inhabit

PSO9: Gain knowledge in the field of environment conservation, evolution and behaviour of animals

PSO10: Understand functions of organisms at the level of the gene, genome, cell, tissue, organ and organ-system

PSO11: Understand applications of rDNA technology to think critically and solve problems in the fields of biotechnology by applying research strategies

F.Y. B.Sc.

Semester I

Paper I- Protozoa to Annelida

Upon completion of the course, the students will be able to:-

CO1: Identify animals by observation

CO2: Describe unique characters of Protozoa, Porifera, Coelenterate, Helminthes and Annelids

CO3: Explain life functions of Protozoa, Porifera, Coelenterate, Helminthes and Annelids

CO4: Describe ecological role of phylum Protozoa, Porifera, Coelenterata, Helminthes and Annelida

CO5: Identify diversity from Protozoa, Porifera, Coelenterate, Helminthes and Annelids

PSO10: Understand functions of organisms at the level of the gene, genome, cell, tissue, organ and organ-system

PSO11: Understand applications of rDNA technology to think critically and solve problems in the fields of biotechnology by applying research strategies

Paper II- Cell Biology

Upon completion of the course, the students will be able to:-

CO1: Describe in detail the structure of cell

CO2: Describe function and the composition of the plasma membrane

CO3: Explain principles of the cell theory

CO4: Differentiate between prokaryotes and eukaryotes

CO5: Understand importance of the nucleus and its components

CO6: Understand how the endoplasmic reticulum and Golgi apparatus interact with one another and know with which other organelles they are associated

CO7: Identify three primary components of the cell's cytoskeleton and how they affect cell shape, function, and movement

Semester II

Paper IV- Arthropoda to Echinodermata and Hemichordata

Upon completion of the course, the students will be able to:-

CO1: Identify animals by observation

CO2: Describe unique characters of Arthropods, Mollusks, Echinoderms and Hemichordates

CO3: Explain life functions of Arthropods, Mollusks, Echinoderms and Hemichordates

CO4: Explain ecological role of phylum from Arthropoda to Hemichordata

CO5: Explain in detail diversity from Arthropods to Hemichordate

Paper V- Genetics – I

Upon completion of the course, the students will be able to:-

CO1: Describe chemical basis of heredity

CO2: Explain role of genetics in evolution

CO3: Evaluate conclusions that are based on genetic data

CO4: Find the results of genetic experimentation in animals

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Semester III

Paper VII- Vertebrate Zoology

Upon completion of the course, the students will be able to:-

CO1: Describe unique characters of urochordates, cephalochordates and fishes

CO2: Recognize life functions of urochordates to fishes

CO3: Explain ecological role of different groups of chordates

CO4: Explain the diversity of chordates and describe unique characters of amphibians, reptiles, aves and mammals

CO5: Describe life functions of amphibians, reptiles, aves and mammals

CO6: Explain ecological role of different classes of vertebrates

Paper VIII- Genetics - II

Upon completion of the course, the students will be able to:-

CO1: Explain in detail gene expression and its behaviour in transformation

CO2: Describe the role of genetics in evolution

CO3: Evaluate conclusions that are based on genetic data in population genetics

CO4: Describe genetic diseases and disorders

CO5: Explain the techniques that are used in genetic engineering

Semester IV

Paper XI- Animal Physiology

Upon completion of the course, the students will be able to:-

CO1: Describe in detail the physiology at cellular and system levels

CO2: Explain the role of different bio-molecules

CO3: Explain how mammalian body get nutrition from different bio-molecules

CO4: Describe the functions of different systems

CO5: Describe the physiology of respiratory, renal, endocrine and reproductive systems to define normal and abnormal functions

Paper XII- Biochemistry and Endocrinology

Upon completion of the course, the students will be able to:-

CO1: Describe in detail the metabolism of carbohydrates, proteins, fats

CO2: Explain the fundamental biochemical principles

CO3: Describe basic laboratory techniques in biochemistry

CO4: Describe the structure and function of endocrine glands

CO5: Explain the role of hormones

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Semester V

Paper XV- Ecology

Upon completion of the course, the students will be able to:-

CO1: Describe abiotic and biotic factors that affect, the distribution, dispersal, and behaviour of organisms

CO2: Identify factors that affect biological diversity and the functioning of ecological systems

CO3: Use an ecological vocabulary in arguments and explanations of ecological phenomena

CO4: Apply concepts and theories from biology to ecological examples

CO5: Analyse and interpret ecological information, research and data

Paper XVI-F- Biotechnology-I

Upon completion of the course, the students will be able to:-

CO1: Describe the use of genetically engineered products to solve environmental problems

CO2: Explain principles for the basis of recombinant DNA technology

CO3: Explain steps involved in the production of by-products and methods to improve modern biotechnology and can apply basic biotechnological principles, methods and models to solve biotechnological tasks

Semester VI

Paper XIX- Evolution

Upon completion of the course, the students will be able to:-

CO1: Describe evolutionary history of man

CO2: Describe origin of species on earth

CO3: Have an enhanced knowledge and appreciation of evolutionary biology and behaviour

CO4: Perform, analyse and report on experiments and observations in whole-organism biology

CO5: Gain information regarding animal classification and systematic, animal structure and function relationships, evolution between and within major animal groups, human evolution and animal reproduction and development

Paper XX-F- Biotechnology-II

Upon completion of the course, the students will be able to:-

CO1: Demonstrate ability to apply research strategies like contamination and sterilization of laboratory in cell culture

CO2: Explain technical skills necessary for supporting biotechnology research activity in tissue culture and transgenic animal methods

CO3: Explain applications of biotechnology

CO4: Describe Gene therapy and DNA fingerprinting

CO5: Demonstrate knowledge of biotechnology concepts in ex vivo, in vivo gene therapy to diagnosis human diseases