

Raniganj Girls' College
Department of Zoology

Programme Outcomes

Program Specific Outcomes

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- Students gain deep knowledge of animal sciences and their interrelations
- Students attain knowledge of distribution, biology of different phyla and their relationship with the environment
- Understanding basic ecology and the factors that govern ecological interactions, conservation and its mechanisms, Biodiversity and protection of species
- Understanding basic processes of animal as well as human physiology
- Gain knowledge of comparative anatomical structures and their significance in vertebrates
- Gain knowledge of biochemical processes that maintain body homeostasis
- Students attain detail knowledge of cell organization, orientation, structure of cell and its organelles
- Attaining knowledge of different human parasites, their biology and preventive measures Understanding details of human immune system
- Understanding structure of DNA, RNA and different molecular processes like replication, transcription, translation, cancer etc.
- Gain knowledge of developmental processes of amphibian, bird and human
- Understanding about various concepts of genetics and its importance in human health
- Understanding evolutionary processes and behavioural patterns of various animals
- Gaining knowledge of applied fields like sericulture, aquaculture, apiculture etc.
- Understanding research methodologies, ethical principles and responsibilities

- Practical application of the knowledge in life and work for the betterment of society
- Develops empathy and love towards the animals

Programme Specific Outcomes

- Understanding basic concepts of Taxonomy, Non-chordates, Chordates, Ecology, Physiology, Biochemistry, Cell biology, Genetics, Parasitology, Immunology, Molecular Biology, Developmental Biology, Evolution and applied Zoology
- Understanding the relationships of organisms with their ecosystems
- Carry out laboratory practical procedures in all the said sections
- Applying the knowledge in Agriculture, Aquaculture, Apiculture, Sericulture, Medicine and daily life
- Attaining knowledge of research methodologies, effective communication and skills of problem solving methods
- Direct the students for a better habitable society & Nation building

Course Outcomes: B.Sc. Honours in Zoology

SEMESTER-I

CC- I – Basic Concept of Taxonomy & Non-chordates: Protista to Pseudocoelomates

- Develops concepts of Taxonomy, systematic & species
- Understanding classification from Protista to Pseudocoelomates with examples
- Knowledge of life cycle & various physiological processes of non-chordates

CC-II – Principles of Ecology

- Develops basic knowledge of Ecosystem, its controlling factors, components & interactions
- Imparts knowledge of population & community, their components & dynamics
- Knowledge of wild-life conservation, laws & managements

SEMESTER-II:

CC -III – Non-chordates II: Coelomates

- Knowledge of Coelom & metamerism
- Concepts of classification & biology of Annelids, Arthropods, Molluscs & Echinoderms

CC-IV – Animal Physiology

- Develops concept of Tissue structure, types & functions
- Knowledge of structure & function of digestive, respiratory, blood vascular, urino-genital, endocrine & nervous system

SEMESTER-III:

CC-V – Diversity of Chordates

- Concepts of classification & biology of Protochordata, Agnatha, Pisces, Amphibia, Reptilia, Aves, & Mammals.
- Knowledge of zoogeographical realms & animal distribution

CC-VI – Comparative anatomy of vertebrates

- Concept of anatomical structures of different systems, i.e., integumentary, skeletal, digestive, respiratory, circulatory, urinogenital, & nervous systems in vertebrates
- Understanding comparative structure of eye in fish, bird, & mammal

CC-VII – Fundamentals of Biochemistry

- Concept of structure & function of Carbohydrate, Lipid, Protein & Nucleic acids
- Understanding biology of enzymes
- Knowledge of carbohydrate, lipid & protein metabolism

SEC-I – Apiculture

- Study of modern apiculture techniques, its components like Bee types, bee colony, bee rearing, bee diseases & preventive measures, & prospects of bee culture

GE-III – Environment and Public Health

- Knowledge of environmental hazards & toxins
- Aspects of pollution & its effects on climate
- Concept of waste water management
- Knowledge of different water & air borne diseases

SEMESTER-IV:

CC-VIII – Cell Biology

- Knowledge of structure & function of plasma membrane
- Understanding structure & function of cell organelles like ER, Golgi, Lysosome, Mitochondria, Nucleus, Peroxisomes
- Study of cell components like cytoskeleton
- Concept of Cell division & regulation
- Basic knowledge of signalling within cell

CC-IX – Parasitology & Immunology

- Concept of parasitism & interaction with host
- Knowledge of life cycle, pathogenicity & treatment of different human endoparasites
- Types of immunity, components of immune system like cells, cytokines, immunoglobulins, antigens, antigen-antibody interactions
- Immuno assays & Hybridoma technology

CC-X – Biochemistry of Metabolic Processes

- Aspects of metabolism & energy requirements
- Knowledge of carbohydrate, lipid & protein metabolism
- Concept of oxidative phosphorylation within cell

SEC-II – Aquarium Fish Keeping

- Concept of aquarium fish keeping, exotic & endemic fresh & salt water fishes
- Understanding of common characters, feeding habits, & maintenance of fishes
- Transport & prospect as cottage industry

GE-IV – Physiology

- Aspects of digestion & absorption, nerve & muscle, respiratory & renal physiology
- Knowledge of cardiovascular, endocrine & reproductive physiology

SEMESTER-V:

CC-XI – Molecular Biology

- Knowledge of structure & types of DNA & RNA
- Concept of basic molecular processes like replication, transcription, translation, post transcriptional modifications & gene regulation
- Concept of cancer induction & regulatory RNAs

CC-XII – Developmental Biology

- Basic concepts of development
- Details of developmental processes in frog, chick, sea urchin
- Concept of gametogenesis, germ layers, placenta, metamorphosis & Teratogenesis
- Concept of stem cell, IVF & amniocentesis

DSE-I – Animal Behaviour & Chronobiology

- Understanding patterns of behaviour
- Concept of different social & sexual behavioural patterns
- Knowledge of biological rhythms & clocks

DSE-II – Biology of Insecta

- Knowledge of insect classification, morphology, physiology, sensory organs
- Concept of insect society
- Understanding insect plant interaction & their evolution
- Brief knowledge of insect pests

SEMESTER-VI:

CC-XIII – Principles of Genetics

- Concept of inheritance, alleles
- Concept of linkage & chromosome mapping
- Understanding mutations, extra-chromosomal inheritance, polygenic inheritance, recombination & transposons
- Knowledge of sex-determination in *Drosophila* & Man & their regulation

CC-XIV – Evolutionary Biology

- Concept of origin of life
- Knowledge of evidences of evolution, variation, population genetics
- Concept of micro & macro evolution, extinction & origin of human
- Understanding phylogenetic tree & its interpretation

DSE-III – Parasitology

- Concept of parasite, host & vector
- Understanding life cycle, pathogenicity & treatment of different parasitic protists, platyhelminthes, nematodes, arthropods & vertebrates

DSE-IV – Aquatic Biology

- Understanding types & zones of aquatic biome
- Knowledge of types & physicochemical properties of freshwater bodies
- Concept of properties of sea water, continental shelf, deep sea organisms, coral reefs & sea weeds
- Idea of water Pollution & its management

Course Outcomes: B.Sc. Programme in Zoology

SEMESTER-I

CC-I – Animal Diversity

- ❖ Concept of classification & biology of phyla, from Protista to Mammals

SEMESTER-II

CC-II – Comparative Anatomy & Developmental Biology of Vertebrates

- ❖ Knowledge of different body organizational systems of vertebrates
- ❖ Basic development from gametogenesis to placenta formation
- ❖ Concept of chromosomal aberrations

SEMESTER-III

CC-III – Physiology & Biochemistry

- ❖ Concept of Human physiological aspects like digestion, respiration, excretion etc. & basic concepts of biochemistry of biomolecule metabolism & enzymes

SEC-I: Apiculture 1.

- ❖ Concept of bees, bee keeping, management of bee keeping & products

SEMESTER-IV

CC-IV – Genetics & Evolutionary Biology

- ❖ Concepts of genetics like, variation, mutation, chromosome mapping, sex determination
- ❖ Knowledge of origin of species, macro-micro evolution, & extinction

SEC-II – Aquarium Fish Keeping

- ❖ Concept of aquarium fish keeping, exotic & endemic fresh & salt water fishes
- ❖ Understanding of common characters, feeding habits, & maintenance of fishes
- ❖ Transport & prospect as cottage industry

SEMESTER-V

SEC-III – Aquatic Biology

- ❖ Understanding types & zones of aquatic biome
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- ❖ Concept of properties of sea water, continental shelf, deep sea organisms, coral reefs & sea weeds
- ❖ Idea of water Pollution & its management

DSE-I – Fish and Fisheries

- ❖ Knowledge of classification of Pisces
- ❖ Basic concept of morphology & physiology of fish
- ❖ Concept of fisheries & aquaculture

SEMESTER-VI

SEC-IV – Research Methodologies

- ❖ Concept of components of research
- ❖ Knowledge of research design, data collection & analysis
- ❖ Understanding Ethics in research

DSE-II – Wild life Conservation & Management

- ❖ Idea, properties, evaluation & management of wildlife
- ❖ Concept of conservation & methods 3. Knowledge of conservation acts