

DEPARTMENT OF ZOOLOGY

RANAGHAT COLLEGE

RANAGHAT, NADIA, W.B.

Course Outcomes

ACADEMIC SESSIONS:

2018-2019
2019-2020
2020-2021
2021-2022
2022-2023



SEMESTER I:

NON-CHORDATES I: PROTISTS TO PSEUDOCOELOMATES

- Exploration of basic taxonomy and systematics for Protozoa, Porifera, Cnidaria, and Helminth groups.
- Knowledge acquisition about acoelomate and pseudocoelomate parasites, including life cycles, epidemiology, pathology, diagnosis, symptoms, and treatments.
- Understanding parasitology fundamentals: origin and evolution of parasitism, vectors, parasitoids, host-parasite interactions.

NON-CHORDATES II: COELOMATES

- Learning the classification of coelomate invertebrates and their structure, function, and biology.
- Understanding vector-borne diseases, including life cycles, epidemiology, pathology, diagnosis, symptoms, and treatments.
- Basics of sericulture, apiculture, and lac culture.

SEMESTER II:

PERSPECTIVES IN ECOLOGY

- Comprehensive exploration of population ecology, community ecology, and ecosystem ecology.
- In-depth knowledge of environmental biology.
- Familiarity with tools and techniques of field ecology.

CELL BIOLOGY

- In-depth understanding of plasma membrane, cellular organelles, chromosomes, and cell divisions (mitosis and meiosis).
- Knowledge acquisition in cell signaling, cancers, and techniques for measuring and staining different cell types.

SEMESTER III:

DIVERSITY OF CHORDATES

- Mastery of chordates' classification, structure, function, and biology across various taxonomic classes.
- Exploration of special topics such as zoogeography, metamorphosis, snake bites, bird migration, amphibian parental care, mammal echolocation, poultry management, and domestic animal breeds.

ANIMAL PHYSIOLOGY: CONTROLLING AND COORDINATING SYSTEMS

- Basics of histology and tissue staining.
- Understanding physiology of muscles, nerves, reproductive systems, and bones.
- In-depth knowledge of endocrinology, including hormone classification, biosynthesis, receptors, molecular actions, physiological functions, feedback controls, and related disorders.

FUNDAMENTALS OF BIOCHEMISTRY

- Exploration of basic biochemistry principles for carbohydrates, proteins, lipids, and nucleic acids.
- Understanding enzyme action mechanisms, kinetics, and various instrumental techniques.
- Detailed understanding of carbohydrate, lipid, and protein metabolism, oxidative phosphorylation, and redox reactions.

SEMESTER IV:

COMPARATIVE ANATOMY OF VERTEBRATES

- In-depth understanding of vertebrates' integumentary, skeletal, digestive, respiratory, circulatory, urinogenital, nervous, and sensory systems in a comparative context.

ANIMAL PHYSIOLOGY: LIFE-SUSTAINING SYSTEMS

- Knowledge of digestion, respiration, circulation, excretion, and adaptation physiology.

IMMUNOLOGY

- Knowledge development about immune cell structures and functions, immunoglobulins, antigens, antibodies interactions, MHC molecules, cytokines, hypersensitivity reactions, and cellular immunity.
- Understanding immune diffusion technique and ELISA.

SEMESTER V:

MOLECULAR BIOLOGY

- Acquiring knowledge about replication, transcription, translation, post-transcriptional and post-translational modifications, gene regulation, and DNA repair mechanisms.
- Familiarity with molecular tools and techniques like PCR, southern, northern, and western blotting, recombinant DNA technology, and aspects of applied microbiology.

PRINCIPLES OF GENETICS

- Learning fundamental genetics, Mendelian and non-Mendelian inheritances, linkages, mutations, sex determination, and extrachromosomal inheritances.
- Understanding biostatistics, including central tendency, t-test, chi-square, ANOVA, correlations, and regression.

SEMESTER VI:

DEVELOPMENTAL BIOLOGY

- Exploring early, late, and post-embryonic developmental aspects.
- Knowledge of developmental biology implications in teratogenesis, stem cell biology, in vitro fertilization, cryopreservation, and cord blood transfusion.

EVOLUTIONARY BIOLOGY

- Understanding population genetics, human evolution, origin of species concepts, extinctions, phylogenetic tree making.
- Basic knowledge of bioinformatics.