

**DEPARTMENT OF ZOOLOGY**  
**S.D.Women's College, Rajgangpur**  
**ZOOLOGY (B.Sc)**

**1. PROGRAMME OUTCOMES (PO):-**

- PO-1: Analyse complex interactions among the various animals of different phyla, their distribution and their relationship with the environment
- PO-2: Understand the complex evolutionary processes and behavior of animals.
- PO-3: Apply the knowledge of internal structure of cell, its functions in control of various metabolic functions of organism
- PO-4: To inculcate knowledge and skill in the fundamentals of animal science and living organisms
- PO-5: Correlate the physiological process of animals and relationship of organ systems.
- PO-6: Information and skill of applies zoology including sericulture, apiculture, fisheries, poultry, vermiculture agricultural pests and their control etc.
- PO- 7: Aware students about ethical principles and commit to professional ethics

**2. PROGRAMME SPECIFIC OUTCOMES (PSO):-**

- PSO-1: Understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied zoology.
- PSO-2: Analyze the relationships among the animals, plants and microbes
- PSO-3: Perform procedures as per laboratory standards in the areas of Taxonomy, Physiology, Ecology, Cell Biology, Genetics, Applied Zoology, Clinical Science, tools and techniques of Animal biotechnology
- PSO-4: Immunology and research methodology
- PSO-5: Gain knowledge about research methodologies, effective communication and skills of problem solving methods

**3. COURSE OUTCOMES (COS):-**

**I-SEMESTER:**

**CORE-1: ANIMAL DIVERSITIES- NON CHORDATES-I**

After successfully completing this course, students will be able to:

1. To understand the animal diversity around us.
2. To understand the underlying principles of classification of animals.
3. To understand the terminology needed in classification.
4. To classify invertebrates and to be able to understand possible group of the invertebrates observed in nature.

## **CORE-2: PRINCIPLES OF ECOLOGY**

After successfully completing this course, students will be able to:

1. Students will understand the various features and aspects of population ecology, community, community ecology and ecosystem ecology. They might have the knowledge about environmental biology in details.
2. They will acquire knowledge about various tools and techniques of field ecology.

## **II- SEMESTER:**

### **CORE-3: ANIMAL DIVERSITY-NON- CHORDATES-II**

After successfully completing this course, students will be able to:

1. Students will be learning about classification of coelomate invertebrates and the structure, function of these taxonomic categories as well.
2. They will understand about different vector born diseases and the related life cycles, epidemiology, pathology, diagnosis, symptoms and treatments.
3. They will also know the basics of sericulture, apiculture and lac culture.

### **CORE- 4: CELL BIOLOGY**

After successfully completing this course, students will be able to:

1. Students will understand the structures, positions and functions of plasma membrane and all cellular organelles in details.
2. They will acquired knowledge about chromosomes and cell divisions, both mitosis and meiosis.
3. They will also know about cell signaling and cancers.

## **III -SEMESTER:**

### **CORE-5: DIVERSITY OF CHORDATES**

After successfully completing this course, students will be able to:

1. Students will understand the classification structure, function and biology of chordates OF DIFFERENT taxonomy classes.
2. They will also learn some special topic like zoogeography, metamorphosis, snake biting mechanics, migration of birds, parental care of Amphibian.

### **CORE-6: PHYSIOLOGY: CONTROLLING AND COORDINATING SYSTEMS**

After successfully completing this course, students will be able to:

1. Students will learn about basics of histology AND tissue staining.
2. They will also understand the physiology of muscles, nerves, reproductive systems and bone.
3. They will learn details of endocrinology with classification of hormones, their biosynthesis, receptors, mode of molecular action, physiological functions and related disorders.

#### **CORE-7: FUNDAMENTAL OF BIOCHEMISTRY**

After successfully completing this course, students will be able to:

1. Students will understand the basics and fundamental biochemistry of carbohydrates, proteins, lipids and nucleic acid.
2. They will also understand the nature, mechanisms and kinetics of enzyme action.
3. Some instrumentation such as microscope, chromatography, electrophoresis, centrifugation, spectrophotometer etc will be learn.

#### **IV -SEMESTER:**

#### **CORE-8: COMPARATIVE ANATOMY OF VERTEBRATES**

After successfully completing this course, students will be able to:

1. Students will have understood the structures of different systems such as integumentary , skeleton, digestive, respiratory, circulatory, urinogenital , sensory organs in comparative way among the vertebrate groups.

#### **CORE-9: PHYSIOLOGY: LIFE SUSTAINING SYTEMS**

1. Students will know the physiology of digestion, respiration, circulation, excretion and blood.

#### **CORE-10: BIOCHEMISTRY OF METABOLOC PROCESSESSES**

After successfully completing this course, students will be able to:

1. Students will understand the metabolism of carbohydrates, proteins, lipids in details.
2. They will also learn about oxidative phosphorylation and redoxreaction .

#### **V -SEMESTER:**

#### **CORE-11: MOLECULAR BIOLOGY**

After successfully completing this course, students will be able to:

1. Students will acquire knowledge about replication, transcription, translation, post transcriptional and post translation modifications, gene regulation,DNA repair mechanisms

and techniques like PCR, Southern northern and western blotting, recombinant DNA technology etc.

2. They will also know the various tools and techniques related to bacterial microbiology. Some aspects of applied microbiology and diseases related to microbiology will also be learnt by the students.

### **CORE-12: PRINCIPLES OF GENETICS**

After successfully completing this course, students will be able to:

1. Students will learn the fundamental genetics like mendelian and non mendelian inheritance, linkages, mutations, sex determination of various animals etc.
2. They will also understand the various aspects of biostatistics such as central tendency, t-test, chi-square, correlations and regression.

### **DSE-1: ANIMAL BEHAVIOR AND CHRONOBIOLOGY**

After successfully completing this course, students will be able to:

1. Students will learn in details about patterns of behaviors, survival, strategies, social and cooperative behaviors, design of signals and chronobiology.
2. They will also know to construct ethograms.

### **DSE-2: IMMUNOLOGY**

After successfully completing this course, students will be able to:

1. Students will develop knowledge about structures and function of immune cells, immunoglobulin, antigens and their interactions with antibodies.
2. They will know about MHC molecules, cytokines, hypersensitivity reactions and cellular mode of immunity development.

### **VI -SEMESTER:**

### **CORE-13: DEVELOPMENTAL BIOLOGY**

After successfully completing this course, students will be able to:

Students will learn the different aspects of early and late and post embryonic developments.

1. They will have the knowledge about implications of developmental biology in various fields, such as in teratogenesis, stem cell biology, in vitro fertilization, cryopreservation, cord blood transfusion etc.

### **CORE-14: EVOLUTIONARY BIOLOGY**

After successfully completing this course, students will be able to:

1. Students will know about population genetics, human evolution, various concepts about origin of species, phylogenetics tree making.

2. They will also understand few basic of bioinformations.

### **DSE-3: FISH AND FISHERIES**

After successfully completing this course, students will be able to:

1. Students will be learnt details about taxonomy and biology of fishes as well as various aquaculture techniques in details.
2. Student will also learn about the fish culture.
3. Students will learn about the different types of fish.

### **DSE-4: DISSERTATION/PROJECT**