

## **Course Outcomes of Zoology Core Courses**

### **ZO1141 Animal Diversity I**

CO 1: Provides students with an in-depth knowledge of the diversity in form, structure and habits of invertebrates.

CO 1: Learn basics of systematics and understand hierarchy of different categories.

CO 2: Learn diagnostic characteristics of different phyla through brief studies of examples.

CO 3: Obtain overview of economically important invertebrates.

CO 4: Classify all the invertebrate phyla up to class.

**Credits:** 3 credits

3 Theory periods of one hour over a semester

1 Practical period of one hour over a semester

### **ZO1241 Animal Diversity II**

CO1: Provides students with an in-depth knowledge of the diversity in form, structure and habits of vertebrates

CO2: Learn general characters and classification of different classes of vertebrates.

CO3: Understand the vertebrate evolutionary tree.

CO4: Obtain overview of economically important vertebrates.

**Credits:** 3 credits

3 Theory periods of one hour over a semester

1 Practical period of one hour over a semester

### **ZO1341 Methodology and Perspectives of Zoology**

CO1: Introduce the methodology and perspectives of science in general so as to enable the students to systematically peruse Zoology in relation to other disciplines that come under the rubric of science.

CO2: Learn fundamental characteristics of science as a human enterprise.

CO3: Understand how science works.

CO4 : Study the application of scientific methods.

**Credits:** 3 credits

3 Theory periods of one hour over a semester

### **ZO1441 Cell Biology**

CO 1: Knowledge regarding the fundamental structure, biochemistry and function of the cell.

CO2: Understanding ultra structure of prokaryotic and eukaryotic cells.

CO3: Understanding the Structure and functions of all the organelles in the cells.

CO4: Studying the mechanism and complications of cell division.

CO 5: Knowledge regarding biology of cancer.

**Credits:** 3 credits

3 Theory periods of one hour over a semester

### **ZO1541 Genetics and Biotechnology**

CO1: Study the under lying genetic mechanism operating in man and state.

CO2: Learn the mechanism of crossing over and inheritance pattern in man.

CO3: Understand the principles and techniques involved in DNA technology.

CO4: Get an overview of modern techniques like PCR, Hybirdoma technology, gene therapy and human cloning.

**Credits:** 4 credits

4 Theory periods of one hour over a semester

### **ZO1542 Immunology and Microbiology**

CO1: Understand the principles and mechanism of immunology.

CO2: Learn malfunctioning and disorders of immune system.

CO3: Gain a broad understanding of microbes and their economic importance.

CO4: Understanding the scope and importance of clinical immunology and creating an awareness about the inherent dangers of microbes.

**Credits:** 4 credits

4 Theory periods of one hour over a semester

### **ZO1543 Physiology and Biological Chemistry**

CO1: Form a perspective of health and biology through the study of human physiology.

CO2: Study different systems and their inherent disorders and deficiencies.

CO3: Learn the structure and functions of bio-molecules and their role in metabolism.

CO4: Learn mechanism of enzyme action and other related information.

**Credits:** 4 credits

5 Theory periods of one hour over a semester

### **ZO1544 Practical I – Methodology and Perspectives of Zoology, Animal Diversity I and II**

CO1: Training experience in anatomy through simple dissection and mounting.

CO2: Familiarization with conventional organ system in different animals.

CO3: Identify and study preserved specimens of various economically important animals.

CO4: Prepare solutions of various normality and morality.

**Credits:** 4 credits

1 Practical period of two hours over a semester

### **ZO1621 General Informatics, Bioinformatics and Molecular Biology**

CO1: Review basic concepts and functional knowledge in the field of informatics.

CO2: Get awareness about the nature of the emerging digital knowledge society.

CO3: Get awareness about social issues and concerns in the use of digital technology.

CO4: Learn the nature, application and scope of Bioinformatics.

**Credits:** 4 credits

5 Theory periods of one hour over a semester

### **ZO1641 Developmental Biology and Experimental Embryology**

CO1: Study various stages involved in the developing embryo.

CO2: Study initial developmental procedures involved in Amphioxus, Frog and Chick.

CO3: Understand[ the experimental procedures of embryology.

CO4: Understand the teratogenic effects of various drugs and chemicals.

**Credits:** 4 credits

4 Theory periods of one hour over a semester

### **ZO1642 Ecology, Ethology, Evolution and Zoogeography**

CO1: Knowledge regarding principles, applications and management of environmental science.

CO2: Study the inherent morphological and physiological bases of behavioral pattern exhibited by vertebrates.

CO3: Knowledge of organic evolution with special reference to man.

CO4: Enhance the concept of nature and her resources and appreciating the process and product of organic evolution.

**Credits:** 3 credits

4 Theory periods of one hour over a semester

### **ZO1643 Practical II - Biotechnology, Immunology and Microbiology**

CO1: Prepare and observe chromosomal arrangements during cell division.

CO2: Study chromosomal aberrations in man.

CO3: Gain of broad knowledge of conventional biotechnological procedures.

CO4: Perform routine blood analysis.

**Credits:** 4 credits

1 Practical period of two hours over a semester

### **ZO1644 Practical III – Physiology and Biological Chemistry, Molecular Biology and Bioinformatics**

CO1: Understand basic principles in physiology.

CO2: Learn clinical procedures for blood and urine analysis.

CO3: Skill in simple biochemical laboratory procedures.

**Credits:** 3 credits

1 Practical period of two hours over a semester

### **ZO1645 Practical IV – Developmental Biology, Ecology, Ethology and Zoogeography**

CO1: Identify various stages of embryological development of Amphioxus, frog and chick through slides and models.

CO2: Estimate various water quality parameters for aquaculture.

CO3: Extract and study soil organisms using Berlese funnel.

CO4: Study and identify different zoogeographical realms with fauna.

**Credits:** 3 credits

1 Practical period of two hours over a semester

### **Course Outcomes of Elective Course in Zoology**

#### **ZO1651.2 Ornamental Fresh Water Fish Production**

CO1: Learn scientific method of setting an aquarium.

CO2: Learn culture breeding and marketing techniques of common indigenous fishes.

CO3: Understand the procedures of trading of ornamental fish.

CO4: Various Fish diseases, their prevention and treatment.

**Credits:** 2 credits

3 Theory periods of one hour over a semester

### **Course Outcomes of Open Course in Zoology**

#### **Open Course – ZO1551.1 Public Health and Hygiene**

CO1: Learn principles of nutrition and dietetics.

\CO2: Understand the ill effects of modern lifestyle.

CO3: Study the advantages of being hygienic.

CO4: Understand various aspects of mental wellbeing.

**Credits:** 2 credits

3 Theory periods of one hour over a semester

### **Course Outcomes of Zoology Complementary Courses**

#### **ZO1131 – Animal Diversity I – Non chordata**

CO1: Understand the fascinating world of invertebrates

\CO2: Understand the evolution, hierarchy and classification of invertebrate phyla

CO3: Study the basic systematic of various groups

CO4: Understand the economic importance of invertebrates

**Credits:** 2 credits

2 Theory periods of one hour over a semester

1 Practical period of two hour over a semester

#### **ZO1231 – Animal Diversity 2 – Chordata**

CO1: Understand the nature and bionomics of vertebrates

CO2: Understand the evolution, hierarchy and classification of different classes of chordates

CO3: Get an idea on the morphology and physiology of various organisms

CO4: Study the adaptations and economic importance of specific vertebrates

**Credits:** 2 credits

2 Theory periods of one hour over a semester

1 Practical period of two hour over a semester

### **ZO1331 – Functional Zoology**

CO1: Familiarize the physiology of human body and to take precautionary measures to safe guard own health.

CO2: Study the structure and function of different systems in human body

CO3: Understand the etiology of common physiological disorders, syndromes and diseases

**Credits:** 3 credits

3 Theory periods of one hour over a semester

### **ZO1431 – Applied Zoology**

CO1: Get an idea of the applied branches of zoology with a view of educating youngsters on the possibilities of self employment

CO2: Study the culture and breeding of common edible and ornamental fishes of Kerala and art of aquarium keeping

CO3: Understand the human genomics and reproductive biology

CO4: Understand the stem cell research and pre-natal diagnostics techniques

**Credits:** 3 credits

3 Theory periods of one hour over a semester

### **ZO1432 - Practical I Animal Diversity I &II, Functional Zoology and Applied Zoology**

CO 1: provide an hands- on training experience in anatomy through simple dissections and mountings

CO 2: familiarize with conventional organ system in common, easily available animals

CO 3: study and carry out routine clinical analysis of blood and urine

CO 4: emphasize the adage that ‘seeing is believing’ typical examples and economically important specimen (preserved) to be studied

**Credits:** 4 credits

1 Practical period of two hours over a semester

