

## **Programme specific outcomes of BSc Zoology**

1. Understand the biological diversity and grades of complexity of various animal forms through their systematic classification and process of organic evolution.
2. Understand the roles of plants, animals and microbes in the sustainability of the environment and their interaction among themselves and deterioration of the environment due to anthropogenic activities.
3. Understand the concepts and principles of biochemistry, immunology, physiology, ethology, endocrinology, developmental biology, cell biology, genetics, molecular biology and microbiology and develop technical skills in biotechnology, bioinformatics and biostatistics.
4. Perform laboratory procedures as per standard protocols in the areas of animal diversity, systematics, cell biology, genetics, biochemistry, molecular biology, microbiology, physiology, immunology, developmental biology, environmental biology, ethology, evolution and science methodol

### **ZOO1COR01 Core Course I**

#### **ANIMAL DIVERSITY - INVERTEBRATA PART -I**

36 Hr

Credit 2

#### **Course outcomes**

1. Acquire knowledge on the scientific classification of invertebrate fauna
  2. Familiarise the students with the diverse groups of organisms around us.
  3. Create an aptitude for understanding nature and its rich biodiversity.
  4. Familiarize the students about the protistan fauna living in and around us.
  5. Inculcate curiosity to know the animal world along with plants.
  6. Study the evolutionary significance of various invertebrate fauna

## **SEMESTER II**

### **ZOO2COR02-Core Course II**

#### **ANIMAL DIVERSITY - INVERTEBRATA PART II**

2

36 Hrs

Credits 2

**Course outcomes**

1. Create appreciation on diversity of life on earth
2. Understand different levels of biological diversity through the systematic classification of invertebrate fauna
3. Master thorough knowledge on the physiological and anatomical features of some invertebrate phyla through type study.
4. Familiarize taxa level identification of animals
5. Understand the evolutionary significance of invertebrate fauna
6. Acquire knowledge on parasitic forms of lower

**ZOO3COR03 CORE COURSE III  
ANIMAL DIVERSITY – VERTEBRATA**

54 Hrs

Credits 3

**Course outcomes**

1. Understand the diversity of among vertebrates and the relationship among the different groups
2. Can Classify vertebrates to their respective classes based on their concepts
3. Ability to follow the evolutionary pathway of vertebrates
4. Inculcate the sense of scientific enquiry on biodiversity related topics
5. Understand the role played by each organism in the construction and maintenance of ecosystem
6. Acquire skills to identify an organism.

**SEMESTER IV**

**ZOO4COR04 CORE COURSE IV**

**BIODIVERSITY AND MODERN SYSTEMATICS****54 hrs****Credits 2**

Course outcomes:

1. Able to understand the appreciate the biodiversity in our earth
2. Equip to evaluate the current environmental issues in a wider perspective
3. Understanding the quantum of biodiversity in local level and can evaluate the impact of anthropogenic activity on it
4. Can appreciate biodiversity in economic terms
5. Can predict a model for sustainable use of resources
6. Able to raise the concern on environmental issues without fear
7. Understand the importance of estimation and recording of biodiversity

SEMESTER V

**ZOO5COR05 CORE COURSE V****METHODS AND APPROACHES IN BIOLOGY**

54 hrs

Credit 3

Course outcomes

1. Inspire the students in learning the frontier areas of biological sciences, update and expand basic informatics skills and attitudes relevant to the emerging knowledge of society.
2. Equip the students to effectively utilize the digital knowledge resources in learning and to understand the scope and role of statistics; methods and procedures of sampling; Construction of tables, charts and graphs.
3. Familiarize with the basic tools and techniques of scientific study with emphasis on biological sciences.
4. Familiarize the basic concept of scientific method in research process and on various research designs and to apply statistical methods in biological studies..

5. Will develop skill in research communication and scientific documentation.
6. Will create awareness about nature of the emerging digital knowledge and functional knowledge in the field of information.

**SEMESTER V****ZOO5CORE06 CORE COURSE VI****CELL BIOLOGY AND MOLECULAR BIOLOGY**

54 Hrs

Credits

**Course Outcomes**

1. Understand the central role of Cell biology and Molecular biology, being the rapidly developing areas of biological science.
2. Acquire knowledge on different cell organelles, their structure and role in living organisms.
3. Learn the nature of genetic materials at molecular level, their expression and regulation.
4. Motivate the learner to critical thinking, skill and research aptitudes.

**SEMESTER 5****ZOO5COR07 CORE COURSE VII****ENVIRONMENTAL BIOLOGY, TOXICOLOGY AND DISASTER MANAGEMENT****54 hrs****Credits 3****COURSE OUTCOMES**

1. Master core concepts and methods from ecological sciences and their application in environmental problem solving.
2. Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.

3. Understand the transnational character of environmental problems and ways of addressing them, including interactions across local to global scales.
4. Apply systems concepts and methodologies to analyze and understand interactions between social and environmental processes.
5. Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world.

**SEMESTER V****ZOO5COR08 CORE COURSE VIII****BIOCHEMISTRY, HUMAN PHYSIOLOGY AND ENDOCRINOLOGY****54 hrs****Credits 3****Course outcomes**

1. Provide a deep knowledge in biochemistry, physiology and endocrinology.
2. This also will provide a basic understanding of the experimental methods and designs that can be used for further study and research.
3. Create awareness on the structure and functions of various systems in the human body, their functioning and related disorders..
- 4 .Acquire a broad understanding on the principles of Biochemistry illustrating the different types of food, their structure, function and metabolism.
5. It also throws light on the hormonal regulation of various systems of the body and the role played by various hormones in regulating the homeostasis.
6. Learn the structure and functions of bio-molecules and their role in metabolism and will contribute to the critical societal goal of a scientifically literate citizen

**SEMESTER V****CHOICE BASEED CORE COURSE I****ZOO5CRE01 APLIED ZOOLOGY PART-1**

**Course Outcomes**

1. Get the necessary basic information about fishery and aquaculture to critically evaluate the factors which are important for a sustainable growth in the industry.
2. Learn the Impacts of aquaculture and fisheries on society, the economy, and the environment. Learn the basic processes in fish culture, fish products and fish spoilage.
3. Understand, analyze and evaluate effects of the fisheries and aquaculture on the environment, to provide the preventive safety measures.
4. Develop skills in using fishing gears and aquaculture technological processes.
5. Create an interest in ornamental fish culture and aquariums.

**72 hours**

**SEMESTER VI****ZOO6COR09 CORE COURSE IX****REPRODUCTIVE AND DEVELOPMENTAL BIOLOGY**

**54 hrs**

**Credits 3**

**Course Outcomes**

1. Understand the basic developmental processes that lead to the establishment of the body plan of vertebrates
2. Provide a basic understanding of the experimental methods and designs that can be used for further study and research
1. Learn the pathology related to mechanisms of development and differentiation
2. Benefit students in their further studies in the biological/physiological sciences and health-related fields
3. Contribute to the critical societal goal of a scientifically literate citizenry.
4. Acquire knowledge on birth defects and causes and reduce the risk by educating society.

SEMESTER VI

**ZOO6COR10 CORE COURSE X**  
**GENETICS AND BIOTECHNOLOGY**

**54 hrs**

**Credits 3**

**Course Outcomes**

1. Make students understand and appreciate the mode of inheritance and the modes of interaction of genes.
2. Understand the central role that genetics and biotechnology plays in the life of all organism
3. Understand the mechanism of sex determination, linkage groups and linkage map, crossing over and non- disjunction of genes in animals.
4. Learn the extra nuclear inheritance, bacterial and human genetics
5. Acquire the development and applications of biotechnology & gene cloning.
6. Able to Critically evaluate the potential hazards of Biotechnology.

36hrs

Semester VI

**ZOO6COR11 CORE COURSE XI**  
**MICROBIOLOGY AND IMMUNOLOGY**

**54 hrs**

**Credits 3**

**Course outcomes**

1. Understand the basic microbial structure and function and study the comparative characteristics of prokaryotes and eukaryotes

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2. Know various Culture media and their applications and also understand various physical and chemical means of sterilization, Physical and Chemical growth requirements of bacteria and get equipped with various methods of bacterial growth measurement.
3. Know General bacteriology and microbial techniques for isolation of pure cultures of bacteria, fungi and algae and master aseptic techniques and be able to perform routine culture handling tasks safely and effective
4. Understand the key concepts in immunology, organization of the immune system, the salient features of antigen antibody reactions & its uses in diagnostics and various other studies
5. Learn about immunization, their preparation and its importance

## **SEMESTER VI**

### **ZOO6COR12 COURSE XII**

#### **EVOLUTION, ZOOGEOGRAPHY AND ETHOLOGY**

**54 hrs**

**Credits 3**

#### **Course Outcomes**

1. Acquire knowledge about the evolutionary history of earth (living and non living) and Evidences of evolution
2. Learn various theories of evolution of life
3. Understand the relationship between evolution and population genetics
4. Understand the process of evolution and learn various tools and techniques for evolutionary studies.
5. Learn the zoogeographical division and distribution of animals on earth, its pattern, evolution and causative factors
6. Acquire basic knowledge on animal behavioural patterns and their role in the formation of social groups

## **SEMESTER VI**

**CHOICE BASED CORE COURSE-II****ELECTIVE II****ZOO6CRE02 APPLIED ZOOLOGY PART -II**

72 hrs

Credits 3

**Course Outcomes**

1. Understand the various factors and acquire scientific knowledge regarding the culturing of various organisms for economic growth
2. Design one's own small scale industry in any one of the studied types with effectiveness as means of self-standing
3. Start ecofriendly agricultural practices using the knowledge gained during the course
4. Develop the skill in culturing of various animals in aquatic

**Semester I****COMPLEMENTARY COURSE BOTANY-I****BOT1CMP01 ANIMAL DIVERSITY – NON CHORDATA Course****outcomes**

1. Acquire knowledge on the taxonomic status of the various nonchordate animals.
2. Familiarise the students with the diverse groups of organisms around us.
3. Create an aptitude for understanding nature and its rich biodiversity.
4. Apply the knowledge to identify the animals coming across .
5. Inculcate curiosity to know the animal world along with plants.

**Semester II****COMPLEMENTARY COURSE BOTANY-II****BOT2CMP02- ANIMAL DIVERSITY – CHORDATA****Course Outcomes**

1. Acquire knowledge on the taxonomic status of the various vertebrate animals and animal groups.
2. Familiarise the students with the diverse groups of vertebrates around us.
3. Develop an aptitude for understanding nature and its rich biodiversity.
4. Apply the knowledge to identify the animals coming across .
5. Inculcate curiosity to know the animal world along with plants

36 hrs

Credit 2

**COMPLEMENTARY COURSE BOTANY-III****BOT3CMP03 - HUMAN PHYSIOLOGY AND IMMUNOLOGY**

54 rs

Credit .3

**Course Outcomes**

1. Develop a holistic understanding of the complex physiological systems of body through lectures, practical and laboratory exercise, assignment and seminars.
2. Understand the correlation between structure and function of organisms
3. Make them aware of the health related problems, their origin and treatment.
4. Provide an in depth knowledge in nutrition, respiration, circulation, excretion Neuro and muscle physiology and endocrine organs and disorders affecting these organ
5. Understand the role of immunology on human health and well-being.
6. Familiarize different immune response system, immune disorders and new developments in immunology

**SEMESTER IV**

**COMPLEMENTARY COURSE BOTANY-IV**

**BOT4CMP04 -APPLIED ZOOLOGY (AQUACULTURE,  
SERICULTURE, VERMICULTURE AND APICULTURE)**

**54 hrs**

**Credit 3**

**Course outcomes**

1. Able to understand the economic importance of our biodiversity
2. Understand the significances of natural water bodies as a means of livelihood for local communities
3. A shift from inorganic fertilizers to organic fertilizers will occur
4. Will be aware about proper disposal of waste without affecting the normal parameters of soil and water
5. Create interest in the applied branches of zoology with skills and knowledge which will lead to self employment opportunities.