GU-ART Syllabus - Zoology

1. **DIVERSITY OF NON-CHORDATES**

- Protozoa
- Porifera
- Cnidaria
- Platyhelminthes
- Nematoda
- Annelida
- Arthropoda
- Mollusca
- Echinodermata

2. **DIVERSITY OF CHORDATES**

- Protochordata
- Hemichordates
- Agnatha
- Pisces
- Amphibia
- Reptiles
- Aves
- Mammals

3. **CELL BIOLOGY**

- General organization of Prokaryotic cells and Eukaryotic cells
- Cell Environment
- Cell Organelles

4. **GENETICS**

- Mendelian Genetics & its Extension
- Chromosome Structure and aberrations
- Gene Mutation
- Inheritance of Human traits

5. **CHORDATE ANATOMY**

- Integumentary System
- Skeletal System
- Digestive System
- Respiratory System
- Circulatory System
- Urinogenital System
- Nervous System

6. ANIMAL PHYSIOLOGY

- Digestion
- Respiration
- Renal Physiology
- Cardiovascular Physiology
- Muscle Physiology

7. **BIOCHEMISTRY**

- pH and buffer
- Structures and function of Carbohydrates
- Structures and function of Lipids
- Structures and function of Proteins
- Enzymes nomenclature and kinetics

8. METABOLIC PROCESSES

- Overview of Metabolism
- Bioenergetics and Oxidative Phosphorylation
- Carbohydrate Metabolism (glycolysis, gluconeogenesis, glycogenolysis, glycogenesis)
- Amino acid metabolism (formation of ammonia, urea cycle, ketogenic acid, glucogenic acid)
- Lipid Metabolism (beta oxidation of fatty acids)

9. ENDOCRINOLOGY

Endocrine glands, their hormones and functions:

- Hypothalamus
- Hypophysis
- Thyroid
- Pancreas
- Adrenal

10. MOLECULAR BIOLOGY AND EVOLUTION

- DNA Replication
- Transcription
- Translation and Post-Translational Modifications
- Concept of Evolution, Origin of Life and speciation
- Isolation and Adaptation