Syllabus for B.Sc 1st year (Semester-I)
Subject: Zoology

Effective from Academic Session-2015

Unit I: ANIMAL DIVERSITY I

General characters and classification up to order level of the following:

1.1 Protozoa
1.2 Porifera
1.3 Coelenterata
1.4 Helminthes

Unit II: ANIMAL DIVERSITY II

General characters and classification up to order level of the following:

2.1 Annelida
2.2 Arthropoda
2.3 Mollusca
2.4 Echinodermata

Unit III: GENERAL ZOOLOGY

3.1 Nutrition and locomotion in protozoa
3.2 Skeletal elements and canal system in porifera
3.3 Polymorphism in coelenterate
3.4 Crustacean larvae
3.5 Shell and torsion in Mollusca
3.6 Echinoderm larvae

Unit IV: PARASITOLOGY

Life cycle and pathogenicity of the following:

5.1 Plasmodium
5.2 Leishmania
5.3 Giardia
5.4 Wucharia bancrofti

Syllabus for B.Sc 1st year (Semester-II)
Subject: Zoology

Effective from Academic Session-2015

Unit I: Developmental Biology I

1.1 Types and patterns of cleavage
1.2 Gametogenesis and fertilization
1.3 Process of blastulation and gastrulation
1.4 Primary organizers and extra embryonic membranes

Unit II: Taxonomy and wild life

3.1 Concept of species
3.2 Modern concept of evolution
3.3 National parks and reserves of India
3.4 Wildlife management with reference to J&K
3.5 Wildlife Protection Acts

Unit III: Applied Zoology I

Sericulture:

4.1 Sericulture methods
4.2 Different types of silk
4.3 Status of sericulture in J&K
4.4 Diseases of Silkworm
4.5 Economic importance of silk

Unit IV: Applied Zoology II

Apiculture:

5.1 Tools of Apiculture
5.2 Types of apiaries
5.3 Bee keeping methods
5.4 Bee diseases
5.5 Economic importance of honey

Zoology
Effective from academic session-2016
Semester III

Unit I: Animal Diversity I

1.1 Origin of Chordate

1.2 General characters and classification of chordates up to order level of the following:

- 1.2.1 Urochordata
- 1.2.2 Cephalochordata
- 1.2.3 Condrichthyes
- 1.2.4 Osteichthyes

Unit II: Animal Diversity II

General characters and classification up to order level of the following

2.1 Amphibia
2.2 Reptilia
2.3 Aves
2.4 Mammalia

Unit III: Comparative anatomy I

3.1 Integument and its derivatives
3.2 Comparative account of alimentary canals of vertebrates, dentition in mammals
3.3 Aquatic and terrestrial respiration.
3.4 Air sacs in birds
3.5 Evolution of heart and aortic aches

Unit IV: Comparative anatomy II

4.1 Comparative account of brain

4.2 Comparative account of kidneys and their ducts,

4.3 Comarative account of gonads and their ducts

4.4 Comparative account of vertebrate endocrine glands

Semester IV

Unit I: Physiology I

1.1 Types of digestion in different vertebrate groups.
1.2 Physiology of digestion.
1.3 Types of respiratory pigments, oxygen dissociation curves
1.4 Formation and excretion of nitrogenous wastes

Unit II: Physiology II

2.1 Reproductive cycles in mammals
2.2 Hormonal control of reproductive cycles in mammals
2.3 Physiology of muscle contractions
2.4 Physiology of vision
2.5 Physiology of hearing

Unit III: Genetics I

3.1 Mendelian genetics, Linkage, linkage maps
3.2 Crossing over, 2 point, 3 point crosses
3.3 Organization of genetic material in prokaryotes and eukaryotes
3.4 Nature of heterochromatin
3.5 Gene interactions

Unit IV: Genetics II

4.1 Replication in prokaryotes and eukaryotes
4.2 Transcription and post transcription modifications
4.3 Translation
4.4 Hardy Weinberg law, factors effecting Hardy Weinberg law.

Semester V

Unit I: Immunology

1.1 Cells and tissues of immune system
1.2 Types of immunity (innate and acquired immunity)
1.3 Lymphatic system
1.4 Types of immunoglobulins
1.5 Theories of antibody formation
1.6 Antigen antibody reactions and Autoimmune diseases

Unit II: Biotechnology

2.1 Recombinant DNA technology and its applications
2.2 Types of vectors and their role
2.3 Gene libraries (cDNA and genomic libraries)
2.4 Polymerase chain reaction
2.5 Southern, Northern and Western blotting and their applications
2.6 Somatic cell hybridization

Unit III: Biostatistics

3.1 Graphical Representation of biometric data
3.2 Measurement of central tendencies (mean, median, mode)
3.3 Variation (range, mean deviation, standard deviation)
3.4 Student's t test
3.5 Chi square test

Unit IV: Animal Behavior

4.1 Social organization
4.2 Animal communications
4.3 Parental care in amphibians
4.4 Migration in fishes and birds
4.5 Biological clocks

Semester VI

Unit I: Cell Biology I

1.1 Microtubular organelles
1.2 Microfilament
1.3 Mitochondrial genesis
1.4 Molecular mechanism of cell differentiation

Unit II: Cell Biology II

2.1 Cell junction, cell adhesion and extracellular matrix
2.2 Ionic basis of membrane permeability
2.3 Protein sorting
2.4 Cell signaling
2.5 Vesicular traffic in secretary and endocytic pathway's

Unit III: Biochemistry

3.1 Aerobic metabolism of carbohydrates(pyruvate formation, TCA cycle, Electron transport system)
3.2 Fermentation (Alcoholic and lactic acid fermentation)
3.3 Deamination, Transamination and Ornithine cycle and its relation with Kreb's cycle
3.4 Oxidation of fatty acids (α & β)

Unit V: Ecology

4.1 Characteristics of terrestrial and aquatic ecosystems
4.2 Energy flow through ecosystems
4.3 Biogeochemical cycles
4.4 Population characteristics
4.5 Positive and negative interactions