

ST. JOSEPH'S COLLEGE FOR WOMEN (A), VISAKHAPATNAM
Four Year – B.Sc. (Hons), Semester – VIII
ZOOLOGY

BIOSYSTEMATICS & TAXONOMY

Code: Z 8503(3)

Max. Marks- 100

Time:4hrs/week

Learning objectives:

Enable the students to

- Obtain knowledge on the basic concepts of biosystematics & taxonomy.
- Learn about the trends in biosystematics.
- Know about species Concept.
- Gain knowledge on conservation of biodiversity.
- Learn about taxonomic procedures, keys & ICZN.

Learning Outcomes:

students shall be able to

- Classify animals on the basis of their relation to other animals by body structure, external characters, development and DNA.
- Apply the International rules of nomenclature to give a scientific name to animals which are found during research.
- Understand the gradual development and evolutionary history of different kinds of living organisms from earlier forms over several generations
- Understand and demonstrate various animals, biodiversity and related indices

I. Syllabus

UNIT-1

- 1.1 Definition and basic concepts of Biosystematics and taxonomy
- 1.2 Historical resume of systematic Stages in taxonomy
- 1.3 Importance of taxonomy Aims and tasks of a taxonomist

UNIT-2

- 2.1 Trends in Biosystematics-concepts of different conventional and newer aspects- Ecotaxonomy-Behavioural taxonomy- Cytotaxonomy- Biochemical taxonomy- Numerical taxonomy, and Molecular taxonomy.
- 2.2 Dimension of speciation and species concept- Typological species concept-Biological species concept.

UNIT-3

- 3.1 Evolutionary species concept- Polytypic & monotypic species, subspecies, infraspecific groups, super species and other kind of species.
- 3.2 Concept of zoological classification - Theories of biological classification
Kinds & Component of classification-Phyletic Lineages-Linnaean hierarchy

UNIT-4

- 4.1 Taxonomic collections, methods & data recording-Collecting ways and data collection
- 4.2 Preservation of collected material and curating-Methods of identification and problems encountered in identification
- 4.3 Taxonomic characters and taxonomic keys Preparation of taxonomic publication and taxonomic paper.

UNIT-5

- 5.1 Zoological Nomenclature- International code of Zoological Nomenclature (ICZN)
- 5.2 Operative principles and important rules of nomenclature- Important Latin words & abbreviations and Linnaean Signs.

II. Reference Books:

- M.Kato. The Biology of Biodiversity. Springer.
- E.O. Wilson, biodiversity. Academic Press, Washington.
- G.G. Simpson, Principle of animal taxonomy. Oxford IBH Publishing company.
- E. Mayer. Elements of Taxonomy. Oxford IBH Publishing company.
- E.O. Wilson. The diversity of Life (The College edition W.W. Northem & Co.
- B.K. Tikadar. Threatened Animal of India, ZSI publication Calcutta
- V.C. Kapoor. Theory and Practice of Animal Taxonomy. Oxford & IBH Publishing Co.
- J.c. Avise, Molecular Markers, Natural History and Evolution, Chapman & Hall, New York.

III. Suggested Activities:

- Project work on the Taxonomic key – with reference to local species
- Take photos of at least 20 varieties of butterflies from your mobile and observe them carefully and describe each species. Observe their size, colour of the wings, spots on the wings, colour pattern on the wings, number of colours on wings .
- Take photo of different Birds and try to identify them

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