**Introduction**:

In this practical session, we will delve into the fascinating world of biosystematics, focusing on the diversity of life forms and the methods used to classify and study them. Through hands-on activities and observations, you will gain insights into the principles of taxonomy, morphological identification, and evolutionary relationships.

**Activity 1: Specimen Collection and Identification**

Introduction to specimen collection techniques in the field.

Hands-on experience in identifying specimens using taxonomic keys and field guides.

Discussion on the importance of accurate identification for biodiversity conservation and research.

**Activity 2: Morphological Studies**

Examination of preserved specimens under microscopes to observe their morphological features.

Identification of key morphological characteristics used in taxonomic classification.

Practice in describing and documenting morphological traits for species identification.

**Activity 3: Molecular Techniques**

Introduction to molecular biology techniques used in biosystematics, such as DNA extraction and PCR.

Hands-on experience in amplifying and sequencing DNA from selected specimens.

Discussion on the role of molecular data in resolving evolutionary relationships and species delimitation.

**Activity 4: Phylogenetic Analysis**

Introduction to phylogenetic analysis and construction of evolutionary trees.

Analysis of molecular data to infer phylogenetic relationships among species.

Interpretation of phylogenetic trees and discussion on the evolutionary history of taxa.

**Activity 5: Classification and Nomenclature**

Overview of the Linnaean classification system and taxonomic hierarchy.

Practice in assigning organisms to their appropriate taxonomic ranks.

Discussion on the principles of nomenclature and the rules for naming new species.

**Activity 6: Biodiversity Surveys**

Field excursion to conduct biodiversity surveys in local habitats.

Collection of specimens for further study and documentation of species diversity.

Analysis of survey data to assess species richness and community composition.