

DISCIPLINE SPECIFIC CORE COURSE
BZO: 803: RESEARCH METHODS AND LABORATORY ETHICS
(Credits: Theory-4)

Semester VIII

Lectures: 60

Unit 1

The Nature of Research

Definition of Research, Significance of research, Objectives of research, Components of research problem, Steps in scientific research.

Unit 2

Literature Survey and Types of Research

Sources of scientific literature: Print and Digital; Descriptive vs Analytical; Applied vs Basic; Qualitative vs Quantitative; Conceptual vs Empirical; Survey vs Experimental.

Unit 3

Research Process

Formulation of research problem; Inductive reasoning; Hypothesis; Preparing the research design; Sample design – deliberate, random, systematic, stratified, quota, cluster, area, multistage, sequential.

Unit 4

Data collection

Observation, interview, questionnaires, schedules; Categorization and summarization of data, Presentation of data – tabulation, graphical presentation – Bar, Line, Pie; Analysis of data -Statistical methods, Software; Recording of data through photographs; Hypothesis testing; Generalizations, Interpretation, Research Article writing

Unit 5

Bio-safety and Ethical Aspects of Biological Research

Awareness about handling of toxic laboratory chemicals, Use of pathogenic micro-organisms, Radioactive hazards, Safe disposal of animals and chemicals Ethical principles and government regulations governing use of live animals as objects of research; Copyright and plagiarism; Patents; Peer review; Conflict of interest; IPR issues.
