

SYLLABUS FOR PH.D. COURSE WORK

PAPER -1: RESEARCH METHODOLOGY

Unit 1: The Language of science and Scientific approach

Science and common sense; Methods of knowing; The aims of Science; Scientific approach; Scientific research; Problems and hypotheses in research, types of variables, Importance of operational definitions of Variables; sampling, randomization, sample size.

Unit 2: Research Designs

Purpose of research design, Criteria of good research design; simple randomized and factorial design; Correlated groups design, Sample size, illustration and practice of designing of research, Types of Research: Field study research, Survey research, Laboratory Experiments, Field Experiments.

Unit 3: Methods of Data Collection

Qualitative approach; Observation method, Interview; Sociometry; Animal behavior observation techniques; Use of inventories and objective tests; Use of instruments and software; Recording electrophysiological signals; Brain imaging techniques.

Unit 4: Data Analysis: ANOVA

Theoretical foundation, Breaking variance, Factorial Analysis of Variance, Repeated Measure ANOVAs, Mixed models; ANCOVA, Nonparametric alternatives.

Unit 5: Data Analysis: Multivariate Analysis

MANOVA, Multiple regression analysis, Factor analysis; Discriminant Analysis.

Unit 6: SPSS and Communication of research findings

Use of SPSS for data analysis and interpretation; APA style of reporting; writing research papers; thesis preparation; writing grant proposals (for UGC, ICMR, DST, ICCSSR, etc.)