

University of Mysore

DOS in Food Science and Nutrition, Manasagangothri, Mysore

Syllabus of Advanced Research Methodology in Human Development

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| Unit -1 | <p>a. Research Methodology: Meaning and Objectives of research; Types of research [Descriptive vs. Analytical, Applied vs. Fundamental, Quantitative vs. Qualitative, Conceptual vs. Empirical, Field setting vs. laboratory, clinical vs. diagnostic, Exploratory vs. Formalized]; Research Approaches [Qualitative approach and Quantitative approach] Significance of research; Basic concepts about the research and scientific method; Research process</p> <p>b. Defining the Research problem: Meaning of research problem; Selecting the research problem; Techniques involved in Defining problem</p> <p>c. Research Designs: Meaning, need, features of a good design, concepts relating to research design, Different research designs – Exploratory research studies, descriptive and diagnostic research studies, Longitudinal, cross-sectional and sequential studies; Hypothesis-testing research studies; Basic principles of Experimental designs; Important experimental designs; Evaluation and Interventional designs</p> |
| Unit 2 | <p>a. Sampling Design: Steps in sample design; criteria of selecting a sampling procedure; Characteristics of a good sampling design; Types of sample designs [Non-probability sampling and Probability sampling]; Complex Random Sampling Designs [Systematic sampling, Stratified sampling, Cluster sampling, Area sampling, Multi-stage sampling, Sequential sampling]</p> <p>b. Measurement and Scaling Techniques: Measurement in research, measuring scales, sources of error in measurement, test of sound measurement- validity, reliability, practicality; meaning of scaling, scale classification bases, important scaling techniques - rating scales, scale construction techniques-arbitrary scales, differential scales, Likert -type scales, cumulative scales, factor scales, multidimensional scaling</p> |
| Unit 3 | <p>a. Methods of Data Collection: Collection of primary data in surveys and descriptive research - Observation, Interview, Questionnaire, schedules, Case study, and Collection of secondary data and characteristics to be noticed before using secondary data</p> <p>b. Ethical Issues in Research: Benefits of the Research, Responsibility, Rights of the Research Participant, Physical and Psychological Risks, Deception, Reducing Risk and/or Minimizing Harm, Informed Consent, Privacy, Summary of Results; Ethical Issues regarding Copyright.</p> |
| Unit 4 | <p>a. Discipline Centric Research methods and Techniques</p> <p>b. Methods in Studying Growth and Somatic status – Anthropometry, body composition, Physical/Clinical examination, Dental maturation, Age at menarche/ Spermarche, Use of growth reference,</p> <p>c. Methods in Studying Development and Behaviour - Descriptive studies; Ethnographic studies; Epidemiological studies; Program Evaluation studies; Genetic studies – Twin study, Pedigree, Genome analysis; Clinical studies –</p> |

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| | <p>Developmental and Neuro-Cognitive Assessment, Interventional studies and Therapy; Laboratory studies – Behavioural, Electrophysiological and Brain imaging research.</p> <p>d. Use of Computer in Research</p> |
| Unit 5: | <p>a. Statistical Methods 1: (Concept only) - Review of basic statistics; Descriptive statistics. Normal distribution and its properties, Methods of correlation and regression (simple and multiple), Statistical Inference-testing of hypothesis, parametric tests-testing the significance between two means; independent two sample t-test and paired sample t-tests.</p> <p>b. Statistical Methods 2: (Concept only) - Analysis of Variance (ANOVA), Types, basic model, One way and Two way ANOVA, Need for post hoc tests, repeated measures ANOVA, Multivariate techniques: Principle component analysis, Discriminant analysis, Cluster analysis, Multivariate analysis of variance (MANOVA). Nonparametric tests; Consequences of failure of assumptions underlying parametric tests, Man-Whitney U tests, Kruskal - wallis test, Wilcoxon signed rank test, Friedman's test. Analysis of qualitative data; Chi-square test for independence, measures association-contingency coefficient and Cramer's, measures of agreement-Kappa coefficient.</p> <p>c. Computer application in analysis of data.</p> |
| Unit 6 | <p>a. Interpretation: Meaning, Techniques, and precautions in interpretation</p> <p>b. Scientific writing: Significance and steps in scientific writing, Review of literature, Authenticity of reviews, Layout of the research report writing, Types of Reports, Mechanics of writing a research report, Precautions for writing research reports: Writing the research articles and project proposal</p> |