

Course Outcomes

CO1: Develop statistical skills needed for rural research

CO2: Become capable of formulating research questions related to rural research and design studies to investigate these questions

CO3: Gain practical experience with descriptive and inferential statistics for working with data

CO4: Understand methodological frameworks and instruments for rural research appropriately

CO5: Ability to disseminate results from rural research.

Syllabus

Unit-I Descriptive Statistics: Introduction to research in rural areas. Types of variables, Measures of location, Measures of dispersion, Barplot, Dotplot, Histogram, Boxplot, Scatterplot, Mosaic plot, Correlation, Contingency tables, Relative risk, Odds ratio, Visualizing multi-dimensional data.

Unit-II Inferential Statistics: Review of probability theory, Introduction to estimation, Introduction to hypothesis testing, Power and type-I error, p-values, confidence intervals, comparing groups of continuous data, comparing groups of categorical data, testing hypothesis in contingency tables, Simple linear regression, Multiple-linear regression, Logistic regression.

Unit-III Survey Methods: Methodological frameworks for rural research, Instruments for social-science theories, Qualitative methods, Design and evaluation of instruments, Design of questionnaires, Models for the analysis of questionnaires, Rate consistency, Cohen's kappa, Fleiss kappa, ICC, Test-Retest consistency, Internal consistency, Cochran's alpha, Goodman's gamma, Statistical sampling, Balanced sampling, Cross-over Sampling, Stratified sampling, Cluster randomization.

Unit-IV Research Methodology: Literature review, Formulating research questions, Ethical considerations in rural studies, Setting study protocol, Process for submitting studies to a project committee, Sources of bias in research, Importance of randomization, Sample size calculation, Methods for dealing with missing values, Methods for dealing with outliers, Structure of a research paper, APA style for paper writing.

Evaluation Pattern

- 30% case study
- 30% project
- 20% assignments
- 20% quizzes

Activities with direct bearing on Employability/Entrepreneurship/Skill development

- Case studies
- Discussions
- Critical analysis of recent research papers
- Assignments for practicing of applied data analysis
- Presentations of Projects

Text Books/References

1. Agresti, Alan. *Statistical methods for the social sciences*; 5th edition. Pearson, 2017.
2. Cox, David Roxbee, and Christl A. Donnelly. *Principles of applied statistics*. Cambridge University Press, 2011.
3. Kalton, Graham. *Introduction to survey sampling*. Sage Publications, 2020.
4. Fowler, Floyd J. Jr., *Improving Survey Questions; Design and Evaluation*. Sage Publications, 1995.
5. DeVellis, R.F. 1991. *Scale Development, Theory and Applications*. Sage Publications
6. White, Simone and Corbett, Michael. *Doing Educational Research in Rural Settings: Methodological issues, international perspectives and practical solutions*. Routledge, 2014.
7. American Psychological Association. *Publication Manual of the American Psychological Association*; 7th edition. American Psychological Association Publication. 2020.
8. National Association of Social Works. *NASW Code of Ethics: Guide to the Everyday Professional Conduct of Social Workers*. NASW, 2008.