

Center for Applied Research
Ph.D Course Work

Course Code	Title of the Course	No. of Credits
17APRR0101	Research Methodology	4
17APRR0202	Quantitative Techniques	4

List of courses that are candidate centric (17APRR02SX)

17APRR02S1	Applied Statistics
17APRR02S2	Social Work
17APRR02S3	Labour Studies
17APRR02S4	Population Studies
17APRR02S5	Rural Development

Learning Objectives

- To develop scientific skills and expertise in formulating problem for research
- To evolve research designs, and use of methods and techniques in conducting research, and
- To develop professional skill in writing a research report

Learning outcomes: Upon completion of the course, the scholars will be able to:

- Identify and formulate a problem for research
- Prepare a suitable research design for carrying out the research
- Choose appropriate tools and techniques for data collection
- Professionally drawing of inferences
- Prepare research report and disseminate research findings

Unit – 1: Scientific Research – Methods of acquiring knowledge; Objectivity and Subjectivity in Research; Epistemology, Phenomenology, Positivism, Constructivism, Pragmatism- Inductive and Deductive Reasoning, Scientific Method and its applications; Research Paradigms and Ethics in Research.

Unit - 2: Research Process: Identification, Selection and Formulation of problem, Sources and criterion for selection; Review of literature and Summarizing, Conceptual Model; Objectives, Hypothesis formulation, Variables and its types.

Unit - 3: Research Designs and Methods: Experimental, explorative, descriptive and historical research; Diagnostic and Evaluation studies, Qualitative and Quantitative studies, Trend and Futuristic studies, Ethnography, Grounded Theory, Mixed Methods.

Unit - 4: Sampling Techniques and Data Collection: Sampling and Sample Designs: Census Vs Sample Methods – Laws of Sampling; Methods of Sampling. Sample Size; Sampling and Non Sampling Errors; Reliability of Samples; Data – Primary and Secondary data – Data Collection Tools, Content Analysis Psychological tests and Scaling Techniques –Pre-test, Test of Validity and Reliability.

Unit - 5: Data Interpretation and Report Writing: Data processing – Scoring, Categorization and Coding – Draw of inferences and interpretation. Research Report –Steps in writing Research Report, Types of reports, Format of a research report; Bibliography, Webliography, Style of writing; Plagiarism check– Evaluation of a research report; Dissemination of research findings- Presentation and Publication.

REFERENCES:

TEXT BOOKS

- Bridget Somekh and Cathy Lewin, Theory and Methods in Social Science Research, New Delhi: Sage Publication, 2012
- Creswell, John.W. Research Design: Qualitative, Quantitative, and Mixed Method Approaches (4thed). Thousand Oaks, CA: Sage, 2014.
- Debasis Chakraborty, Research Methodology, New Delhi: Sourath Publishing House, 2012
- Deepak Chawala and Neena Sandhi , Research Methodology: Concept of Cases, New Delhi: Vikas Publication House Pvt Ltd, 2011
- Kenneth's Barden and Bruce B.Abbott, Research Design: Qualitative and Quantitative Approaches, Tata MaGrewHill Education Pvt, New Delhi, 2011.
- Kothari.C.R, Research Methodology (Methods & Techniques), New Delhi: New Age International (3rded), 2014.
- Kundra S., Reporting Methods, New Delhi: Anmol Publications Pvt. Ltd., 2005.
- 100 Questions and Answers about Research Methods, New Delhi: Sage Publication, 2012

JOURNALS

- Economic Development and Cultural Change
- Indian Journal of Social Work
- International Journal of Applied Research
- Journal for Extension and Research
- Journal of Social Science Research
- Journal of International Development
- Journal of Social Science
- Journal of Rural Development
- Journal of Social Research and Policy
- Social Change

WEBSITES

- <https://www.socialresearchmethods.net/>
- <https://ndl.iitkgp.ac.in/>
- <http://onlinelibrary.wiley.com/journal/10.1002/%28ISSN%291099-1328/issues>
- <http://shodhganga.inflibnet.ac.in/>
- <http://onlinelibrary.wiley.com/>
- <http://www.oijrj.org/>
- <http://journals.sagepub.com/>
- <https://www.ijser.org/>
- <http://www.ierj.in/>
- <https://www.aace.org/pubs/jolr/>

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UNIT – 1: Descriptive Statistics: Central Measures; Variability Measures; Skewness Measures Inductive, generalization and data modeling and Working with databases; Correlation and Regression – Simple problems.

UNIT – 2: Probability: Basic Concepts, Definitions of Probability - Different approaches to probability; Binominal, Poisson and Normal Distributions – Simple Problems.

UNIT – 3: Inferential Statistics: Basic Concepts; Type I and Type II Errors; Steps in Hypothesis Testing; Tests of Attributes, Small and Large Sample Tests – Test based on Normal, t, F – Mean and Variance; Chi-square Test – Goodness of fit and independents; Analysis of Variance – One way and Two way Analysis with illustrations; Non – parametric Tests – Test of Randomness – Mann Whitney U Test; Kruskal Walli's Test.

UNIT – 4: Multivariable Analysis: Multiple Correlation and Regression with three variables, Partial Correlation and Regression Logistic Regression Analysis; Factor Analysis, Discriminant Analysis; Cluster Analysis; Demonstration with Software Packages.

UNIT – 5: Practical: Data Processing, Analysis and Interoperation Use of Statistical Softwares; R – State, SPSS, STATA

BOOKS

- Alvin.C. Rencher, William F. Christensen, **Methods of Multivariate Analysis, 3rd edition**, Wiley, (2012).
- Blalock, H.J, **Social Statistics**, New York; MC Graw Hill, (1960).

- David R. Anderson, Dennis. J. Sweeney, Thomas.A Williams, Jeffrey.S Camm, James.J. Cochran **Statistics for Business and Economics**, 13^e Revised CENGAGE Learning USA, (2017).
- Gupta, S.P, **Statistical Methods**, Sultan and Chand Publications New Delhi
- Johnson R.A, Wichern D.W, **Applied Multivariate Statistical Analysis**, Prentice – Hall Saddle River, NJ, USA (1988).
- Krishnaswami,O.R and M. Renganatham, **Methodology of Research in Social Sciences**, Mumbai; Himalaya Publishing House (2010).
- Kenblack, **Business Statistics ; for Contemporary Decision Making** : 8th edition ; Wiley Global Education, (2013).
- Sinha, B.L, **Statistics in Psychology and Education**, New Delhi; Anmol Publications Private Limited (2006).

REFERENCES

- Ajai S. Gaur| Sanjaya S. Gaur, **Statistical Methods for Practice and Research – A Guide to Data Analysis Using SPSS**, Response Books Business books from SAGE, B-1.I-1, Mohan Corporate Industrial Area, Madura Road, New Delhi – 110 044 India, (2010).
- Aneshensel, Carol S. **Theory-Based Data Analysis for the Social Sciences**, Thousand Oaks, Calif., Pine Forge Press. (254 pp) (2002).
- Hair Jr, Joseph F., William C. Black, et al. **Multivariate Data Analysis**. Upper Saddle River, New Jersey 07458, Pearson, Prentice Hall., chapters 1–5, 8, 10–12 (2006).
- Vijayalakshmi, G and C. Sivapragasam, **Research Methods: Tips and Techniques**, MJP Publishers, Chennai (2009).

WEBLIOGRAPHY:

- **Resource for methods in evaluation in social research**
<http://gsociology.icaap.org/methods/>
 Extensive site providing information on how to evaluate research. This site was created by a US academic in Sociology, Dr Gene Shackman. Information about his background and credentials are available via the site.
- **Research methods and statistics arena**
<http://www.researchmethodsarena.com/resources/resources.asp>
 An up-to-date guide to books and journals in research methods. Includes free datasets for SPSS. This site was compiled by Psychology Press, an Informa brand. It therefore focuses on Informa products.
- **Institute tutorial in research methods**

<http://www.vts.intute.ac.uk/he/tutorial/social-research-methods>

A tutorial on using the internet as a resource on social research methods. Funded by JISC and created by academics, tutors and librarians.

- **Practical examples for the analysis of surveys**

<http://www2.napier.ac.uk/depts/fhls/peas/index.htm>

In depth guide to analyzing surveys with practical examples and resources on theory. This site is produced with a collaboration between Napier University in Edinburgh and the National Centre for Social Research.

- **Economic and Social Data Service guides**

<http://www.esds.ac.uk/support/onlineguides.asp>

A series of guides on methods, using datasets, and resources for particular research themes. Researchers based in UK universities can use specially created teaching versions of datasets as examples when using some of these guides.

- **Associations, programmes and research units Economic and Social Data Service: Linking International Macro and Micro Data training:**

<http://www.esds.ac.uk/international/e-learning/limited/resource>

A learning resource including downloadable PDF files and videos about combining micro and macro data and making cross national data comparisons. The ESDS is a national data archive and disseminating programme for the UK, funded jointly by the Economic and Social Research Council (ESRC) and the Joint Information Systems Committee (JISC).

- **Data analysis: online manuals and guides to software packages**

SPSS product site <http://www.spss.com/statistics> the product site for SPSS a statistical data management and analysis package, Includes free demo.

- **Introduction to State using the UK Labour Force Survey**

<http://www.esds.ac.uk/government/docs/documents/StartingStata9.pdf>

A training guide produced by ESDS Government. State is a statistical analysis tool. The dataset used as an example in this guide can be downloaded by researchers and students in UK Higher Education Secondary analysis of statistics and quantitative data analysis www.data-archive.ac.uk.