

UNIVERSITY OF JAMMU
DEPARTMENT OF GEOGRAPHY
Syllabus for Pre-Ph.D. Course Work
Research Methodology

Title: Research Methodology

Credits: 4

Duration of Examination: 3 hours

Max Marks: 100

Note: Detailed syllabus for examination to be held in 2026 & 2027 & 2028

Objectives:

This course is designed to equip doctoral candidates with advanced theoretical frameworks, technical competencies, and analytical skills necessary for independent research.

UNIT-I

- 1.1. Definition of research, type of research, research design (hypothesis, literature review and formulation of objectives)
- 1.2. Sources of data collection, processing, analysis and interpretation
- 1.3. Fieldwork design, preparation of questionnaire
- 1.4. Sampling- types and techniques.

UNIT-II

- 2.1 Basis of Remote Sensing and GPS
- 2.2 Basis of GIS
- 2.3 Application of GIS and Remote Sensing in a Geographical Research.
- 2.4 Data Input and Output. Techniques in GIS, digitization, editing and spatial analysis Vector and Raster Based.

UNIT-III

- 3.1 Regression-dependent and Independent
- 3.2 Variables, scatter diagram, regression lines and residuals
- 3.3 Interpolation, extrapolation, prediction and exploration test.
- 3.4 Hypothesis testing, goodness of fit, significance and chi-square.

UNIT-IV

- 4.1 Philosophy of Science.

ORC:











4.2 Development and growth of laws theories and models.

4.3 Relationship of geography and social sciences and changing paradigms in geography.

4.4 SPSS and its application in geographic research.

NOTE FOR PAPER SETTERS

The question paper shall contain two questions from each unit. Candidates shall be required to attempt four questions in all selecting one question from each unit. Each question carries 25 marks.

BOOKS RECOMMENDED

1. Cochran, W. G. (1977). *Sampling techniques* (3rd ed.). John Wiley & sons.
2. Gomez, B., & Jones, J. P., III (eds.). (2010). *Research methods in geography: a critical introduction*. Wiley-Blackwell.
3. Krishan, G., & Singh, n. (2020). *Researching geography: the Indian context* (2nd ed.). Routledge.
4. Burrough, P. A., McDonnell, R. A., & Lloyd, C. D. (2015). *Principles of geographical information systems* (3rd ed.). Oxford University Press.
5. Chang, K. T. (2019). *Introduction to geographic information systems* (9th ed.). McGraw-Hill.
6. Lillesand, T., Kiefer, R. W., & Chipman, J. (2015). *Remote sensing and image interpretation* (7th ed.). John Wiley & Sons.
7. Fotheringham, A. S., Brunson, C., & Charlton, M. (2000). *Quantitative geography: Perspectives on spatial data analysis*. SAGE Publications.
8. Rogerson, P. A. (2019). *Statistical methods for geography: A student's guide* (5th ed.). SAGE Publications.
9. Yeates, M. (1974). *An introduction to quantitative analysis in human geography*. McGraw-Hill.
10. Hartshorne, R. (1959). *Perspectives on the nature of geography*. Association of American Geographers.
11. Harvey, D. (1969). *Explanation in geography*. Edward Arnold.
12. Lawrence, J. D., & Stirling, A. (2004). *SPSS for geographers*. Routledge.
13. Kothari, C. R., & Garg, G. (2023). *Research Methodology: Methods and Techniques* (5th ed.). New Age International Publishers.

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