

University of Calicut
Ph.D. Course Work
Geology
Syllabus: Research Methodology

Unit 1

Types of research- Process of Research-Formulation of objectives. Hypothesis to theory – geological example: Continental drift hypothesis to plate tectonics theory. Research plan and its components

Unit 2

Methods of research (Survey, observation, case studies, experimental, historical and comparative methods) Methods of Literature collection, Experimental design, planning and execution of investigation.

Unit 3

Analysis of numerical data – Central tendencies, dispersion, testing significance of variations, analyzing correlation of variables. Regression analysis, Principal Component Analysis and Factor Analysis, and Cluster Analysis and its use in geological research. Application of GIS in Spatial analyses of geological datasets.

Unit 4

Writing of Research proposal, Report and Research paper, Meaning and types – stages in preparation-characteristics-structure-documentation, foot notes and bibliography-Editing the final draft-Evaluating the final draft-checklist for a good proposal/reporter/research paper.

Unit 5

Research ethics – ethical issues, ethical committees; Scholarly publishing – IMRAD concept and design of research paper, citation and acknowledgement, plagiarism, reproducibility and accountability.

References

1. John C. Davis (2002), Statistics and Data Analysis in Geology
2. Kothari C R (2009), Research Methodology, 2nd edition, New Age Institute, New Delhi
3. Kenneth, J.P., Marine Geology, Prentice Hall Inc., 1982
4. Petti John, (2000) Sedimentary Rocks, CBS publications, New Delhi
5. Philips E M & Pugh D.S., (1998), How to get a Ph D, UBS publishers & Distributors, New Delhi
6. Rajit Kumar, (2005), Research Methodology, Pearson edition, New Delhi
7. Venugopal K , (2008), Research Methodology, university of Calicut
8. Rajendra Naragundkar : Marketing Research, Text and Cases, Mc Graw Hill, 2008.

Model Question Paper
University of Calicut
Ph.D. Course Work Examination
Geology
Paper 1: Research Methodology

Time: 3 hours

Maximum Marks: 70

I write essay on any two of the following

2x15=30

- 1 Elaborate different types of sampling techniques?
- 2 Describe writing of Research proposal, Report and Research paper.
- 3 Describe factor loading & cluster analysis and its use in geological research
- 4 What are the attributes of a good research scholar? Give a brief account on the points to be kept in mind in order to do a good research

II write short essays on any five of the following

5x8=40

- 5 Define testing hypothesis? Explain one or two
- 6 Write notes on Research Ethics
- 7 Describe research plan and literature collection.
- 8 Briefly explain the role of computers in data analysis.
- 9 Discuss the strategies for oral presentation
- 10 Discuss various research approaches
- 11 How can you formulate a research problem?