GEOG-606 RESEARCH METHODOLOGY

Course Description:

This course provides an overview of research methods and techniques commonly used in social science, natural science, and interdisciplinary research. Topics include research design, data collection methods, sampling techniques, and data analysis procedures.

Learning Objectives:

1. Understand the principles and processes of scientific research.
2. Identify appropriate research designs and methodologies for different research questions.
3. Develop skills in data collection, analysis, and interpretation.
4. Apply ethical principles in research conduct and reporting.

BLOCK 1: INTRODUCTION TO RESEARCH METHODOLOGY AND RESEARCH DESIGN

1. Definition and scope of research, Characteristics of scientific research, Importance of research methodology in academic and professional settings
2. Types of research: descriptive, exploratory, experimental, correlational, etc.
3. Selection of research topics and formulation of research questions
4. Criteria for evaluating research designs

BLOCK 2: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

5. Conducting a literature review: sources, databases, citation management
6. Developing a conceptual framework: theories, hypotheses, variables
7. Sampling Techniques- Probability sampling methods: simple random sampling, stratified sampling, cluster sampling- Non-probability sampling methods: convenience sampling, purposive sampling, snowball sampling, Sample size determination and power analysis

BLOCK 3: DATA COLLECTION METHODS

8. Questionnaire design: types of questions, scale development, pilot testing
9. Interview techniques: structured, semi-structured, unstructured interviews
10. Observation methods: participant observation, systematic observation

BLOCK 4: EXPERIMENTAL DESIGN

11. Basics of experimental research: independent and dependent variables, control groups, randomization, Laboratory vs. field experiments
12. Qualitative Research Methods, Quantitative Data Analysis: Software tools for data analysis: SPSS, R, Python
13. Research Ethics and Reporting: Ethical principles in research conduct: informed consent, confidentiality, integrity, Writing research reports: structure, formatting, citation styles

Texts/Resources:

"Research Methods in Psychology" by John J. Shaughnessy et al.

"Research Design: Qualitative, Quantitative, and Mixed Methods Approaches" by John W.

Creswell and J. David Creswell

Selected research articles and case studies from relevant disciplines

Online resources and tutorials for research methods and statistical analysis