## **Data Analysis**

This course is designed to PhD students to learn basic and advanced skills of data analysis, using both quantitative and qualitative research methods. Students will be able to learn the statistical principles necessary to perform various analysis of quantitative data, as well as qualitative analysis approach.

At the end of the course, students will be able to

* Increase familiarity with a variety of analysis approaches that are often used in contemporary social science.
* Critically read, interpret and replicate the quantitative and qualitative content of many articles in social sciences
* Conduct, interpret, and communicate results from analysis using multiple quantitative and qualitative analysis approaches
* Explain the limitations of observational data for making causal claims, and begin to use existing strategies for attempting to make causal claims from observational data.
* Expertise in using software—specifically, SPSS and Nvivo to analyze quantitative and qualitative data to answer social research questions.
* Impart and reinforce capacity to clean, apply, interpret and present analysis

**Course Topics**

I. **Introduction to Data Analysis in Sociology**

* Overview of data analysis in social sciences
* Types of data and measurement
* Design of studies and sampling
* Data cleaning and preparation

II. **Qualitative Data Analysis**

* Overview of qualitative data analysis
* Coding and categorizing qualitative data
* Thematic analysis
* Grounded theory and narrative analysis
* Software for qualitative data analysis

III. **Quantitative Data Analysis**

* Overview of quantitative data analysis
* Descriptive statistics
* Inferential statistics
* Regression analysis
* Multivariate analysis
* Factor Analysis

IV. **Data Triangulation of Mixed Methods**

* Triangulation and integration of methods
* Qualitative comparative analysis
* Mixed-methods designs and analysis
* Evaluating the validity and reliability of mixed-methods results

V. **Data Visualization**

* Principles of data visualization
* Graphs and charts
* Interactive and dynamic visualization
* Visualization tools and software

VI. **Big Data and Advanced Topics**

* Managing and processing large datasets
* Predictive modeling and machine learning
* Text analysis and network analysis
* Ethics and privacy in data analysis

VII. **Practicum**

* Data analysis projects
* Presentation and discussion of results
* Critique and feedback on data analysis methods and results
* Preparation of data analysis reports and papers

**Recommended Readings**

* "**Research Design: Qualitative, Quantitative, and Mixed Methods Approaches**" by John W. Creswell - This book provides an overview of the different types of research designs and methods, and how to choose the most appropriate one for your research question.
* "**Qualitative Research: A Guide to Design and Implementation**" by Sharan B. Merriam - This book covers the basics of designing and conducting qualitative research studies, including data collection and analysis.
* "**Quantitative Research Methods for the Social Sciences**" by Bruce L. Berg and Howard Lune - This book provides an introduction to the fundamentals of quantitative research, including statistical analysis and research design.
* "**The Coding Manual for Qualitative Researchers" by Johnny Saldana** - This book provides a step-by-step guide to coding qualitative data, including examples and exercises.
* "**Research Methods in Education**" by Louis Cohen, Lawrence Manion, and Keith Morrison - This book covers both qualitative and quantitative research methods in education, and includes practical advice for designing and conducting research studies.
* "**Introduction to Research Methods: A Practical Guide for Anyone Undertaking a Research Project**" by Catherine Dawson - This book provides a practical, hands-on approach to conducting research, including both qualitative and quantitative methods.
* "**The Sage Handbook of Qualitative Research**" edited by Norman K. Denzin and Yvonna S. Lincoln - This comprehensive handbook covers a wide range of qualitative research methods and approaches, including ethnography, grounded theory, and case study research.