

DATA MANAGEMENT AND DATABASE CONCEPTS

AY 2022-2023 - January\February

OVERVIEW

In the contemporary landscape of research, quantitative empirical analysis has become integral to both social sciences and public policy debates. However, there is a gap in formal instruction for students on how to manage data for their projects. This lab aims to address this gap by introducing foundational concepts in data management for research. The goal is to equip students with essential knowledge and concepts that not only support immediate research needs but also foster long-term habits in effective data management.

Throughout the course, students will grapple with the multifaceted challenges associated with managing complex data within a research project. The course delves into fundamental concepts and techniques of data storage, data management, and databases in Python. Students will learn how to work with both relational and NoSQL databases, and gain hands-on experience using Python for data manipulation, cleaning, and analysis. Throughout the course students will gain an understanding of the importance of developing a data strategy and how it can add value to a research project.

OBJECTIVES

Students will learn how to:

- Understand the fundamental concepts and principles of data storage and management;
- Be able to use Python for data manipulation, cleaning, and analysis;
- Understand the differences between SQL and NoSQL databases and when and how to use each;
- Be able to apply the concepts and techniques learned in the course to real-world data management challenges through hands-on projects and exercises.