**BS**

**Big data in economics, finance and public policy**

**COURSE DESCRIPTION**

This course will show how "big data" can be used to understand and address some of the most important social and economic problems of our time. The course will give students an introduction to frontier research and policy applications in economics and social science in a non-technical manner that does not require prior coursework in economics or statistics or experience in computer coding. This makes it suitable both for students exploring economics for the first time, as well as those with more experience. Topics include: equality of opportunity, education, racial disparities, effects of the COVID-19 pandemic, health care, climate change, criminal justice, and tax policy. In the context of these topics, the course will also provide an introduction to basic methods in data science, including

regression, causal inference, and machine learning. The course will include discussions with leading researchers and practitioners who use big data in real-world applications.

**Objectives**

The course has three principal learning objectives:

1) to introduce students to frontier social science research on key social and economic issues,

2) to teach students how to analyze data using modern quantitative methods and basic programming techniques, and

3) to show students how practitioners are using data to analyze social problems.

**Learning Outcomes**

1. Discuss and evaluate fundamental concepts and principles in big data analytics.

2. Discuss the key concepts, benefits, and challenges of big data analytics.

3. Demonstrate skills in processing and utilising social media data and finance data.

4. Critically evaluate data sources, data sets, and inferences made from big data analytics.

**Content**

A broader outline of content is provided for guidelines but in detail content and use of big data based on some case studies will be choice of the instructor. The topics in this course include:

Understanding context of big data

Principles of big data analytics

Collecting and processing social media data

Collecting and processing financial data

What is big data?

Why is big data important?

How do we analyze big data?

Using Big Data for Prediction and Public Policy

Learning tools to analyze big data using R/Python

Text Data Analysis for Economics and Public Policy

Inferences made from big data analytics in economics and social sciences

**Books**

Matt Taddy, Leslie Hendrix and Matthew Harding (2023) Modern Business Analytics, 1st Edition

Other references as per latest developments in the discipline.