

Course content

This course is equivalent with [ECON3170- Data Science for Economists](#)

Knowledge of computers and programming is becoming [ever](#) more important, also for economists. This course ~~is aimed~~[aims](#) at introducing programming and computational tools useful for future careers as economists.

The first part of the course is an introduction to programming and common programming structures. The course goes on to cover manipulation of data, [data types](#), data analysis including ~~an introduction to machine learning techniques~~[approaches to text analysis](#), and basic numerical methods useful in economics. [We also discuss applications of machine learning and AI approaches in economics.](#)

Learning outcome

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Knowledge

- Know how to use computers to analyze data
- Basic knowledge of how computers work and what it implies for computation
- Common components of computer algorithms such as conditionals, loops, and functions
- How data can be visualized and some characteristics of good visualizations
- Knowledge of how numerical problems can be solved using computers

Skills

- [Write a program in R to undertake analysis of data or numerical problems](#)
- [Use AI tools for efficient coding](#)
- Import data from various sources and in different formats and transform them into an analyzable format
- ~~Use the basic tools used in machine learning such as cross-validation as well as basic algorithms such as LASSO and random forests~~
- [Collect, process, and analyze text data using R, including tidy text methods and basic use of transformer/LLM-based approaches](#)
- [Modelling data and communicating estimation results](#)
- Implement algorithms for solving numerical problems such as taking derivatives, solving equations, and maximizing functions

Competence

- ~~Knowledge of how computers and data science can be used to study economic and social phenomena~~
- [The ability to judge both advantages and disadvantages when using AI tools in coding](#)
- [Strengths and weaknesses with different types of data useful in economics](#)

- The limitations of data science approaches to studying human behavior