GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2026-2027

Python for Data Analysis (C004618)

Course size *(nominal values; actual values may depend on programme)*

Credits 3.0 **Study time 90 h**

Course offerings in academic year 2026-2027

A (semester 1) English Gent

Lecturers in academic year 2026-2027

Plevoets, Koen	WEO2	lecturer-in-charge

Offered in the following programmes in 2026-2027	crdts	offering
Master of Science in Economics	3	A
Master of Science in Economics (Double Degree)	3	A
Master of Science in Statistical Data Analysis	3	A

Teaching languages

English

Keywords

Statistical programming language Python, principles of data management, efficiency, coding style, reproducible reporting

Position of the course

The global objective of this course is to provide students with a thorough basis and practical skills for the handling and management of data with accompanying information.

Contents

1 Importance of information management in general.
2 How to use data sources?
3 Introduction to (statistical) programming in Python (Basic data types, functions and control flow, data analysis with NumPy and pandas, visualization with Matplotlib and seaborn, statistical inference and modelling with SciPy and statsmodels).
4 Error correction, archiving, confidentiality, ethics of data handling.
5 Structuring scripts for reproducibility and cooperation with other scientists.
6 Optimizing, debugging and checking code.

Initial competences

Basic notions of statistical data analysis are recommended. No prior programming skills are required.

Final competences

1 The student knows the basics of data analysis with the Python software.
2 The student can use software to query data bases, reshape data, produce graphs, descriptive statistics and reports.
3 The student can write scripts/programs in Python.
4 The student can contribute to a group effort for a Python programming project.
5 The student can report on programming activities and can provide a summary report of a database.
6 The student can implement good programming practices.
7 The student is aware of ethical aspects of data handling.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Seminar, Lecture, Independent work

Study material

Type: Slides

Name: Python for data analysis
Indicative price: Free or paid by faculty
Optional: no
Language : English
Number of Slides : 500
Available on Ufora : Yes

References

- Haslwanter, T. (2016). An introduction to statistics with Python. New York: Springer.
- McKinney, W. (2018). Python for data analysis. Sebastopol: O'Reilly.
- VanderPlas, J. (2017). Python data science handbook. Sebastopol: O'Reilly

Course content-related study coaching

Numerous exercises are being solved during both the practical sessions and at home. Students can ask questions or feedback during the practical sessions or via an online discussion forum.

Assessment moments

end-of-term and continuous assessment

Examination methods in case of periodic assessment during the first examination period

Written assessment open-book

Examination methods in case of periodic assessment during the second examination period

Written assessment open-book

Examination methods in case of permanent assessment

Skills test, Written assessment open-book, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

Extra information on the examination methods

Permanent: Weekly skills tests on a course chapter and one homework report on a data-analytical project.
Periodical: Report on a data-analytical project.

Calculation of the examination mark

The score depends on the weekly skills tests (totalling to 10%, i.e. 2/20), the homework (10%, i.e. 2/20), and the periodical evaluation (80%, i.e. 16/20). The student needs to pass for the periodical evaluation and the total score must be at least 10/20.