

R for Data Analysis (C004617)

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 WE02 lecturer-in-charge

Offered in the following programmes in 2026-2027

	crdts	offering
Master of Science in Statistical Data Analysis	3	A

Teaching languages

English

Keywords

Statistical programming language R, 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 R programming at an intermediate level (Objects and classes, vector-based computing, visualization with lattice and ggplot2, string processing and regular expressions, Shiny apps).
- 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

Introductory course to statistics, introductory course to R (as required for passing the admission test).

Final competences

- 1 The student knows the R software at an intermediate level.
- 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 R.
- 4 The student can contribute to a group effort for an R 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: R for data analysis

Indicative price: Free or paid by faculty

Optional: no

Language : English

Number of Slides : 500

Available on Ufora : Yes

References

- Chambers, J.N. (2010). Software for data analysis. New York: Springer.
- Cotton, R. (2013). Learning R. Sebastopol: O'Reilly.
- Matloff, N. (2011). The art of R programming. San Francisco: No Starch Press.
- Wickham, H. (2019) Advanced R. Second edition. Boca Raton: Chapman & Hall/CRC.

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.