GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2025-2026

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 Franciso: 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 practical sessions and PC labs. Students get extra exercises that can be solved either during the practical sessions and PC labs, or at home. Students can ask questions during the PC labs and they can ask for additional feedback and exercises they made at home.

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: There will be a take home problem.
Periodical: Written examination to evaluate the extent to which students mastered the material and can actually perform analysis using the respective software packages.

Calculation of the examination mark

If the student fails for this course in the first examination period and if he/she wants a retake in the second examination period, the non-periodical evaluation will be presented in a revised form in the second examination period. The score depends on a take home problem (10%), and a periodical evaluation (90%). The student needs to pass for the periodical evaluation and the total score must be at least 10/20.