Financial Services Analytics (F710405)

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

Credits 3.0   **Study time** 90 h

Course offerings and teaching methods in academic year 2025-2026

A (semester 1)	English	Gent	seminar
			group work
			lecture

Lecturers in academic year 2025-2026

Boudt, Kris	EB21	lecturer-in-charge

Offered in the following programmes in 2025-2026	crdts	offering
Master of Science in Teaching in Economics(main subject Business Administration)	3	A
Master of Science in Business Administration(main subject Finance and Risk Management)	3	A
Exchange programme in Economics and Business Administration	3	A

Teaching languages

English

Keywords

analyst, big data, data science, finance, fintech, insurance, insurtech, modeling, prediction, robustness, visualization

Position of the course

The course on financial services analytics is a specialized course within the Finance & Risk Management program of the Master of Science in Business Administration. Its objective is to provide students with a practical knowledge on transforming data into insights within the business context of a financial services company. The course requires students to get their hands dirty with programming code and data.

Contents

Financial services companies continuously collect large datasets. The course is about the techniques that transform the data into insights helping financial services companies to improve their decision-making, their business operations, and risk management.
There are three parts.
The first part of the course focuses on developing the skillset to be a data scientist in a financial services company. We hereby make an applied use of statistical methods by considering them as functions applied to data.
We discuss the various steps in the data transformation process: (i) understand how the data can be useful to solve the problem, (ii) implement the data transformation task in a code script that allows to automate the analysis, (iii) evaluate the accuracy of the analytics and visualize results, (iv) scale and deploy the tools as a business process in a financial services organization. We will compare traditional statistical tools with robust ones, as well as techniques to deal with model uncertainty. The focus of the first part of the course is on time series data and textual data.
The second part of the course overviews various use cases of financial services analytics. Examples include algorithmic trading, automated digital investment advise by robo-advisors, data-driven risk management, digitalisation of financial services, and fraud detection analytics in insurance, among others.
The third part of the course is about the limits to data-driven decision making in the

financial services industry. We discuss the problem of discrimination due to biased algorithms and how data-driven models may create endogenous risk in a financial system.

Initial competences

The final competences of 'Financial Markets, Products and Institutions ' and 'Business Intelligence' serve as a starting point.

Final competences

1 Competence to implement the data science workflow to transform financial data into insights
2 Competence to interpret, use and modify programming scripts in an open source software environment
3 Competence to critically evaluate the pros and cons of data-driven financial services analytics.

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

Group work, Seminar, Lecture

Study material

Type: Slides

Name: Financial Services Analytics
Indicative price: Free or paid by faculty
Optional: no
Language : English

References

De Prado, M. L. (2018). Advances in financial machine learning. John Wiley & Sons.

Racine, J. S. (2019). Reproducible Econometrics Using R. Oxford University Press, USA.

Course content-related study coaching

The professor is available for questions.

Assessment moments

end-of-term and continuous assessment

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

Written assessment

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

Written assessment

Examination methods in case of permanent assessment

Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Extra information on the examination methods

Written exam (80%) and group assignment (20%). .
Second term: Depending on the deficits for the evaluation components, a written exam and / or an individual work. The score for the component which the student has succeeded are taken over to the second term

Calculation of the examination mark

Students must have passed the group assignment in order to pass the course. If the student does not pass the group assignment and the mathematical average yields a score of 10 or more on 20, the final score is reduced to 9/20, the highest score for which the students does not pass the course.