

# Course Specifications

From the academic year 2014-2015 up to and including the

## Financial Risk Management (F000717)

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

Credits 6.0 Study time 180 h Contact hrs 45.0 h

Course offerings and teaching methods in academic year 2018-2019

A (semester 1)	English	lecture	30.0 h
		group work	15.0 h

Lecturers in academic year 2018-2019

De Jonghe, Frank	EB21	lecturer-in-charge
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Offered in the following programmes in 2018-2019

	crdts	offering
<a href="#">Bridging Programme Master of Science in Industrial Engineering and Operations Research</a>	6	A
<a href="#">Bridging Programme Master of Science in Industrial Engineering and Operations Research</a>	6	A
<a href="#">Master of Science in Business Engineering (main subject Data Analytics)</a>	6	A
<a href="#">Master of Science in Business Engineering (main subject Finance)</a>	6	A
<a href="#">Master of Science in Business Engineering (main subject Operations Management)</a>	6	A
<a href="#">Master of Science in Mathematics</a>	6	A
<a href="#">Master of Science in Industrial Engineering and Operations Research</a>	6	A
<a href="#">Master of Science in Industrial Engineering and Operations Research</a>	6	A
<a href="#">Master of Science in Economics</a>	6	A
<a href="#">Exchange programme in Economics and Business Administration</a>	6	A

Teaching languages

English

Keywords

Derivatives, financial risks, risk measurement

Position of the course

Analysis of the valuation of financial assets and the use of derivative instruments and quantitative techniques in risk management. The focus is on the quantification and the management of various types of financial risk.

This course aims at forming students who are able to recognize and analyze finance problems using the concepts of existing academic research. After finishing this course, students can understand new academic literature on risk measurement and derivatives pricing and can relate this literature to the existent knowledge. They can also infer the practical consequences of the new results. Moreover, they can also apply the commonly used research methodologies and are able to report research results thoroughly, both orally and in written.

Contents

- 1 Modelling return and risk
  - Autocorrelation, conditional variance
  - GARCH models
  - Methodological pitfalls
- 2 Derivative instruments
  - Valuation of forwards, futures and options
- 3 Option pricing

- Numeric Methods
  - Dynamic hedging
  - Term structure models
  - Embedded options
- 4 Continuous time finance Credit risk analysis
    - Creditmetrics
  - 5 Portfolio risk measurement
    - Value at risk: methodology and implementation
  - 6 Financial engineering

#### Initial competences

Students are acquainted with the standard pricing models for options and forward contracts.

They understand time series analysis and statistics (probability distributions).

They are used to analyse financial problems quantitatively using spreadsheet software and standard canned software packages.

They are introduced to structured programming.

The final objectives of courses like investment analysis, topics in empirical research in finance and financial econometrics are starting objectives for this course.

#### Final competences

- 1 Be able to read the academic research on derivatives pricing and risk measurement
- 2 Be able to interpret the results of this literature and apply them in practice
- 3 Be able to formulate new research topics
- 4 Be acquainted with the problems of numerical derivatives pricing and risk measurement

#### 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, lecture

#### Extra information on the teaching methods

Ex cathedra for theory sessions; interactive exercise session; presentation and discussion of assignments by the students.

Group preparation for assignments.

#### Learning materials and price

John Hull, Options, futures and other derivatives, Prentice Hall. Reading list of articles.

Cost: 75 EUR

#### References

#### Course content-related study coaching

- Handouts of lecture material available on the website
- Supervised assignments
- Individual feedback for reports

#### Evaluation methods

end-of-term evaluation

#### Examination methods in case of periodic evaluation during the first examination period

Written examination

#### Examination methods in case of periodic evaluation during the second examination period

Written examination

#### Examination methods in case of permanent evaluation

#### Possibilities of retake in case of permanent evaluation

not applicable

#### Extra information on the examination methods

End-of-Term evaluation: written examination theory and exercises.

#### Calculation of the examination mark

End-of-Term evaluation