

# Course Specifications

From the academic year 2020-2021 up to and including the academic year

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Α

# Capita Selecta in Statistics (CO03688)

Course size	(nominal values; actual values may depend on programme)					
Credits 6.0	Study time 165 h		Contact hrs 45.0h			
Course offerings and t	eaching methods in academic	year 2022-2023				
A (semester 2)	English	Gent		project		17.5h
				lecture		12.5h
				guided self-study		7.5h
				microteaching		7.5h
Lecturers in academic	year 2022-2023					
Vansteelandt, Stij	ıdt, Stijn		WE02	lecturer-in-charge		
Clement, Lieven			WE02	co-lecturer		
Goetghebeur, Els			WE02	co-lecturer		
Offered in the following programmes in 2022-2023				crdts	offering	
Master of Science in Teaching in Science and Technology(main subject Mathematics)				6	А	
Master of Science	e in Mathematics			6	А	

Teaching languages

English

# Keywords

Mathematical Statistics, Applied Statistics

Exchange Programme in Mathematics (master's level)

# Position of the course

This is an elective course in the Master of Science in Mathematics. It builds on the courses Statistics I, II and III in the Bachelor of Science in Mathematics, and the course Statistical Inference in the Master of Science in Mathematics. The goal of this course is to make the student acquainted with some of the recent developments in statistics research, and the role of statistics in the broad research domain. It further aims to train the master student in applied or theoretical statistics research.

#### Contents

This course will make the student familiar with three domains of active research in statistics. Possible topics are: statistical genomics, proteomics, multistate models, mediation, effect modification, missing data, optimal dynamic, patient-tailored treatment regimes, semi-parametric efficiency theoriy, double-robust estimation, statistical consulting.

# Initial competences

Final objectives of Statistics I, II and III in the Bachelor of Science in Mathematics.

# **Final competences**

- 1 Innovative use of specialised knowledge within the statistics discipline.
- 2 Demonstrate profound insight in some of the latest developments in statistics research.
- 3 Critical consideration of, and reflection on applied and theoretical statistics research, and on the use of the statistical methods in the broad scientific research domain.
- 4 Demonstrate openness towards new scientific developments in statistics.
- 5 Independently understand, construct and critically evaluate logical arguments in

empirical research and data analyses.

#### 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**

Microteaching, Guided self-study, Lecture, Project

#### Extra information on the teaching methods

The students receive an introduction to three topics of active research in statistics, in the form of lectures. Through coached self study, they make themselves familiar with a number of recent research articles (provided by the lecturers) on these topics. Next, they make an individual choice for a project which goes more deeply into one of these topics. This project, which can be theoretical and/or applied, will involve the student into an independent research project.

#### Learning materials and price

Research articles. Cost: O Euro

#### References

#### Course content-related study coaching

The students can make appointments with the lecturers for questions concerning the theory and research project.

## Assessment moments

end-of-term and continuous assessment

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

Oral examination, Open book examination

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

Oral examination, Open book examination

#### Examination methods in case of permanent assessment

Assignment

# Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

# Extra information on the examination methods

The results of the research project will be summarised in a written report, which will be orally presented in class, during a 45 minute seminar which is attended by other students and researchers. The oral examination will test the students insight into the different research topics that have been discussed during the course.

# Calculation of the examination mark

Project exam (50%) + oral exam (50%) Retake of the practical exam and / or written report is possible during the second examination period.