

EMOS in The Netherlands



**Universiteit
Leiden**

Mark de Rooij



**Statistics
Netherlands**

Mark van der Loo



**Utrecht
University**

Bella Struminskaya



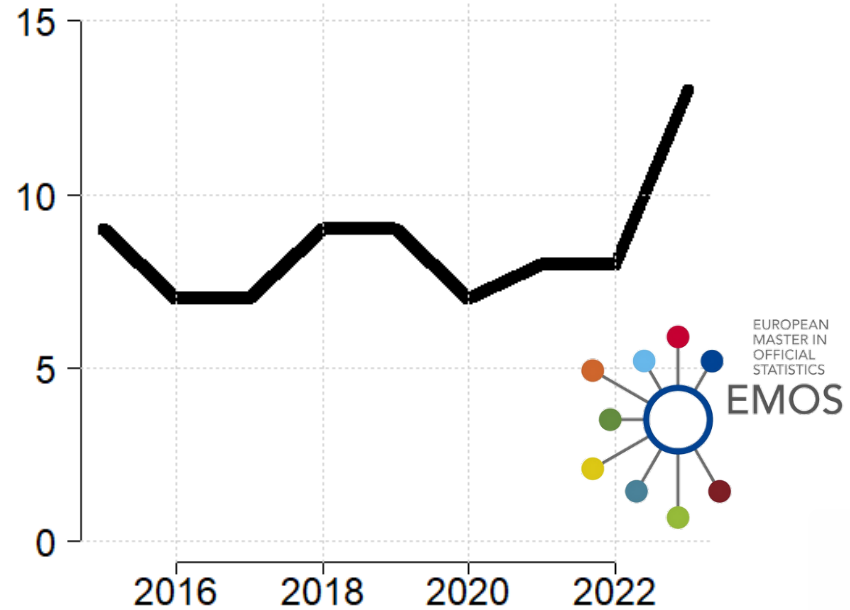
Overview

- Since 2015 with UU
- Since 2019 with UL

CBS Business Case:

- New/Future employees
- Research & Innovation
- Network with Universities

Number of EMOS students by start year



Curriculum overview

[Internship &] MSc Thesis work
30 ECTS (UL) | 22.5 ECTS (UU)

EMOS Core Module
15 ECTS

Statistics
&
Data Science

Methodology
and Statistics
for the
Behavioural,
Biomedical,
and Social and
Sciences



EMOS Core Module at CBS (15 ECTS)

	Topic
1	Aspects of Official Statistics
2	Sampling and Estimation
3	Statistical Disclosure Control
4	Statistical Data Editing
5	Administrative and Big Data
6	Data Management in Statistical Production
7	Interpretation and Presentation of Official Statistics

Test by Assignments
and Exam (50/50)



Statistics & Data Science @ Leiden U



- We started as a specialization of Mathematics in 2009
- Since 2015 an independent 2 year Msc Program
- We have now 60 – 70 new students every year
- Entry requirements are really low on the Math/Statistics side
- We recently renewed our program



Statistics & Data Science @ Leiden U



	Year1.Sem 1	Year1.Sem 2	Year2.Sem 1	Year2.Sem 2
Mandatory	<ul style="list-style-type: none">• Statistics and probability (9)• Mathematics for statisticians(3)• Statistical computing with R (6)• Lin and Generalized lin. Models (6)• linear algebra(3)• Statistics and Data Science in Practice(3)	<ul style="list-style-type: none">• Essentials for Data Science (6)• Computational Statistics (3)• Statistical Learning(6)• Bayesian Methods I (3)• Causal inference I(3)• Essentials of Mixed and longitudinal Modelling(3)	<ul style="list-style-type: none">• Statistical Consulting(5)• Preparation thesis project(4)	<ul style="list-style-type: none">• Thesis project (30)
Electives		<ul style="list-style-type: none">• Survey Methodology(6)• Survival analysis (6)• Design and analysis of biological experiments(6)• Data Visualisation(6)	<ul style="list-style-type: none">• Advanced Statistical Learning (3)• High-dimensional data analysis (6)• Statistical genetics (6)• Psychometrics and SEM (6)• EMOS Core Module(12)• Causal inference II (3)• Nonlinear (Mixed) Data Analysis(6)• Bayesian Methods II (3)• LIACS Advances in Data Mining(6)• LIACS Introduction to Deep Learning (6)	



Statistics & Data Science @ Leiden U

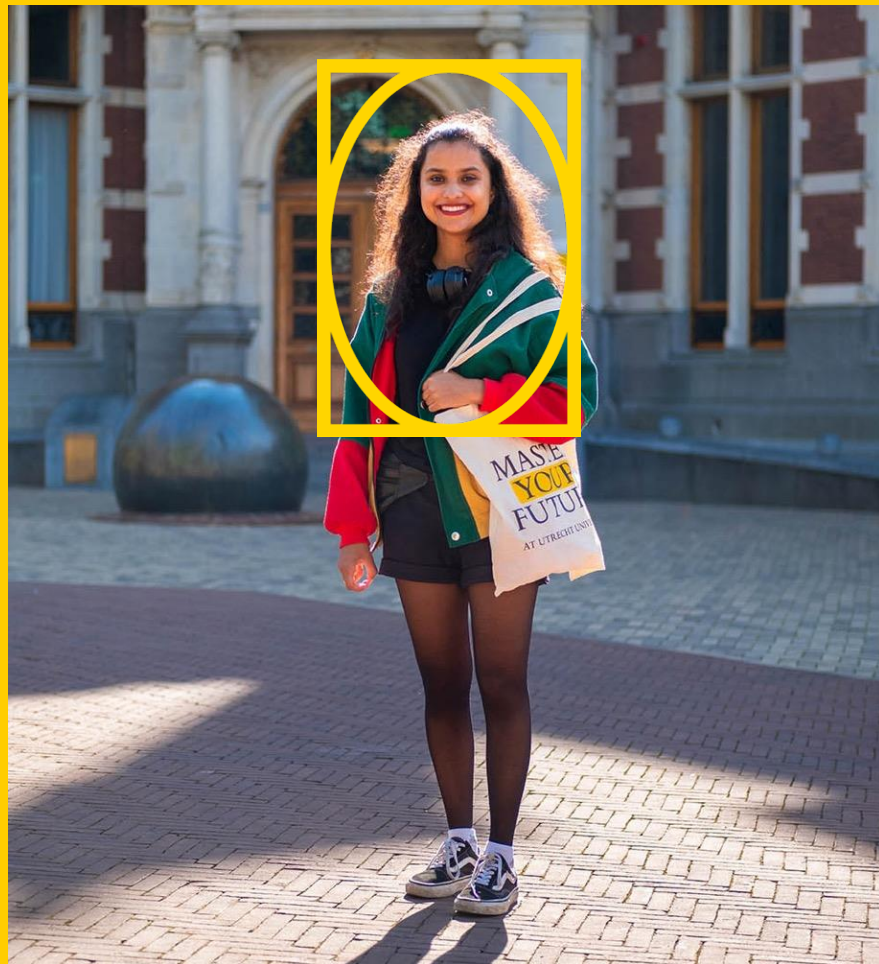


	Year1. Sem 1	Year1.Sem 2	Year2.Sem 1	Year2. Sem 2
Mandatory	Statistics and probability (9) Mathematics for statisticians (3) Statistical computing with R (6) Linear and generalized Models(6) Linear Algebra (3) Statistics and Data Science in Practice (3)	Essentials for Data Science (6) Computational Statistics(3) Statistical Learning(6) Bayesian Methods I (3) Causal inference I (3) Mixed Modelling (3)	Statistical Consulting(5) Preparation thesis project(4)	Thesis project
Medical Statistics		Survival analysis (6)	High-dimensional data analysis (6) Statistical genetics (6) +9 EC	
Biostatistics-Biometrics		Design and analysis of biological experiments(6)	High-dimensional data analysis (6) Statistical genetics (6) +9 EC	
Official Statistics EMOS		Survey Methodology(6)	EMOS core module (12) +9 EC	
Data Science		Data Visualisation (6)	Advances in Data Mining(6), Introduction to Deep Learning (6) +9 EC	
Psychometrics and Sociometrics		Survey Methodology(6)	Psychometrics and SEM (6) Nonlinear (Mixed) Data Analysis(6)(6) +9 EC	



*MSc Methodology and
Statistics of the
Behavioral, Biomedical
and Social Sciences*

EMOS in the Netherlands
November 8th 2023



About the programme

Degree:	Title: Master of Science (MSc) Programme: MSBBSS
Language:	English
Duration:	2 years Full-time
Exists for:	17 years
Programme size:	20 students per year
Students' backgrounds:	Social sciences, mathematics, economics; 32% international
Entry requirements regarding:	Grade, ECTS in statistics, knowldegde of R/other stats software, English
Departments	<ul style="list-style-type: none">• Methodology and Statistics at Utrecht University• Biostatistics at University Medical Center Utrecht• Contributions from <i>Statistics Netherlands</i>, <i>CITO</i>, <i>University of Twente</i>• European Master of Official Statistics

First semester	Second semester
<i>First year</i>	
<ul style="list-style-type: none"> • Survey Data Analysis 7.5 EC • Multivariate Statistics 7.5 EC • Fundamentals of Statistics 7.5 EC • Computational Inference with R 7.5 EC 	<ul style="list-style-type: none"> • Introduction to multilevel modelling and psychometrics 7.5 EC • Causal Inference and Structural Equation Modelling 7.5 EC • Bayesian Statistics 7.5 EC • Introduction to Biomedical Statistics 7.5 EC
<i>Second Year</i>	
<ul style="list-style-type: none"> • Elective courses and Research Experience 15 EC • Research Seminar 5 EC 	
<ul style="list-style-type: none"> • Markup Languages 2.5 EC • Preparation Master's Thesis 15 EC 	<ul style="list-style-type: none"> • Master's Thesis 22.5 EC

Internship

Format

- Possible as part of the *elective-space* or in *(preparation for) the master thesis*

Timing

- anytime (usually between end of first year, and start second semester)
- first semester second year





Facts that matter