



MODELLING AND DATA ANALYSIS

(Options: Econometrics and Data Science)

Programme type	Master's studies (university)
Field of study	Statistics
Study area	Mathematical Sciences
Degree	Master in Mathematical Sciences
Duration	Full time - 1,5 years (3 semesters), part time – 2,5 years (5 semesters)
Workload	90 ECTS
Language of instruction	English
Location	Vilnius, Lithuania
Starting date	1 st of September
Tuition fee EU students	2542 EUR/per year
Tuition fee Non-EU students	3250 EUR/ per year

PROGRAMME DESCRIPTION

- *The objective*

The aim of the programme is to educate internationally recognized professionals in Modelling and Data Science who expertly utilize the up-to-date knowledge of Statistics, Econometrics and Data Science in developing advanced mathematical (statistical) models for private and public institutions for planning, management, forecasting, and evaluation of their activities.

- *Career opportunities*

The analytical modelling, planning, and forecasting work opportunities at various levels are open for Masters in Modelling and Data Analysis in: research centres; financial institutions in private sector (e.g. pension funds, stock

exchanges, insurance companies, commercial banks, Hi Tech start-ups); consulting firms; the analysis and planning units of business enterprises; central banks, ministries, and other public sector institutions.

- *Access to further studies*

Graduates of the Programme can choose doctoral studies in Economics, Econometrics, Data Science and/or Statistics in Vilnius University. The level of the programme enables to continue further studies at universities in foreign countries, e.g. the Netherlands, Norway, and the UK.

- *International competitiveness*

The programme offers internationally competitive Master's level econometric education. Teachers are actively involved in research at the international level with an extensive experience in applied projects. Students can participate in ERASMUS and other international students' exchange programmes with leading universities in the field of econometrics.

KEY LEARNING OUTCOMES

After taking the courses the students should be able to: independently model, estimate and test relationships between variables; practically apply basic principles of econometrics when analysing real data and forecasting economic processes; investigate the dynamics of financial markets; create and maintain macroeconomic models; estimate financial risks; professionally operate econometric software; learn R programming skills; work with economic data bases.

COURSE INFORMATION

The programme has the following structure:

OPTION: ECONOMETRICS

Course Type	1st Semester	2nd Semester	3rd Semester
Compulsory Courses	Multivariate Statistics (5 ECTS)	Statistics of Random Functions (10 ECTS)	Master's Thesis Seminar (5 ECTS)
	Parametric and Nonparametric Econometrics (10 ECTS)	Financial Econometrics (10 ECTS)	Master Thesis (25 ECTS)
	Microeconomic Analysis (5 ECTS)		
Elective Courses	Modern Mathematical Economics (5 ECTS)	Bayesian Econometrics (5 ECTS)	
	Panel Data Econometrics (5 ECTS)	Econometric Analysis of Industrial Organization (5 ECTS)	
	Simulation Methods in Econometrics (5 ECTS)	Game Theory (5 ECTS)	
	High Frequency and Functional Data Analysis (5 ECTS)	Macroeconomic Theory (5 ECTS)	
		Predictive Analytics (5 ECTS)	

OPTION: DATA SCIENCE

Course Type	1st Semester	2nd Semester	3rd Semester
Compulsory Courses	Multivariate Statistics (5 ECTS)	Statistics of Random Functions (10 ECTS)	Master's Thesis Seminar (5 ECTS)
	Parametric and Nonparametric Statistics (10 ECTS)	Big Data Analysis (10 ECTS)	Master's Thesis (25 ECTS)
	Data Mining (5 ECTS)		
Elective Courses	Multidimensional Data Structures (5 ECTS)	Bayesian Econometrics (5 ECTS)	
	Panel Data Econometrics (5 ECTS)	Econometric Analysis of Industrial Organization (5 ECTS)	
	Spatial Databases (5 ECTS)	Game Theory (5 ECTS)	
	High Frequency and Functional Data Analysis (5 ECTS)	Predictive Analytics (5 ECTS)	
		Multidimensional Data Visualization (5 ECTS)	

*Please contact us by e-mail to learn more about the study plan of part-time studies.

GRADUATION REQUIREMENTS

In order to earn Master's degree, candidates must successfully pass the exams and defend Master Thesis.

ADMISSION REQUIREMENTS AND SELECTION CRITERIA

- Bachelor degree in Mathematics, Statistics, Economics (with solid knowledge of Mathematics), Informatics or Physical science;
- English language proficiency - the level not lower than B2 (following the Common Framework of Reference for Language approved by the Council of Europe).

EXAMINATION AND ASSESSMENT REGULATIONS

The main form of evaluation is an examination. However, courses may be evaluated by the pass/fail evaluation as well. Every course is concluded with either a written or written-oral examination or pass/fail evaluation. Student's knowledge and general performance during the exam are evaluated using grading scale from 1 (very poor) to 10 (excellent) (except pass/fail cases). The programme ends with Master Thesis.

Academic contact

Inga Baranauskaitė
Inga.baranauskaite@mif.vu.lt

Admission contact

Admissions Office
admissions@cr.vu.lt