Course Descriptions None 2026-2027

Course Title	Quantitative Methods III (IES)
Course Code	EBC2011
ECTS Credits	6,5
Assessment	Whole/Half Grades

Period

Period	Start	End	Mon	Tue	Wed	Thu	Fri
1	31-8-2026	16-10-2026		L		X	X

Level	Intermediate
Coordinator	Nalan Bastürk, Bas Dietzenbacher For more information:n.basturk@maastrichtuniversity.nl; b.dietzenbacher@maastrichtuniversity.nl
Language of instruction	English
Goals	* Learn advanced optimisation techniques and apply them to economic problems. * Understand the concept of integral and learn some integration techniques. * Learn how to solve some simple discrete as well as continuous dynamic systems and to analyse equilibrium points. * Learn advanced multiple regression techniques. * Apply multiple regression techniques to economic problems using statistical software.
Description	The course QM3 is a continuation of the first year Economics courses QM1 and QM2 and is divided in a mathematics part and a statistics part. The mathematics part consists of three topics: Optimization, Integration, and Dynamic Models. Optimization considers unconstrained and constrained optimization of univariate and multivariate functions (Lagrange, Kuhn-Tucker). Integration covers elementary and advanced integration techniques for univariate functions (integration by parts, integration by substitution, improper integrals). Dynamic Models provides an introduction to discrete dynamics (difference equations) and continuous dynamics (differential equations) including equilibrium analysis. Each topic has a separate reader. The statistics part formally studies the regression model, including the problem of omitted variables bias, the testing of general linear parameter restrictions, and the large-sample (asymptotic) properties of regression. The focus is on the analysis of cross-section data; time-series data is briefly discussed at the end. Using the statistical package Eviews, empirical results are generated by yourself. This part is based on the following textbook. Jeffrey M. Wooldridge (2018). Introductory Econometrics: a modern approach. 7th international student edition, Thomson South-Western, Cengage Learning.
Literature	Jeffrey M. Wooldridge (2018). Introductory Econometrics: a modern approach. 7th international student edition, Thomson South-Western, Cengage Learning.

Prerequisites	* The courses Quantitative Methods I (EBC1005/1006/1007) and Quantitative Methods II (EBC 1033/1034/1035), taught at the University of Maastricht.
	* In particular the following subjects should have been mastered:
	    * Mathematics: exponential and logarithmic functions, (partial) derivative and rules a.o. chain rule, optimisation of functions of one and two variables, Lagrange.
	    * Statistics: random variable, probability distributions, confidence interval, hypothesis testing, linear regression.
	* An advanced level of English.

Transitional Regulations	<ul class="trcohorts"> - Bachelor Economics and Business Economics - Economics and Management of Information [2024-2025 or earlier] - Bachelor Economics and Business Economics - International Business Economics - Major Accounting [2024-2025 or earlier] - Bachelor Economics and Business Economics - International Business Economics - Major Finance [2024-2025 or earlier] - Bachelor Economics and Business Economics - International Business Economics - Major Information Management [2024-2025 or earlier] - Bachelor Economics and Business Economics - International Business Economics - Major Marketing [2024-2025 or earlier] - Bachelor Economics and Business Economics - International Business Economics - Major Organisation [2024-2025 or earlier] - Bachelor Economics and Business Economics - International Business Economics - Major Strategy [2024-2025 or earlier] - Bachelor Economics and Business Economics - International Business Economics - Major Supply Chain Management [2024-2025 or earlier] - From 2025-2026 onwards, education and exam/resit opportunities are offered. Alternative options may be available. See the Bachelor EER 2025-2026 Appendix I Article 16 for more information. <table><col style="width: 200px;"><col style="width: 120px;"><col style="width: 120px;"><col><thead><tr><th>Academic Year</th><th>Education</th><th>Exam/Resit</th><th>Replacement(s)</th></tr></thead><tbody><tr><td>2025-2026 onwards</td><td>X</td><td>X</td><td>See the Bachelor EER 2025-2026 Appendix I Article 16 for more information</td></tr></tbody></table>
Teaching methods	PBL / Lecture
Assessment methods	Written Exam / Assignment
Evaluation in previous academic year	For the complete evaluation of this course please click http://iwio-sbe.maastrichtuniversity.nl/rapporten.asp?referrer=codeUM

This course belongs to the following programme / specialisation

Bachelor Economics and Business Economics - Economics	Year 2 Compulsory Courses
Bachelor Economics and Business Economics - Emerging Markets	Year 2 Disciplinary Courses
Bachelor Economics and Business Economics - Emerging Markets	Year 3 Elective Courses
Bachelor Economics and Business Economics - Economics and Management of Information	In transition - Year 2+3 QE Electives
Bachelor Economics and Business Economics - Economics and Management of Information	Year 3 Quantitative Economics Elective
Bachelor Economics and Business Economics - International Business Economics	In transition - Maj Accounting - QE Elec
Bachelor Economics and Business Economics - International Business Economics	In transition - Maj Finance - QE Elec
Bachelor Economics and Business Economics - International Business Economics	In transition - Maj Inf Mgmt - QE Elec
Bachelor Economics and Business Economics - International Business Economics	In transition - Maj Marketing - QE Elec
Bachelor Economics and Business Economics - International Business Economics	In transition - Maj Org - QE Elec
Bachelor Economics and Business Economics - International Business Economics	In transition - Maj SCM - QE Elec
Bachelor Economics and Business Economics - International Business Economics	In transition - Maj Strategy - QE Elec
Bachelor Economics and Business Economics - International Business Economics	Year 3 Quantitative Economics Elective
Bachelor International Business - Emerging Markets	Year 3 Elective Courses
Bachelor International Business	Year 3 QE Elecs - Maj Accounting
Bachelor International Business	Year 3 QE Elecs - Maj Finance
Bachelor International Business	Year 3 QE Elecs - Maj Inf Mgmt
Bachelor International Business	Year 3 QE Elecs - Maj Marketing
Bachelor International Business	Year 3 QE Elecs - Maj Org
Bachelor International Business	Year 3 QE Elecs - Maj SCM
Bachelor International Business	Year 3 QE Elecs - Maj Strategy
SBE Exchange Bachelor	Bachelor Exchange Courses
SBE Exchange Master	Bachelor Exchange Courses
SBE Non Degree Courses	Bachelor Courses