

Course Descriptions Bachelor 2023-2024

Course Title	Quantitative Methods III (IES)																																												
Course Code	EBC2011																																												
ECTS Credits	6,5																																												
Assessment	Whole/Half Grades																																												
Period	<table border="1"> <thead> <tr> <th>Period</th> <th>Start</th> <th>End</th> <th>Mon</th> <th>Tue</th> <th>Wed</th> <th>Thu</th> <th>Fri</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>4-9-2023</td> <td>20-10-2023</td> <td></td> <td></td> <td>L</td> <td>X</td> <td>X</td> </tr> </tbody> </table>	Period	Start	End	Mon	Tue	Wed	Thu	Fri	1	4-9-2023	20-10-2023			L	X	X																												
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Level	Intermediate																																												
Coordinator	Bas Dietzenbacher For more information:b.dietzenbacher@maastrichtuniversity.nl																																												
Language of instruction	English																																												
Goals	<p>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. Learn some univariate as well as multivariate time series techniques. Apply multiple regression and time series techniques to economic problems using statistical software.</p>																																												
Description	<p>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.</p>																																												
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Prerequisites	<p>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.</p>																																												
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	<table border="1"> <tbody> <tr> <td>Bachelor Economics and Business Economics - Economics</td> <td>Year 2 Compulsory Course(s)</td> </tr> <tr> <td>Bachelor Economics and Business Economics - Emerging Markets</td> <td>Year 2 Elective Course(s)</td> </tr> <tr> <td>Bachelor Economics and Business Economics - Emerging Markets</td> <td>Year 3 Elective Course(s)</td> </tr> <tr> <td>Bachelor Economics and Business Economics - Economics and Management of Information</td> <td>Year 2+3 Quantitative Economics Elective(s)</td> </tr> <tr> <td>Bachelor Economics and Business Economics - International Business Economics</td> <td>Year 3 QE Elec(s) - Maj Accounting</td> </tr> <tr> <td>Bachelor Economics and Business Economics - International Business Economics</td> <td>Year 3 QE Elec(s) - Maj Finance</td> </tr> <tr> <td>Bachelor Economics and Business Economics - International Business Economics</td> <td>Year 3 QE Elec(s) - Maj Inf Mgmt</td> </tr> <tr> <td>Bachelor Economics and Business Economics - International Business Economics</td> <td>Year 3 QE Elec(s) - Maj Marketing</td> </tr> <tr> <td>Bachelor Economics and Business Economics - International Business Economics</td> <td>Year 3 QE Elec(s) - Maj Org</td> </tr> <tr> <td>Bachelor Economics and Business Economics - International Business Economics</td> <td>Year 3 QE Elec(s) - Maj SCM</td> </tr> <tr> <td>Bachelor Economics and Business Economics - International Business Economics</td> <td>Year 3 QE Elec(s) - Maj Strategy</td> </tr> <tr> <td>Bachelor International Business - Emerging Markets</td> <td>Year 3 Elective Course(s)</td> </tr> <tr> <td>Bachelor International Business</td> <td>Year 3 QE Elec(s) - Maj Accounting</td> </tr> <tr> <td>Bachelor International Business</td> <td>Year 3 QE Elec(s) - Maj Finance</td> </tr> <tr> <td>Bachelor International Business</td> <td>Year 3 QE Elec(s) - Maj Inf Mgmt</td> </tr> <tr> <td>Bachelor International Business</td> <td>Year 3 QE Elec(s) - Maj Marketing</td> </tr> <tr> <td>Bachelor International Business</td> <td>Year 3 QE Elec(s) - Maj Org</td> </tr> <tr> <td>Bachelor International Business</td> <td>Year 3 QE Elec(s) - Maj SCM</td> </tr> <tr> <td>Bachelor International Business</td> <td>Year 3 QE Elec(s) - Maj Strategy</td> </tr> <tr> <td>SBE Exchange Bachelor</td> <td>Bachelor Exchange Courses</td> </tr> <tr> <td>SBE Exchange Master</td> <td>Bachelor Exchange Courses</td> </tr> <tr> <td>SBE Non Degree Courses</td> <td>Bachelor Courses</td> </tr> </tbody> </table>	Bachelor Economics and Business Economics - Economics	Year 2 Compulsory Course(s)	Bachelor Economics and Business Economics - Emerging Markets	Year 2 Elective Course(s)	Bachelor Economics and Business Economics - Emerging Markets	Year 3 Elective Course(s)	Bachelor Economics and Business Economics - Economics and Management of Information	Year 2+3 Quantitative Economics Elective(s)	Bachelor Economics and Business Economics - International Business Economics	Year 3 QE Elec(s) - Maj Accounting	Bachelor Economics and Business Economics - International Business Economics	Year 3 QE Elec(s) - Maj Finance	Bachelor Economics and Business Economics - International Business Economics	Year 3 QE Elec(s) - Maj Inf Mgmt	Bachelor Economics and Business Economics - International Business Economics	Year 3 QE Elec(s) - Maj Marketing	Bachelor Economics and Business Economics - International Business Economics	Year 3 QE Elec(s) - Maj Org	Bachelor Economics and Business Economics - International Business Economics	Year 3 QE Elec(s) - Maj SCM	Bachelor Economics and Business Economics - International Business Economics	Year 3 QE Elec(s) - Maj Strategy	Bachelor International Business - Emerging Markets	Year 3 Elective Course(s)	Bachelor International Business	Year 3 QE Elec(s) - Maj Accounting	Bachelor International Business	Year 3 QE Elec(s) - Maj Finance	Bachelor International Business	Year 3 QE Elec(s) - Maj Inf Mgmt	Bachelor International Business	Year 3 QE Elec(s) - Maj Marketing	Bachelor International Business	Year 3 QE Elec(s) - Maj Org	Bachelor International Business	Year 3 QE Elec(s) - Maj SCM	Bachelor International Business	Year 3 QE Elec(s) - Maj Strategy	SBE Exchange Bachelor	Bachelor Exchange Courses	SBE Exchange Master	Bachelor Exchange Courses	SBE Non Degree Courses	Bachelor Courses
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