Course Descriptions None 2025-2026

Course Title	Time Series Econometrics
Course Code	EBC4008
ECTS Credits	6,5
Assessment	Whole/Half Grades

Period

Period	Start	End	Mon	Tue	Wed	Thu	Fri
2	27-10-2025	12-12-2025		X	X		X

Level	Advanced
Coordinator	Ines Wilms For more information:i.wilms@maastrichtuniversity.nl
Language of instruction	English
Goals	The objectives of this course are: * provide students with an understanding/intuition of the concepts of modern time series methods that are used in econometrics * introduce students to fundamental methodological issues and theoretical concepts in dynamic econometric modeling (non-stationarity, nonstandard asymptotic theory) * equip students with the necessary tools such that students themselves can derive, by relying on provided building blocks, theoretical properties of time series processes that have not been studied explicitly in the course * gain experience in analyzing univariate and multivariate time series from economics or business. The preferred software tool for time series analyses is R * make judgments about the suitability of time series analyses performed on a variety of economic applications
Description	The emphasis of this course will be on studying in depth methods and techniques for the analysis of (nonstationary) economic and financial time series. We will cover and discuss issues related to: * dynamic econometric modelling (review of ARMA, introduction to VAR models) * modelling nonstationary processes * asymptotic theory for dependent and integrated processes * unit roots (representation, tests, properties), cointegration and VECMs. Empirical applications as well as simulation experiments will also be considered to provide students with practical experience in analyzing economic and business time series.
Literature	The main textbook used in this course will be: * Hamilton, J.D. (1994), Time Series Analysis, Princeton University Press, Princeton.
Prerequisites	ATTENTION: This course is an ADVANCED econometrics course, NOT an introductory one. Familiarity with the mathematical methods underlying econometric theory is therefore essential. In particular, students need to have solid background in probability theory, mathematical statistics, econometric methods, comparable to the knowledge obtained during the econometric courses of the bachelor program Econometrics and Operations Research. This includes: - THOROUGH knowledge of probability theory and statistical inference on the level of Chapters 1 through 11 of Casella and Berger (2002; Statistical Inference, 2nd edition), as covered in EBC1024 Probability Theory and EBC2107 Mathematical Statistics - THOROUGH knowledge of econometric analysis on the level of Greene (2012, Econometric Analysis), as covered in EBC2111 Econometric Methods I; and - some knowledge of stochastic processes (in particular Brownian Motion theory), as covered in EBC4004 Stochastic Processes It will be pretty much impossible to make up for a lack of this knowledge during the course. In addition, and introductory knowledge on time series econometrics is recommended, in particular on stationarity and ARIMA models as we will start the course by briefly REVISING these concepts. EXCHANGE STUDENTS OR STUDENTS FROM THE MASTER OF FINANCIAL ECONOMICS: You are welcome to take the course but you should realize that your background may not be sufficient. If you studied a standard Bachelor economics or business program, and you do not fulfill the prerequisites stated above, it is NOT advised to take this course.
Transitional Regulations	TRANSITIONAL REGULATIONS <ul class="trcohorts"> - Master Business Research - Master Business Research - Operations Research - In 2024-2025 and 2025-2026 education and exam/resit opportunities are offered. - In 2026-2027 exam/resit opportunities are offered. - From 2027-2028 onwards, the course is cancelled. <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>2024-2025 - 2025-2026</td><td>X</td><td>X</td><td> </td></tr><tr><td>2026-2027</td><td> </td><td>X</td><td> </td></tr><tr><td>2027-2028 onwards</td><td> </td><td> </td><td> </td></tr></tbody></table>
Teaching methods	PBL / Presentation / Lecture / Assignment / Papers / Groupwork
Assessment methods	Participation / Written Exam / Assignment / Presentation
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

Master Business Research - No specialisation	In transition - Y2 Free Electives
Master Business Research - Operations Research	In transition - Year 1+2 Elective Courses
Master Econometrics and Operations Research	E&OR Electives
Master Economic and Financial Research - Econometrics	Elective Courses
Master Economic and Financial Research - Econometrics	Year 1 Core Courses
Master Economic and Financial Research - No specialisation	Elective Courses
Master Financial Economics - Asset Pricing	Elective Courses
Master Financial Economics - Banking	Elective Courses
Master Financial Economics - Financial Analysis	Elective Courses
Master Financial Economics - No specialisation	Elective Courses
SBE Exchange Master	Master Exchange Courses
SBE Non Degree Courses	Master Courses