Course Descriptions None 2023-2024

Course Title	Stochastic Processes
Course Code	EBC4004
ECTS Credits	6,5
Assessment	Whole/Half Grades
Period	see table below

Period	Start	End	Mon	Tue	Wed	Thu	Fri
1	4-9-2023	20-10-2023		X	L		

Level	Advanced
Coordinator	Michael Eichler For more information:m.eichler@maastrichtuniversity.nl
Language of instruction	English
Goals	The purpose of the course is to introduce students to the study of stochastic processes in discrete and continuous time. Students will have learned the essentials of the subject and should be able to apply the acquired theoretical tools to problems in econometrics, economics, finance, and other fields.
Description	Deterministic dynamic systems are usually not well suited for modelling real world dynamics in economics, finance and business. Allowing for random components in dynamic systems leads to stochastic dynamic modelling, which is based on stochastic processes. This course covers models of stochastic processes in discrete and continuous time. This includes Markov chains, Poisson processes and Brownian motion. We introduce various tools that are very useful for deriving and understanding the asymptotic properties of modern econometric techniques. They include the functional central limit theorem and stochastic integrals. Finally, we discuss stochastic differential equations and their applications in finance and related fields, e.g. for pricing financial derivatives.
Literature	Mikosch, T., (1998), Elementary stochastic calculus, World scientific Publishing, Singapore. Reader.
Prerequisites	Only Master students can take Econometrics Master courses. Students require a solid background in mathematical statistics and probability theory on the level of the BSc Econometrics programme. An advanced level of English.
Teaching methods	PBL / Lecture / Assignment
Assessment methods	Participation / Written Exam
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	see table below

Master Business Research - No specialisation	Year 2 Methodology Elective(s)
Master Business Research - Operations Research	Year 1 Compulsory Course(s)
Master Econometrics and Operations Research	Compulsory Course(s)
Master Economic and Financial Research - Econometrics	Year 1 Compulsory Course(s)
Master Economic and Financial Research - No specialisation	Elective Course(s)
Master Financial Economics - Asset Pricing	Elective Course(s)
Master Financial Economics - Banking	Elective Course(s)
Master Financial Economics - Financial Analysis	Elective Course(s)
Master Financial Economics - No specialisation	Elective Course(s)
SBE Exchange Master	Master Exchange Courses
SBE Non Degree Courses	Master Courses