Course Descriptions None 2020-2021

Course Title	Game Theory and Optimisation
Course Code	EBC4188
ECTS Credits	6,5
Assessment	Whole/Half Grades

Period

Period	Start	End	Mon	Tue	Wed	Thu	Fri
1	31-8-2020	16-10-2020	X			X	

Level	Advanced
Coordinator	Dries Vermeulen For more information:d.vermeulen@maastrichtuniversity.nl
Language of instruction	English
Goals	This course provides a comprehensive overview of optimization techniques such as linear and integer programming, and non-linear programming, with applications in game theory and economics. Students learn optimization techniques from mathematics and operations research, and how to apply them in models from game theory and economic theory.
Description	PLEASE NOTE THAT THE INFORMATION ABOUT THE TEACHING AND ASSESSMENT METHOD(S) USED IN THIS COURSE IS WITH RESERVATION. THE INFORMATION PROVIDED HERE IS BASED ON THE COURSE SETUP PRIOR TO THE CORONAVIRUS CRISIS. AS A CONSEQUENCE OF THE CRISIS, COURSE COORDINATORS MAY BE FORCED TO CHANGE THE TEACHING AND ASSESSMENT METHODS USED. THE MOST UP-TO-DATE INFORMATION ABOUT THE TEACHING/ASSESSMENT METHOD(S) WILL BE AVAILABLE IN THE COURSE SYLLABUS. Topics in optimization include duality theorems in LP, branch and bound and cutting plane algorithms in IP, and Kuhn-Tucker conditions for NLP. Topics in game theory and economics include computation of Nash equilibrium and refinements and mechanism design.
Literature	The course will be based on chapters from standard textbooks plus additional readers. Recommended literature for background reading: * Hans Peters : Game Theory : A Multi-Leveled Approach. Springer-Verlag. * Stephen Boyd and Lieven Vandenberghe : Convex Optimization. Cambridge University Press. * Roger Myerson : Game Theory : Analaysis of Conflict. Harvard University Press. * L.J. Vanderbei : Linear Programming - Foundations and Extensions. 4th Edition, Springer. * Jorge Nocedal and Stephen J. Wright : Numerical Optimization. 2nd Edition, Springer.
Prerequisites	Only Master students can take this course. Exchange students need to have obtained a BSc degree in Economics, International Business, Econometrics, or a related topic. Familiarity with the basic concepts of optimization and linear programming will be helpful. A solid basis in mathematics and calculus is also recommendable.
Teaching methods	PBL / Lecture
Assessment methods	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

Master Business Research - No specialisation	Year 2 Free 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 Core Course(s)
Master Economic and Financial Research - Econometrics	Year 1 Elective Course(s)
Master Economic and Financial Research - Econometrics	Year 2 Elective Course(s)
Master Economic and Financial Research - No specialisation	Year 2 Elective Course(s)
SBE Exchange Master	Master Exchange Courses
SBE Non Degree Courses	Master Courses