

## Course Descriptions Master 2019-2020

Course Title	Game Theory																
Course Code	EBC4146																
ECTS Credits	6,5																
Assessment	None																
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>2-9-2019</td> <td>25-10-2019</td> <td>X</td> <td></td> <td></td> <td>X</td> <td></td> </tr> </tbody> </table>	Period	Start	End	Mon	Tue	Wed	Thu	Fri	1	2-9-2019	25-10-2019	X			X	
Period	Start	End	Mon	Tue	Wed	Thu	Fri										
1	2-9-2019	25-10-2019	X			X											
Level	Advanced																
Coordinator	Hans Peters For more information:h.peters@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	<p>Topics in optimization include duality theorems in LP, branch and bound and cutting plane algorithms in IP, and Kuhn-Tucker conditions for NLP.</p> <p>Topics in game theory and economics include computation of Nash equilibrium and refinements, selfish routing in networks and the price of anarchy, and non-emptiness of the core.</p>																
Literature	<p>The course will be based on chapters from standard textbooks plus additional readers.</p> <p>Recommended literature for background reading :</p> <p>Hans Peters : Game Theory : A Multi-Leveled Approach. Springer-Verlag.            David Luenberger and Yinyu Ye : Linear and Nonlinear Programming.            Stephen Boyd and Lieven Vandenberghe : Convex optimization. Cambridge University Press.            Christos H. Papadimitriou and Kenneth Steiglitz : Combinatorial Optimization: Algorithms and Complexity.            Laurence A. Wolsey and George L. Nemhauser : Integer and Combinatorial Optimization, John Wiley &amp; Sons.            Sebastian Bubeck (2015) : Algorithms and complexity. Foundations and trends in machine learning 8 (231-358).            Roger Myerson : Game Theory : Analysis of Conflict. Harvard University Press.</p>																
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 <a href="http://iwio-sbe.maastrichtuniversity.nl/rapporten.asp?referrer=codeUM">http://iwio-sbe.maastrichtuniversity.nl/rapporten.asp?referrer=codeUM</a>																
This course belongs to the following programme / specialisation	<table border="0"> <tr> <td>Master Business Research - No specialisation</td> <td>Year 2 Free Elective(s)</td> </tr> <tr> <td>Master Business Research - Operations Research</td> <td>Year 1 Elective Course(s)</td> </tr> <tr> <td>Master Business Research - Operations Research</td> <td>Year 2 Elective Course(s)</td> </tr> <tr> <td>Master Economic and Financial Research - Econometrics</td> <td>Year 2 Elective Course(s)</td> </tr> <tr> <td>Master Economic and Financial Research - No specialisation</td> <td>Year 2 Elective Course(s)</td> </tr> <tr> <td>SBE Exchange Master</td> <td>Master Exchange Courses</td> </tr> <tr> <td>SBE Non Degree Courses</td> <td>Master Courses</td> </tr> </table>	Master Business Research - No specialisation	Year 2 Free Elective(s)	Master Business Research - Operations Research	Year 1 Elective Course(s)	Master Business Research - Operations Research	Year 2 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		
Master Business Research - No specialisation	Year 2 Free Elective(s)																
Master Business Research - Operations Research	Year 1 Elective Course(s)																
Master Business Research - Operations Research	Year 2 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																