

Course Descriptions None 2024-2025

Course Title Operations Research
 Course Code EBC2106
 ECTS Credits 6,5
 Assessment Whole/Half Grades

Period	Start	End	Mon	Tue	Wed	Thu	Fri
4	3-2-2025	30-3-2025	L		X		X

Level Advanced
 Coordinator Tjark Vredevelde For more information:t.vredevelde@maastrichtuniversity.nl
 Language of instruction English

Goals Application of deterministic and stochastic techniques to theoretical and practical optimisation problems in OR.

Description The course concentrates on algorithmic techniques to approach both theory and practice of problem solving in Operations Research. As a foundation, we start with an introduction to problem encoding and analysis of algorithms and computation times. The focus is then on classical problems from Combinatorial Optimisation, namely shortest path problems, minimum spanning trees, maximum flow and minimum cost flow problems. For all problems, one or several algorithms will be discussed and analysed in-depth. Finally, we study the foundations of stochastic processes and Markov Chains, with applications to the analysis of queues and queueing systems

Literature "Network Flows" by Akuja, Magnanti, and Orlin (chapters 2-7, 9, 12, 13). In addition, several chapters of other textbooks in Combinatorial Optimization and Operations Research, and own reader.

Prerequisites Analysis, linear algebra, basic probability theory, linear programming (modelling and solving), programming. Exchange students need to be aware that very specific pre-knowledge is required for this course. A solid background in mathematics is necessary.

Teaching methods PBL / Lecture / Assignment / Groupwork

Assessment methods Final Paper / 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	Bachelor Econometrics and Operations Research	Year 2 Compulsory Course(s)
	SBE Exchange Bachelor	Bachelor Exchange Courses
	SBE Exchange Master	Bachelor Exchange Courses
	SBE Non Degree Courses	Bachelor Courses
	Pre-master Econometrics and Operational Research	Compulsory Course(s)