# Course Descriptions None 2021-2022

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

Period

| Period | Start | End | Mon | Tue | Wed | Thu | Fri |
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| 4 | 31-1-2022 | 25-3-2022 | L | | X | | X |

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| Level | Advanced |
| Coordinator | Tjark Vredeveld For more information:t.vredeveld@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 Optimiziation 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

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| 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 |