

## Course Descriptions NonDegree 2021-2022

Course Title Algorithms and Optimisation  
 Course Code EBC4049  
 ECTS Credits 6,5  
 Assessment Whole/Half Grades

| Period | Start      | End        | Mon | Tue | Wed | Thu | Fri |
|--------|------------|------------|-----|-----|-----|-----|-----|
| 2      | 25-10-2021 | 10-12-2021 | X   |     |     | X   |     |

Level Advanced

Coordinator Stan van Hoesel For more information:s.vanhoesel@maastrichtuniversity.nl

Language of instruction English

Goals Students learn how to recognize NP-hard optimization problems, and to formulate them. Moreover, the students learn to select appropriate exact and/or heuristic methods to solve the problems.

Description We introduce complexity theory. We discuss exact optimization algorithms as well as approximate algorithms for NP-hard problems. Students learn how standard techniques from mathematical programming, combinatorial optimisation, and heuristics and search methodologies work, and learn to read research articles and to give presentations on the subjects.

Literature \* L.A. Wolsey Integer Programming (2nd edition, 2021),  
 Edmund K. Burke and Graham Kendall (eds.) Search Methodologies, Springer, Boston, MA, 2014  
 \* Various research articles

Prerequisites Game theory and Optimization (EBC4188)

Teaching methods PBL / Presentation / Lecture / Papers / Groupwork / Coaching

Assessment methods Attendance / Presentation

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 Methodology Elective(s) |
| Master Business Research - Operations Research | Year 1 Compulsory Course(s)    |
| Master Business Research - Operations Research | Year 1 Elective Course(s)      |
| Master Business Research - Operations Research | Year 2 Elective Course(s)      |
| Master Econometrics and Operations Research    | Elective Course(s)             |
| SBE Non Degree Courses                         | Master Courses                 |