

## Course Descriptions None 2018-2019

Course Title Operations Research Applications  
Course Code EBC4187  
ECTS Credits 6,5  
Assessment None

Period	Start	End	Mon	Tue	Wed	Thu	Fri
5	15-4-2019	7-6-2019	C				

Level Advanced  
Coordinator Andre Berger For more information:a.berger@maastrichtuniversity.nl  
Language of instruction English

Goals Students learn how to apply general techniques from mathematical programming and combinatorial optimisation to specific classes of problems as well as to real-life applications in these areas. This includes the mathematical analysis of approximation algorithms and heuristics for these applications. Students will learn how to read state-of-the-art research articles, to understand the technical details, and to give presentations on the subjects.

Description This course is devoted to mathematical models and solution methods in logistics and telecommunication. Based on recent articles from scientific journals, we review classical as well as new optimisation models from problem domains such as facility location, vehicle routing, personnel scheduling, network design, traffic network analysis, railway planning, optical telecom networks, frequency planning for GSM-networks, and site location in UMTS. These problems are analysed with respect to solvability, complexity, and approximability. In particular, exact and approximation algorithms as well as heuristic techniques for these problem are studied. Students will learn how techniques learned from the courses "Algorithms and Optimisation" and "Modelling and Solver Technology" are applied to real world problems, and how these techniques can be refined in order to address specific problem structures.

Literature Recent research articles and lecture notes will be provided.

Prerequisites Students have to be familiar with the subjects of the Master courses "Algorithms and Optimisation" and "Modelling and Solver Technology" from the Master programme Econometrics and Operations Research. This includes at least basic algebra, linear programming, problems and techniques from combinatorial optimisation and complexity theory. Programming abilities in C++ and CPLEX.

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

Assessment methods Final Paper / Participation

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 - Operations Research	Compulsory Courses
Master Econometrics and Operations Research	Econometrics & OR Electives
Master Econometrics and Operations Research	Operations Research