

Course description for International Master's program „Mathematical Modeling, Computation and Optimization“

<b>Course Name</b>	Graph Theory
<b>Contents and Objectives</b>	<p><u>Contents:</u></p> <ul style="list-style-type: none"> <li>• basic terminology: graph, tree, connectivity, chromatic number, distance, isomorphism, minor</li> <li>• connectivity properties and results</li> <li>• graph factors</li> <li>• graph coloring</li> <li>• planarity</li> </ul> <p><u>Objectives of the course:</u> Getting acquainted with basic concepts, notions and proof techniques in graph theory including some fundamental algorithmic approaches should enable to employ these techniques fruitfully for setting up appropriate models in other contexts so that these allow for rigorous mathematical treatment and the development of efficient algorithmic approaches.</p>
<b>Teaching</b>	<p>This course consists of lectures and exercise sessions.</p> <ul style="list-style-type: none"> <li>• Lectures: Graph Theory (4h/week)</li> <li>• Exercises: Graph Theory (2h/week)</li> </ul>
<b>Prerequisites</b>	Basic proof techniques.
<b>Examination</b>	Oral exam (30 minutes)
<b>Credits</b>	8 ECTS points
<b>Frequency</b>	This course is given at least every second year.
<b>Workload</b>	The estimated total working time for this course is 240 hours.
<b>Duration</b>	This course is given during one semester.