

## Seminar Process Simulation

<b>Lecturer</b>	Prof. Dr. Maren Martens
<b>Conditions of participation</b>	<b>In terms of form:</b> None
	<b>In terms of content:</b> None
<b>Examination</b>	Scientific Paper
<b>Pre-examination requirements</b>	Active participation in group discussions, presentation of the scientific paper
<b>Part of final grade</b>	Yes
<b>Learning outcomes/ competencies</b>	<p>The students shall be able to answer a specific scientific question within a paper in English language, using relevant methods and means of scientific writing.</p> <p>In addition, they gained basic knowledge about computer based simulation and where its usage can be helpful.</p> <p><u>Knowledge/Understanding:</u></p> <p>The students know and understand the fundamentals of science and research and how they are applied to scientific papers. They learned correct citation and formatting of a scientific paper.</p> <p>In addition, they understand the range of applications as well as the objectives of process simulation; they can evaluate situations in which simulation is a helpful tool for process optimization. They understand how simple business processes can be modeled using a simulation tool (in general SimQuick).</p> <p><u>Abilities/Transfer:</u></p> <p>The students can properly answer relevant research questions within a study paper.</p> <p>In addition, they can identify weak points and bottlenecks of simple business processes from simulation results and derive suggestions for process improvements.</p>
<b>Contents</b>	<p>Part I:</p> <p>Introduction to the philosophy of science and standards in scientific writing (e.g., bachelor thesis)</p> <p>Part II:</p> <p>Simulation of economic processes, e.g., inventory management, manufacturing, waiting lines, project management</p> <ul style="list-style-type: none"> <li>• Areas of application and objectives of process simulation</li> <li>• Handling uncertainty</li> <li>• Implementing a process simulation with a computer</li> <li>• Analysis of simulation results/optimization of processes</li> </ul>
<b>Media</b>	Beamer with Laptop, Blackboard, Visualizer, Computer

<b>Literature</b>	<ul style="list-style-type: none"><li>• Gower, B. (2014): Scientific Method. An Historical and Philosophical Introduction, New York: Routledge.</li><li>• Skern, T. (2009): Writing Scientific English. A Workbook, Wien: UTB GmbH.</li><li>• Hartvigsen, D. (2016): SimQuick. Process Simulation with Excel, 3rd Edition. Charleston, SC: Create Space.</li><li>• Law, A. M. (2015): Simulation Modeling and Analysis, 5th Edition. New York, NY: McGraw-Hill Education.</li></ul>
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