

Module	Computer Models for Business Decisions
Semester	2
Responsible	Jürgen Cleve, Prof. Dr. rer. nat. <a href="http://www.wi.hs-wismar.de/~cleve">www.wi.hs-wismar.de/~cleve</a> +49 3841 753 7527
Lecturer	Jürgen Cleve, Prof Dr. rer. nat., Uwe Lämmel, Prof. Dr.-Ing.
Language	English
Curriculum	Core module in the degree programme Master of Business Systems
Type of teaching	Private studies according to study notes including literature research using textbooks or other sources. Workshop, case study, discussion group, application to course project. Support is given via the Learn Management System Stud.IP including information, references, or files. Various communication channels are used, including email, forum, chat, wiki pages or online tutorials. Work-based learning by linking information technology theory with workplace environment and experience.
Workload	Focussed work on the topics during the semester is required. A full-day workshop. Case study including term paper requires independent and focused attention. Approximately 110 hours self-study required.
Credit points	5
Prerequisites	Understanding of projects and their structure. Management and organisational experience. Knowledge in basic mathematics.
Module objectives	<p><b>Knowledge:</b> Students are able to manage mass data and a knowledge extraction process. Students know the benefits, possibilities, applications, and limits of Data Mining in order to solve business analysis issues. They know the “state of the art” in Data Mining.</p> <p><b>Skills:</b> Students learn to develop Data Mining applications and to manage Data Mining projects according to the CRISP-DM model. They know Data Mining applications, its benefits and limits.</p> <p><b>Competencies:</b> Students gain competencies in the application of data analysis in all kinds of business decision processes. Data Mining requires and trains creative work as well as social skills. Working on the topics trains self-management and personal responsibility.</p>
Content	<p>Four key areas are addressed:</p> <ul style="list-style-type: none"> <li>• The data mining process as part of the decision process: data pre-processing, analysis and interpretation,</li> <li>• Principles of data mining,</li> <li>• Types of data; structured, semi-structured, and unstructured data,</li> <li>• Various data mining techniques; classification, clustering, prognosis, association rules are assessed, using typical real-world situations,</li> </ul> <p>Topics are addressed in project work. KNIME - Konstanz Information Miner, <a href="http://www.knime.org">www.knime.org</a> - is used for training.</p> <p>Techniques will be related to participants' experience and workplaces. Thus, knowledge management will be discussed for real-world situations and processes.</p>
Examination	Review of case study, oral presentation or written exam. Assessment details will be provided at the beginning of the semester.
Reading list	<p>The basic textbook is:</p> <ul style="list-style-type: none"> <li>• Bramer, Max: Principles of Data Mining, Springer, 2013.</li> </ul> <p>Details to the relevant chapters are provided at the beginning of the lecture. Following the requirements of the European Qualification Framework (EQF) students will be encouraged to elaborate knowledge on their own by running a literature research on the topics addressed in the set of slides. Some sources:</p> <ul style="list-style-type: none"> <li>• Robert Callan: The Essence of Neural Networks, Pearson Education, 2002.</li> <li>• Cleve, J.; Lämmel, U.: Data Mining, Hanser, 2014.</li> </ul> <p>More references will be given in the learn management system Stud.IP.</p>

<b>Notes</b>	Topics are related to data management, business processes, or project management.
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