

*Business Intelligence and Data Mining in Tourism*

<b>Module:</b>		<i>Business Intelligence and Data Mining in Tourism</i>			
<b>Acronym:</b>		<b>Semester:</b>	<b>Type:</b>		
BIT		2nd semester/ once a year in Summer semester	Elective module		
<b>EMMA Code:</b>		<b>Module coordinator:</b>	<b>Lecturers:</b>		
		Prof. Dr. Claudia Brözel	Prof. Dr. Wolfram Höpken (in cooperation with the HS Weingarten) + visiting lecturer		
<b>Sub-modules:</b>		<b>Examination prerequisite(s):</b>	<b>Examination form(s):</b>	<b>Weekly hours per semester:</b>	<b>ECTS:</b>
		Group exercise in Data-Mining techniques + presentation	(H) term paper R (ES)	4	6
<b>Workload (h):</b>		<b>Teaching form(s):</b>		<b>Language:</b>	
180 h		lecture, seminar, tutorial		englisch	
<b>Course prerequisites:</b>		<b>Recommended connections:</b>		<b>Usability in other curricula:</b>	
Profound knowledges in statistics are required		SMART Tourism			
<b>Content:</b>					
<p>The course introduces into the field of Data Mining and Big Data in a practice-oriented way and teaches basics and techniques in data analysis. The students gain hands-on experience in the usage of the discussed techniques by operating the Data Mining tool RapidMiner. To underline the practical orientation of the course the students get the chance to apply their gained knowledge on real data.</p> <p>The following subjects will be discussed in the course:</p> <ul style="list-style-type: none"> <li>• Data Mining <ul style="list-style-type: none"> <li>○ Basic techniques in data processing</li> <li>○ explorative data analysis and OLAP</li> <li>○ association rules</li> <li>○ Supervised Learning (Classification)</li> <li>○ Unsupervised Learning (Cluster-Building)</li> </ul> </li> <li>• Web Data Mining <ul style="list-style-type: none"> <li>○ Web-Search &amp; link analysis</li> <li>○ Extraction structured data: Web Crawling &amp; Wrapper-Generation</li> <li>○ Social Media Analysis and Sentiment Analysis</li> <li>○ Web Usage Mining</li> <li>○ Recommender systems and Targeting</li> </ul> </li> </ul> <p>This module handels with content that could be brought into a line with the following <a href="#">sustainable development goals (SDG)</a></p> <ul style="list-style-type: none"> <li>• 4. Quality education</li> <li>• 5. Gender equality</li> <li>• 9. Industry, Innovation, and Infrastructure</li> <li>• 17. Partnerships for the goals</li> </ul>					
<b>Goals:</b>				<b>percenta ge</b>	<b>indexing DQR</b>
<b>Prof essi</b>	knowledge	The Students will be able to mention and describe all current processes of Data Mining and Web Data Mining		20	7

	skills	The Students will be able to classify the different processes in a global framework of Data Mining in order to decide which system is the right one. They will be able to explain fundamental operating modes of Data Mining processes and point out special features and preconditions. The students can apply Data Mining processes on practically problems of data analysis by using the Data Mining tool RapidMiner and will be able to design the related Data Mining Processes.	30	7
<b>Personnel competences</b>	Social competence	The course participants develop their results by splitting their tasks in their teams and work on questions that are derived from existing problems in the tourism sector. They present and discuss their results to the course.	20	8
	autonomous working	The students develop independently related topics and reflect in addition to the lecture and the tutorials current industry information. They associate them with the industry context in a reflective way.	30	8
<b>Literature:</b>				
<p>Larose, D. T. (2005): <i>Discovering Knowledge in Data: An Introduction to Data Mining</i>. Wiley.</p> <p>Liu, B. (2008): <i>Web Data Mining – Exploring Hyperlinks, Contents, and Usage Data</i>. Springer-Verlag, Berlin.</p> <p>Höpken, W., Keil, D., Fuchs, M., Lexhagen, M. (2015): Business intelligence for cross-process knowledge extraction at tourism destinations. <i>Information Technology &amp; Tourism</i>, 15(2), pp. 101-130.</p> <p>Fuchs, M., Höpken, W., Lexhagen, M. (2014): Big Data Analytics for Knowledge Generation in Tourism Destinations – A Case from Sweden. <i>Journal of Destination Management &amp; Marketing</i>, 3(4), pp. 198-209.</p> <p>Höpken, W., Fuchs, M. &amp; Lexhagen, M. (2014): The Knowledge Destination – Applying Methods of Business Intelligence to Tourism Applications. In: Wang, J. (ed.) <i>Encyclopedia of Business Analytics and Optimization</i>, IGI Global, Hershey, PA, pp. 2542-2556.</p> <p>Schmunk, S., Höpken, W., Fuchs, M., Lexhagen, M. (2014): Sentiment analysis – extracting decision-relevant knowledge from UGC. In: Xiang, Z., Tussyadiah, I. (eds.). <i>Information and Communication Technologies in Tourism</i>, Springer, Heidelberg, pp. 253-265.</p> <p>Höpken, W., Fuchs, M., Keil, D., Lexhagen, M. (2011): The Knowledge Destination – A Customer Information-based Destination Management Information System. In: Law, R., Fuchs, M., Ricci, F. (eds.). <i>Information and Communication Technologies in Tourism</i>, Springer, New York, pp. 417-429.</p> <p>RapidMiner: <a href="http://www.rapidminer.com">www.rapidminer.com</a></p>				

**Last update of the Module Description:**

*Prof. Dr. Claudia Brözel (12.4.2019)*