

Modul-Nr./ Module Code	INNOM1800	
Modulbezeichnung / Name of Module	Selected Topics III: Data Science & AI for Business Innovation	
Semester	2 nd	
Dauer des Moduls / Length of module	1 semester	
Art des Moduls (Pflicht, Wahl, etc.) / Module type (Compulsory, Elective etc.)	Compulsory subject	
Ggfs. Lehrveranstaltungen des Moduls / if applicable: Sub-module	INNOM1810 Business Applications of Data Science & AI	
	INNOM1820	Introduction and communication of AI in organisations
Häufigkeit des Angebots des Moduls / The module is provided	Annually (summer semester)	
Zugangsvoraussetzungen / Prerequisites for attending	None	
Verwendbarkeit des Moduls für andere Module und Studiengänge / Applicability of the module for other modules and degree courses	All computer science related majors and business majors with a Data Science/AI fundamentals component.	
Modulverantwortliche/r / Lecturer in charge	WS4	
Name der/des Hochschullehrer/s / Name of the lecturer	WS4	
Lehrsprache / Language of Instruction	English	
Zahl der zugeteilten ECTS-Punkte / Number of ECTS credits	3	6
	3	
Gesamtworkload und ihre Zusammensetzung / Workload and its composition	180 hours (64 self-study; 116 contact time)	
SWS / Contact hours per week	2	4
	2	
Art der Prüfung (Voraussetzung für die Vergabe von Leistungspunkten) / Type of assessment (Requirements for awarding credit points)	Written Examination 1 hour with Application practice (30 hours)	
Gewichtung der Note in der Gesamtnote / Percentage of overall mark	11,11 %	
Qualifikationsziele des Moduls / Learning outcomes of the Module	<p><u>Knowledge & Understanding</u> Students are familiar with fundamental issues, techniques, and methods of Data Science and AI. They understand selected examples of applications of data analysis and AI in the business environment. Students know how actionable insights can be gained in complex scenarios using appropriate methods and tools. They understand that a process of analysis, prediction, or interpretation always requires modeling and is a work of abstraction.</p> <p><u>Applying knowledge and Understanding</u> Students are able to apply software tools and corresponding processes to apply data science or AI methods to typical business problems and scenarios. They can design</p>	

	<p>suitable solutions for data-oriented analysis, classification and prediction problems in the context of typical applications in the business domain.</p> <p><u>Making judgements</u> Students are able to formulate alternative solutions for applying Data Science or AI to a concrete problem. They are able to analyse and critically evaluate the suitability of the developed solution concepts with regard to meeting the requirements of the problem and their respective advantages and disadvantages.</p> <p>Students are able to critically question the concrete use of specific methods of data analysis or AI in the business environment and to assess the limitations of specific models. They are able to provide argumentative support for the insights gained and the solution concepts developed and the decisions made.</p> <p><u>Communication</u> Students are able to critically reflect on and communicate their insights and assessments from the use of Data Science and AI in a given business scenario in a generally understandable way.</p> <p><u>Learning skills</u> Following a constructivist approach new concepts are worked out using examples and case studies in dialogue with the students. Students develop their skills of constructivist learning through the use of appropriate tools and application environments for AI and Data science. This is deepened in subsequent assignments in small groups and individually.</p> <p>Small teams independently perform typical, practice-oriented tasks, document them and present them in plenary sessions. Students use relevant information sources (online, textbooks) to acquire new concepts based on examples.</p>
<p>Inhalte des Moduls / Syllabus</p>	<p>INNOM1810 Business Applications of Data Science & AI</p> <ul style="list-style-type: none"> • Prediction, classification, learning, inference

	<ul style="list-style-type: none"> • Software tools for data science and AI in the business environment • Analysis and interpretation of data • Data mining and data preparation • Modeling, simulation • Representative case studies from the business domain <p>INNOM1820 Introduction and communication of AI in organisations</p> <ul style="list-style-type: none"> • Introducing the use of Data Science/AI methods in organisations • Guiding principles for AI organisations • Presentation of Data Science/AI results • Identification of different stakeholders and their needs • Preparation of results for different target groups • Creation of a management summary • Presentation of Data Science/AI results to different target groups
<p>Lehr- und Lernmethoden des Moduls / Teaching methods of the module</p>	<p>Project work, group work, regular team meetings with the supervisor</p> <p>Seminar-like lecture, laboratory exercise, accompanying independent learning, work in application projects</p>
<p>Besonderes (z.B. Online-Anteil, Praxisbesuche, Gastvorträge, etc.) / Special Features</p>	<p>-</p>
<p>Literatur / Literature (Pflichtlektüre/zusätzlich empfohlene Literatur)</p>	<p>INNOM1810 Business Applications of Data Science & AI</p> <p>Provost & Fawcett (2013), Data Science for Business. O'Reilly</p> <p>Zumel, N. & Mount, J. (2019): Practical Data Science with R (2. Aufl.). Manning.</p> <p>Russell, S., Norvig, P. (2020), Artificial Intelligence (4th ed.). Pearson.</p> <p>https://www.elementsofai.com/</p> <p>Further literature and online material will be announced in the course.</p>

INNOM1820 Deployment and
communication of AI in organisations

Provost & Fawcett (2013), *Data Science for Business*. O'Reilly

Knaflic, C. N. (2015). *Storytelling with data: A data visualization guide for business professionals*. John Wiley & Sons.

Kruhse-Lehtonen, U., & Hofmann, D. (2020). How to define and execute your data and ai strategy.

Fjeld, J., Achten, N., Hilligoss, H., Nagy, A., & Srikumar, M. (2020). Principled artificial intelligence: Mapping consensus in ethical and rights-based approaches to principles for AI. *Berkman Klein Center Research Publication*, (2020-1).

Open Data Institute (2019), *Data Ethics Canvas*, <https://theodi.org/article/data-ethics-canvas/> (Letzter Zugriff: 13.05.2021)

Gürses, S., Troncoso, C., & Diaz, C. (2011). Engineering privacy by design. *Computers, Privacy & Data Protection*, 14(3), 25.

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