CURRICULUM M.Sc. DATA SCIENCE

myStudies, 120 ECTS Credits

	Model 1: Programme Start October			Model 2: Programme Start April		
Month	**Courses**			**Courses**		
Oct	Data Science	Use Case and Evaluation	Programming with Python			
Nov						
Dec						
Jan	Advanced Mathematics	Project: Data Science Use Case*	Software Engineering for Data Intensive Sciences*			
Feb						
Mar						
Apr	Advanced Statistics*	Big Data Technologies	Cyber Security and Data Protection	Data Science	Use Case and Evaluation	Programming with Python
May						
Jun	Lecture-Free Period					
Jul	Seminar: Data Science and Society	Machine Learning*1	Deep Learning*1	Advanced Mathematics	Project: Data Science Use Case*	Software Engineering for Data Intensive Sciences*
Aug						
Sep	Lecture-Free Period					
Oct	Case Study: Model Engineering*		Seminar: Current Topics in Data Science	Advanced Statistics*	Big Data Technologies	Cyber Security and Data Protection
Nov						
Dec						
Jan	Elective A Course a		Elective A Course b	Seminar: Data Science and Society	Machine Learning*1	Deep Learning*1
Feb						
Mar						
Apr	Elective B Course c		Elective B Course d	Case Study: Model Engineering*		Seminar: Current Topics in Data Science
May						
Jun	Lecture-Free Period					
Jul	Master Thesis			Elective A Course a		Elective A Course b
Aug						
Sep	Lecture-Free Period					
Oct				Elective B Course c		Elective B Course d
Nov						
Dec						
Jan				Master Thesis		
Feb						
Mar						

Elective A~

Data Science Specialist
- a) Manufacturing Methods Industry 4.0
- b) Project: Data Science for Industry 4.0*

Technical Project Lead
- a) IT Project Management
- b) Project: Technical Project Planning*

Data Engineer
- a) Data Engineering
- b) Project: Data Engineering*

Business Analyst
- a) Business Intelligence I
- b) Project: Business Intelligence*

Elective B~

Management
- c) Leadership
- d) Strategic Management

Sales, Pricing and Brand Management
- c) Global Brand Management
- d) Sales and Pricing

Consumer Behaviour and Research
- c) International Consumer Behavior
- d) Applied Marketing Research

Corporate Finance
- c) Corporate Finance
- d) Advanced Corporate Finance

Innovate and Change
- c) Change Management
- d) Innovation and Entrepreneurship

Cognitive Computing
- c) NLP and Computer Vision*
- d) Advanced NLP and Computer Vision*

Applied Autonomous Driving
- c) Architectures of Self-Driving Vehicles
- d) Case Study: Localization, Motion Planning & Sensor Fusion

Self Learning Systems
- c) Reinforcement Learning*
- d) Inference and Causality*

Industrial Automation and Internet of Things
- c) Industrial Automation
- d) Internet of Things

AI and Mastering AI Prompting
- c) Artificial Intelligence
- d) Project: AI Excellence with Creative Prompting Techniques

*Internship***

** By choosing the elective "Internship" you cannot qualify for the dual degree with LSBU.

INTERNATIONAL UNIVERSITY OF APPLIED SCIENCES

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Here you see the order in which you study your courses in presence depending on your personal study start in October or April. Each semester consists of two blocks. In each block, you attend classes on campus for usually three courses to deepen the content in direct exchange with your fellow students and lecturers.

You have lecture-free periods in both June and September, which you can spend reviewing and preparing for exams. Attending the courses on campus is mandatory and will be verified due to Visa regulations (not valid for DACH students).

Each block concludes with a two-week exam preparation phase. You can defer those exams to a later date that you do not want to take during this period. This way, your exam phases are always spread evenly over the year. Exceptions to this are courses that count as admission requirements for other courses.

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Attention: Attendance times may vary slightly depending on public holidays and the federal state holidays the campus is located in.

Note: You can already start with your thesis earlier than the designated block, once you have met the minumum amount of credit points required to enter.

~ Electives: Choose one module with two courses from the Elective A and one module from the Elective B.

Note: Those elective modules where the minimum number of participants is not reached will only be offered online (distance learning). However, IU ensures that there are always electives on campus.

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* This course comes with admissions requirements. Please consult the module handbook for more information.

1 These courses take place one after another within the same quarter.

Course Information

Module	Course Code	Course	ECTS Credits	Type of Exam
Data Science	DLMBDSA01	Data Science	5	Exam
Use Case and Evaluation	DLMDSUCE01	Use Case and Evaluation	5	Oral Assignment
Programming with Python	DLMDSPWP01	Programming with Python	5	Written Assessment: Written Assignment
Advanced Mathematics	DLMDSAM01	Advanced Mathematics	5	Exam
Project: Data Science Use Case*	DLMDSPDSUC01	Project: Data Science Use Case*	5	Portfolio
Software Engineering for Data Intensive Sciences*	DLMDSSEDIS01	Software Engineering for Data Intensive Sciences*	5	Oral Assignment
Advanced Statistics*	DLMDSAS01	Advanced Statistics*	5	Advanced Workbook
Big Data Technologies	DLMDSBDT01	Big Data Technologies	5	Oral Assignment
Cyber Security and Data Protection	DLMCSITSDP01	Cyber Security and Data Protection	5	Oral Assignment
Seminar: Data Science and Society	DLMDSSDSS01	Seminar: Data Science and Society	5	Written Assessment: Research Essay
Machine Learning*	DLMDSML01	Machine Learning*	5	Exam
Deep Learning*	DLMDSDL01	Deep Learning*	5	Oral Assignment
Case Study: Model Engineering*	DLMDSME01	Case Study: Model Engineering*	5	Written Assessment: Case Study
Seminar: Current Topics in Data Science	DLMDSSCTDS01	Seminar: Current Topics in Data Science	5	Written Assessment: Research Essay
ELECTIVE A~		e.g. Business Analyst	10	
ELECTIVE B~		e.g. Applied Autonomous Driving	10	
Master Thesis		Master Thesis	27	Master Thesis
		Thesis Defense	3	Presentation: Colloquium