

**CURRICULUM M.Sc. ARTIFICIAL INTELLIGENCE**

myStudies, 120 ECTS

Month	Model 1: Programme Start October			Model 2: Programme Start April			
	Courses			Courses			
Oct	Artificial Intelligence	Advanced Mathematics	Programming with Python				
Nov							
Dec							
Jan	Seminar: AI and Society	Advanced Statistics	Machine Learning				
Feb							
Mar							
Apr	Use Case and Evaluation <sup>1</sup>	Project: AI Use Case <sup>1</sup>	Inference and Causality	Artificial Intelligence	Advanced Mathematics	Programming with Python	
May							
Jun	Semester Break						
Jul	Deep Learning	NLP and Computer Vision	Software Engineering for Data Intensive Sciences	Seminar: AI and Society	Advanced Statistics	Machine Learning	
Aug							
Sep	Semester Break						
Oct	Reinforcement Learning	Seminar: Current Topics in AI	Use Case and Evaluation <sup>1</sup>	Project: AI Use Case <sup>1</sup>	Inference and Causality		
Nov							
Dec							
Jan	Elective A Course a	Elective A Course b	Deep Learning	NLP and Computer Vision	Software Engineering for Data Intensive Sciences		
Feb							
Mar	Elective B Course c	Elective B Course d	Reinforcement Learning	Seminar: Current Topics in AI			
Apr							
May	Semester Break						
Jun	Semester Break						
Jul	Master Thesis			Elective A Course a	Elective A Course b		
Aug							
Sep	Semester Break						
Oct				Elective B Course c	Elective B Course d		
Nov							
Dec							
Jan	Semester Break						
Feb	Master Thesis						
Mar	Master Thesis						



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 semester breaks in June and September. 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.



\* Electives: Choose one module from the Elective A and one module from the Elective B.

\*\* By choosing this elective you cannot qualify for the dual degree with LSBU.

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.



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



<sup>1</sup> These courses take place one after another within the same quarter.

**Elective A\***

<i>UI/UX Expert</i>	<i>Artificial Intelligence in FinTech**</i>	<i>AI in E-Commerce, Marketing and Demand Forecast**</i>
a) User Interface and Experience	a) Concepts of FinTechs and Artificial Intelligence	a) Introduction to AI in E-Commerce and Marketing
b) Project: Human Computer Interaction	b) Fraud Detection FinTechs	b) Demand Forecast and Inventory Control
<i>Technical Project Lead</i>	<i>Applied Autonomous Driving</i>	<i>Industrial AI**</i>
a) IT Project Management	a) Architectures of Self-Driving Vehicles	a) AI in Production
b) Project: Technical Project Planning	b) Case Study: Localization, Motion Planning and Sensor Fusion	b) Project: Industrial Internet of Things
<i>AI Specialist</i>	<i>Artificial Intelligence in Supply Chain Management**</i>	<i>Natural Language Processing and Voice Assistants**</i>
a) Advanced NLP and Computer Vision	a) Concepts of Artificial Intelligence in Supply Chain Management	a) Natural Language Processing
b) Project: NLP and Computer Vision	b) Multi-Agent Systems	b) Voice Assistants
<i>Data Engineer</i>	<i>AI in Healthcare and Medical Imaging**</i>	<i>Foundational Computer Vision**</i>
a) Data Engineering	a) AI in Healthcare	a) Image Processing and Low Level Vision
b) Project: Data Engineering	b) AI in Medical Imaging and Diagnostics	b) Mid-Level Vision and Video

**Elective B\***

<i>Management</i>	<i>Advanced Robotics 4.0</i>	<i>AI for Analytics, Personalization and Recommender Systems**</i>
c) Leadership	c) Industrial and Mobile Robotics	c) AI in Marketing and Analytics
d) Strategic Management	d) Project: Collaborative Robotics	d) Personalization and Recommender Systems
<i>Sales, Pricing and Brand Management</i>	<i>Robo Advisory and AI in FinTech**</i>	<i>Industrial Automation &amp; Computer Vision for Autonomous Systems**</i>
c) Global Brand Management	c) Robo Advisory	c) Industrial Automation
d) Sales and Pricing	d) AI in FinTech	d) Computer Vision for Autonomous Systems
<i>Consumer Behaviour and Research</i>	<i>Functional Security and Computer Vision for Autonomous Systems**</i>	<i>NLP and Innovative Technologies in Education**</i>
c) International Consumer Behavior	c) Functional Security	c) NLP in Education
d) Applied Marketing Research	d) Computer Vision for Autonomous Systems	d) NLP for Accessibility
<i>Corporate Finance</i>	<i>AI and its Application in Demand Forecast and Procurement**</i>	<i>Cognitive Computer Vision**</i>
c) Corporate Finance	c) Demand Forecast and Inventory Control	c) High-Level Vision
d) Advanced Corporate Finance	d) Artificial Intelligence in Procurement	d) Project: Computer Vision
<i>Innovate and Change</i>	<i>Medical NLP and Medical Robotics**</i>	<i>Internship**</i>
c) Change Management	c) Medical NLP	
d) Innovation and Entrepreneurship	d) Medical Robotics and Devices	

**Course Information**

Module	Course Code	Course	ECTS	Type of Exam
Artificial Intelligence	DLMAIA01	Artificial Intelligence	5	Exam
Advanced Mathematics	DLMDSAM01	Advanced Mathematics	5	Exam
Programming with Python	DLMDSPWP01	Programming with Python	5	Written Assignment
Seminar: AI and Society	DLMAISAI01	Seminar: AI and Society	5	Research Essay
Advanced Statistics	DLMDSAS01	Advanced Statistics	5	Advanced Workbook
Machine Learning	DLMDSML01	Machine Learning	5	Exam
Use Case and Evaluation	DLMDSUCE01	Use Case and Evaluation	5	Oral Assignment
Project: AI Use Case	DLMAIPAIUC01	Project: AI Use Case	5	Portfolio
Inference and Causality	DLMAIAC01	Inference and Causality	5	Advanced Workbook
Deep Learning	DLMDSDL01	Deep Learning	5	Oral Assignment
NLP and Computer Vision	DLMAINLPCV01	NLP and Computer Vision	5	Oral Assignment
Software Engineering for Data Intensive Sciences	DLMDSSEDSI01	Software Engineering for Data Intensive Sciences	5	Oral Assignment
Reinforcement Learning	DLMAIRL01	Reinforcement Learning	5	Written Assignment
Seminar: Current Topics in AI	DLMAISCTAI01	Seminar: Current Topics in AI	5	Research Essay
ELECTIVE A*		e.g. UI/UX Expert	10	
ELECTIVE B*		e.g. Robo Advisory and AI in FinTech	10	
Master Thesis		Master Thesis	27	Master Thesis
		Thesis Defense	3	Presentation: Colloquium