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MASTER (M.Sc.)

ARTIFICIAL INTELLIGENCE

AI is the sweet spot where mathematical minds meet creativity and vision for a better, more efficient world. A Master's in AI at IU provides you with key technical knowledge, tools, and training and helps you apply this to practical use cases for innovation or industry disruption.

The exciting thing about a degree in artificial intelligence? The huge scope of industries you can enter once graduated. You could move into computer science, automotive, mechanical engineering, healthcare, or even the arts—AI is driving change in nearly all sectors. With this degree, you'll not only have the right skills to achieve top-level career positions but also a great understanding of the social impacts, risks, and business opportunities that AI presents; making you highly attractive to future employers.

At IU, you can select one of four different AI master programmes, including a 120-credit option with specialisations, a shorter 60-credit degree in Artificial Intelligence, or the “Artificial Intelligence for Robotics” and “Artificial Intelligence for Autonomous Vehicles” both also worth 60 ECTS credits. We offer great flexibility in our courses and in our approach to learning to suit your style, speed, and interests.



Degree

Master of Science (M.Sc.)



Duration

Online: 12, 18, or 24 months (60 ECTS); 24, 36 or 48 months (120 ECTS)

On Campus: 24 months (120 ECTS)



Study start

Start (online studies): Anytime

Start (on campus) 120 ECTS: April 2023

(then 2 times a year; Oct or Apr)



Credits

60 or 120 ECTS



Study model and accreditation

- Online studies or On Campus (only 120 ECTS)
- German accredited institution, recognised by ZFU (German Central Office for Distance Learning)

Study Content (60 or 120 ECTS)

MODULE TITLE 60-ECTS MODEL	SEMESTER	CREDITS (ECTS)	TEST TYPE
	1		
Machine Learning		5 ECTS	E
Deep Learning		5 ECTS	OA
Use Case and Evaluation		5 ECTS	OA
Reinforcement Learning		5 ECTS	WAWA
Seminar: Current Topics in AI		5 ECTS	WARE
Project: AI Use Case		5 ECTS	P
	2		
Elective		10 ECTS	
Master Thesis & Colloquium		20 ECTS	WAMT & PC

1. PRESENCE TIMEFRAME	2. PRESENCE TIMEFRAME	MODULE TITLE 120-ECTS-MODEL	SEMESTER	CREDITS (ECTS)	TEST TYPE
			1		
Oct/Nov/Dec	Apr/May	Artificial Intelligence		5 ECTS	E
Oct/Nov/Dec	Apr/May	Advanced Mathematics		5 ECTS	E
Oct/Nov/Dec	Apr/May	Programming with Python		5 ECTS	WAWA
Jan/Feb/Mar	Jul/Aug	Seminar: AI and Society		5 ECTS	WARE
Jan/Feb/Mar	Jul/Aug	Advanced Statistics		5 ECTS	AWB
Jan/Feb/Mar	Jul/Aug	Machine Learning		5 ECTS	E
			2		
Apr/May	Oct/Nov/Dec	Use Case and Evaluation		5 ECTS	OA
Apr/May	Oct/Nov/Dec	Project: AI Use Case		5 ECTS	P
Apr/May	Oct/Nov/Dec	Inference and Causality		5 ECTS	AWB
Jul/Aug	Jan/Feb/Mar	Deep Learning		5 ECTS	OA
Jul/Aug	Jan/Feb/Mar	NLP and Computer Vision		5 ECTS	OA
Jul/Aug	Jan/Feb/Mar	Software Engineering for Data Intensive Sciences		5 ECTS	OA
			3		
Oct/Nov/Dec	Apr/May	Reinforcement Learning		5 ECTS	WAWA
Oct/Nov/Dec	Apr/May	Seminar: Current Topics in AI		5 ECTS	WARE
Jan/Feb/Mar	Jul/Aug	Electives A		10 ECTS	
			4		
Apr/May	Oct/Nov/Dec	Electives B		10 ECTS	
Online		Master Thesis & Colloquium		30 ECTS	WAMT & PC

E = Exam, OA = Oral assignment, PC = Presentation: Colloquium, WB = Workbook, BWB = Basic Workbook, AWB = Advanced Workbook, WABT = Written assessment: Bachelor thesis, WACS = Written assessment: Case study, WAMT = Written assessment: Master thesis, WAPR = Written assessment: Project report, WARE = Written assessment: Research essay, WAWA = Written assessment: Written assignment, OPR = Oral project report, P = Portfolio, POP = Proof of Participation

CHOOSE YOUR ELECTIVES

Choose one elective from “Electives” list (60 ECTS):

- Advanced Robotics 4.0
- Applied Autonomous Driving
- Computer Vision and NLP

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

Choose one elective from “Electives A” list (120 ECTS):

- AI in E-Commerce, Marketing and Demand Forecast*
- AI in Healthcare and Medical Imaging*
- AI Specialist

- Applied Autonomous Driving
- Artificial Intelligence in FinTech*
- Artificial Intelligence in Supply Chain Management*
- Data Engineer
- Foundational Computer Vision*
- Industrial AI*
- et al.

Choose one elective from “Electives B” list (120 ECTS):

- Advanced Robotics 4.0
- AI and its Application in Demand Forecast and Procurement*

- AI for Analytics, Personalization and Recommender Systems*
- Cognitive Computer Vision*
- Consumer Behaviour and Research
- Corporate Finance
- Functional Security and Computer Vision for Autonomous Systems*
- Industrial Automation & Computer Vision for Autonomous Systems*
- Innovate and Change
- Internship**
- et al.

*These electives cannot be taken if you would like to receive a dual degree.

**Only available for on campus study programmes.

ELECTIVES

DATA ENGINEER

Explore the infrastructure of data science: from data storage to provision. Start out by covering the basics of data engineering, and advance to modern architectures such as microservices, along with a variety of other relevant topics. Take your first steps into the ever-important world of cloud computing, data protection and management, and DataOps.

TECHNICAL PROJECT LEAD

If you're considering a career that combines technical knowledge with managerial skills, then this specialisation is the right choice for you. Here, you'll develop the skill set required for owning and managing IT projects across different industries.

You'll start by learning the basic principles of project management, and how they apply to IT projects. You'll then be acquainted with common challenges faced by IT managers, how to identify them and what solutions to offer. You'll round out your expertise by exploring IT project organisation and planning, cost management and staffing and team leadership topics.

AI SPECIALIST

Start your journey as an AI specialist with an introduction to NLP (Natural Language Processing) and Computer Vision. This module then expands on machine learning and information extraction applications for text processing, and speech recognition and synthesis. To round off this specialisation, you'll learn about scene geometry restoration, semantic analysis of video and still images and object tracking.

CAREER OUTLOOK

With an IU master's degree in Artificial Intelligence, you will become a highly desirable candidate for career roles in all kinds of industries. You'll work with teams that are turning science fiction into reality and be able to drive innovation with your combination of technical expertise and communicative skills.

SENIOR AI SCIENTIST

A Senior AI Scientist is typically responsible for designing and developing AI-based systems such as intelligent assistant systems and automated decision systems, often working at the intersection of human and artificial intelligence. Senior AI scientists might also be responsible for mentoring junior team members.

AI TEAM LEAD

AI Team leads need to be proficient in a wide range of skills. They are typically charged with the development of a team of senior and junior AI specialists—including hiring and personnel decisions. Team leads are typically also responsible for ensuring all projects are run on-scope and deliver high-quality results. As a team-leader you are often engaged with the internal and external stakeholders of projects and are consulted in the setup and scoping of new projects.

AI INTERACTION DESIGNER

Combining human and artificial intelligence is one of the big challenges building the workplace of the future. AI Interaction Designers are responsible for reshaping the work environment so that humans and AI systems can work together.

ADMISSION

GENERAL ADMISSION REQUIREMENTS

- Completed undergraduate degree from a public or officially recognised university/higher education institution.
- For 60-ECTS programmes, you will need to have already acquired 240 ECTS credits.
- For 120-ECTS programmes, you will need to have 180 ECTS credits.
- You must have achieved a final grade of at least "satisfactory" or Grade C equivalent in your previous undergraduate degree
- Proof of at least one year's professional work experience completed prior to the start of study programme. Work experience must have been gained after completion of your undergraduate studies

FURTHER ADMISSION OPPORTUNITIES

Depending on your previous education, the following entry options are applicable for the 60-ECTS Master's degree:

- undergraduate degree with 210 ECTS: you can bridge the gap of 30 ECTS points with the proof of one year qualified work experience
- undergraduate degree with 180 ECTS: you can bridge the gap of 60 ECTS points with the proof of two years qualified work experience

Recognition of knowledge and abilities acquired outside of higher education is possible in principle.

WORK EXPERIENCE

- Proof of at least one year's qualified work experience completed prior to the start of the study programme (the work experience must be gained after the completion of your undergraduate studies).
- Don't have a year's worth of qualified work experience? Don't worry! With the Scholarship Programme, you can start your studies right away, and gain your professional experience alongside your studies. You'll need to achieve the one year's worth of experience before you complete your Scholarship Programme.
- You can provide us a translation of your employment contract and your pay slip or you can ask your company to fill out this form in English, sign it, apply the company stamp and send it to us.

ADDITIONAL SPECIALIST KNOWLEDGE (60 ECTS)

To study the 60 ECTS version of this degree, you will need to have taken courses "**Programming with Python**" and "**Advanced Mathematics**" or demonstrate equivalent knowledge. You can take these courses online with us for free.

SCHOLARSHIP PROGRAMME: HELP GETTING STARTED

Start your online degree with our Scholarship Programme and receive a scholarship up to 67%! This helps you get started as a participant with immediate access to 50% of your courses even when you don't meet the full ECTS requirements yet. If you are lacking ECTS credits from your previous studies, you can demonstrate professional work experience instead.

- To start a 120-ECTS degree, you will need a minimum of 180 ECTS credits from your previous studies.
- To start a 60-ECTS degree, you will need a minimum of 240 ECTS credits from your previous studies but can "bridge" up to 60 ECTS with 2 years of professional experience.

Once all admissions documents are provided and any relevant admissions courses are complete, you can move forward and finish your degree.

Questions? Speak to one of our study advisors, they will guide you through every step of the process.

ENGLISH SKILLS

At IU, we teach in English to prepare you for the international market. We therefore ask for proof of your English language skills*. If English is your native language or you graduated from an English-speaking school/university, you don't need to prove your English skills.

Accepted certifications:

- English Courses (complimentary when signing up with IU)**
- TOEFL (min. 80 points) or
- IELTS (min. Level 6.0 out of 9 points) or
- Duolingo English test (min. 95 points) or
- Cambridge Certificate (min. B grade overall) or
- Equivalent proof

*Proof must be provided before the start of the study and must not be older than five years.

**Please note that English Courses aren't accepted as a language certificate for on campus study programmes.

8 STEPS TO COMPLETE YOUR STUDIES

1

Register and apply online

2

Choose your course

3

Download your study scripts

4

Work independently with study scripts

5

Take part in Q&A sessions

6

Prepare for exams and take them either:

- directly online, or
- at an IU examination centre (remember to register in time).

7

Master thesis and colloquium

8

Complete your studies with certificate