

Artificial Intelligence & Data Engineering¹

The Degree Program That Transforms Data into Intelligent Solutions

Artificial intelligence reaches its full potential only with high-quality data and powerful data infrastructure. The English-language Master's degree program "Artificial Intelligence & Data Engineering" combines Artificial Intelligence, Data Science, and modern Data Engineering into a future-focused master's program. It provides the theoretical foundations of modern AI methods and data-driven systems, preparing students to develop innovative applications. Students learn to collect, prepare, and analyze large volumes of data, as well as develop, operate, and continuously evolve intelligent systems. Current topics such as Generative AI, Deep Learning, Computer Vision, Natural Language Processing, Explainable AI, MLOps, and Cloud Computing provide the foundation for innovative applications in business, industry, healthcare, and the life sciences.

Career

Graduates develop data-driven applications and AI solutions for companies, research institutions, and organizations across a wide range of industries. Graduates work as AI Engineers, Data Engineers, Machine Learning Engineers, or Data Scientists in fields such as software development, industry, healthcare, biotechnology, pharmaceuticals, finance, or research. Their responsibilities include developing intelligent algorithms, processing large amounts of data, building modern data platforms, and implementing scalable, trustworthy AI systems.

Topics

- Artificial Intelligence & Machine Learning (Deep Learning, Generative AI, Reinforcement Learning)
- Data Engineering, Data Quality, Big Data & Data Warehousing
- Computer Vision, Natural Language Processing & Explainable AI
- Cloud Computing, High Performance Computing & MLOps
- Application domains: Industrial Data Analysis, Medical AI, Bio-statistics & Process Mining

Degree

- Master of Science in Engineering (MSc)

Duration

- 4 semesters (120 ECTS)

Annual Intake

- 20

Admission Requirements

- Completed Bachelor's degree or similar qualification in a relevant subject, with a minimum of 60 ECTS in IT-related subjects
- English language proficiency at B2 level

Application

- Online – details & deadlines on fh-ooe.at/application

Admission Procedure

- by interview

Language of Instruction

- English

Semester Abroad

- The flexible curriculum allows students to study at one of our partner universities.

Tuition Fees

- EU/EEA citizens: 363.36 EUR per semester (plus Austrian Student Union fee).
- Citizens from non-EU/EEA countries: 726.72 EUR per semester (plus Austrian Student Union fee).



Curriculum

Core and elective courses	ECTS / semester	1	2	3	4
→ Foundations					
Numerical Methods	5				
Multivariate Statistics	5				
Advanced Statistics & Visualization		5			
→ Artificial Intelligence					
Machine Learning Basics: Supervised, Unsupervised ML	5				
Heuristic & Evolutionary Algorithms	5				
Biomedical Data Science ¹	5				
Advanced Machine Learning (Deep Learning, Transfer Learning, Federated Learning, Transformer Models, Agentic AI)			5		
Modeling & Simulation ¹			5		
Neuro-Symbolic AI ¹			2,5		
Process Mining ¹			2,5		
Deep Reinforcement Learning ¹			2,5		
Medical AI ¹			2,5		
Computer Vision			5		
Intelligent Language Systems				5	
Theoretical Foundations of ML ¹				5	
Generative AI				2,5	
Explainable AI				2,5	
→ Data Engineering					
Big Data 1: Docker	2,5				
DAQ 1: Data Quality & Risk Management	2,5				
High Performance Computing ¹	5				
Big Data 2: Distributed Data Processing			2,5		
DAQ 2: Data Warehousing			2,5		
Quantum Computing & Security ¹				2,5	
Cloud Computing ¹				5	
DAQ 3: Feature Engineering				2,5	
→ Scientific Competences					
Master Thesis Proseminar				2,5	
Research Project				5	
Scientific Writing					2
Master's Thesis Seminar					2
Master's Thesis					24
Master's Exam					1
→ Complementary Competences					
FH OÖ Electives ¹	5			2,5	
Data Protection and Privacy				2,5	
Sustainability					1



Companies sit on mountains of data just waiting to be unlocked. In addition, organizations have access to external data from social media and the web. These datasets are massive – yet incomplete and noisy – but rich in information, rapidly growing, and complex. Data science enables us to extract deeper insights from all available data sources, which can then feed directly into decision-making processes – in every company and across every industry.

FH-Prof. PD DI Dr. Stephan Winkler, Head of Studies

¹ Elective course, offered subject to a sufficient number of participants.

ECTS: European Credit Transfer System

Note: Students have to achieve a minimum of 120 ECTS credits in total (30 ECTS credits per semester).

Practical Experience and Research

Beginning in the third semester, students apply their knowledge in practical research projects. Research projects cover a broad range of topics, with key areas focusing on data analysis for biomedicine, marketing, and production. Projects are carried out in collaboration with renowned industry and research partners.

Research groups at FH Upper Austria (especially at the Hagenberg Campus) also offer students opportunities to participate in research activities, e.g., in fields such as opinion mining, production data analysis, molecular biology data evaluation, and personalized medicine.

Go International

The degree program's excellent academic and industry network enables students and graduates to work and conduct research at leading universities, research institutes, and companies worldwide. These include voestalpine in Linz, Red Bull in Fuschl/Salzburg, Amazon in Austin (USA), EMBL in Heidelberg (Germany), EBI in Cambridge (UK), PwC in Sydney (AUS), and the Koch Institute at MIT in Boston (USA).

Good to Know

→ The degree program does not require prior specialization in the field of Artificial Intelligence, making it an excellent choice for graduates of other technical degree programs as well.

→ This program makes it easy to balance your studies with a part-time job, as classes are held Monday through Wednesday.

Kontakt

Head of Studies

→ FH-Prof. PD DI Dr. Stephan Winkler

Academic Coordinator

→ FH-Prof. MMag. Dr. Gerald Lirk

Program Administration

→ Mag.^a Sonja Pilz

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