DAAD

Deutscher Akademischer Austauschdienst
German Academic Exchange Service

INTERNATIONAL PROGRAMMES

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Master's degree

Artificial Intelligence and Data Science

Heinrich Heine University Düsseldorf • **Düsseldorf**

Overview

Degree	MSc
Teaching language	• English
Languages	Courses are held in English (100%).
Full-time / part-time	• full-time
Programme duration	4 semesters
Beginning	Winter semester
Application deadline	15 July
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	Artificial Intelligence (AI) and Data Science are the driving forces behind the fast-paced advances in digitalisation and automatisation that will change our everyday life. This two-year Master's programme focuses on the theoretical foundations of Artificial Intelligence and Data Science and their applications to real-world problems. Specialised lectures guide you towards specific research areas, such as natural language processing, computer vision, and analysis of biological/medical data. Central to this programme are machine learning methods and their applications, with a strong focus on deep learning. Choosing from a range of elective courses you can tailor the programme to your personal interests. As a graduate of the Artificial Intelligence and Data Science programme, you will have a solid understanding of the mathematical and statistical foundations of AI-related research. You will also have a good overview over state-of-the-art algorithms and an in-depth understanding of how to apply these algorithms to specific research problems. In addition, you will get the skills to carry out research in academic or R&D environments and to identify how techniques of Artificial Intelligence and Data Science can provide solutions to data-based IT problems in industry. There are no studying fees, except for a semester contribution of approx. 300 EUR.

Course Details

Course organisation	Every student in the programme takes the following four courses: • Advanced Programming and Algorithms (10 CP) • Machine Learning (10 CP) • Mathematical and Statistical Foundations of Data Science (10 CP) • Deep Learning (5 CP) Additionally, students have to complete the following: • Lab rotation I (10 CP) • Lab rotation II (10 CP) • Master's thesis (26 CP) • Master's thesis seminar (4 CP) Each student can select courses worth 35 CP (i.e., typically six to seven courses) from a broad range of electives. For these electives see our module handbook. » PDF Download
A Diploma supplement will be issued	Yes
International elements	• Language training provided • International guest lecturers • Projects with partners in Germany and abroad
Integrated internships	The programme includes two Lab Rotations (of six weeks each), during which students carry out practical work with research groups inside or outside HHU or in R&D environments at companies. The six weeks workload (10 ECTS) for a lab rotation need not to be taken in one block. The time a student needs to be physically present at the lab can be negotiated with the supervisor. Lab rotations are offered by all lecturers that give courses within the Master's programme and selected groups at the Jülich Research Centre (e.g., the Jülich Supercomputing Centre). Students must get in contact with research groups or R&D departments well ahead of time before the lab rotation starts. The supervisors of the lab rotation select among applicants based on their suitability for the project. Outside HHU, the two lab rotations can be combined into a three-month internship.
Course-specific, integrated German language courses	No
Course-specific, integrated English language courses	No

Costs / Funding

Tuition fees per semester in EUR	None
Semester contribution	A semester fee of approx. 320 EUR is required upon registration/enrolment as a student or doctoral researcher. This fee covers transport by bus, tram, and regional trains within North Rhine-Westphalia for the entire semester as well as the use of student facilities.

Costs of living	Students or doctoral researchers should calculate monthly expenses amounting to at least 1,000 EUR in order to live in a modest way, including costs for housing, food, health insurance, semester fees, study materials, etc.
Funding opportunities within the university	No

Requirements / Registration

Academic admission requirements	The course has restricted admission. A prerequisite for starting studies is a first university degree, with the required necessary background education as determined in the exam regulations. In brief, you need a Bachelor's degree in Mathematics, Computer Science, Physics, Electrical Engineering or a related area, whose curricula include the modules Analysis I + II, Linear Algebra I, and either Stochastics I or Numerics I, that together comprise 30 ECTS and were taught at a level that corresponds to the level for computer scientists at HHU. The exam board determines whether you fulfil the entrance requirements. The final grade of your Bachelor's degree must not be below 2.5 with respect to the German grading system. You can convert grades to the German system by using the "Bavarian Formula".
Language requirements	For a degree course that is completely in English, student applicants who have not obtained their academic qualification at an "English-language institution", who do not hold a Bachelor's degree/Master's degree that was completely taught in English, or who are not English native speakers must prove sufficient fluency in English. The following language certificates are accepted: 1. Test of English as Foreign Language (TOEFL), Paper-based (min 500 points), Computer-based (min 200 points), or Internet-based Test (IBT, min 80 points) 2. IELTS test with a score of at least 6.0. 3. Cambridge B2 First Certificate, formerly known as Cambridge English: First (FCE) 4. German Abitur certificate, showing that English has been constantly taken as a subject and passed with the grade of "sufficient" up to the end of the qualification level 1 (grade 11 at G8-Abitur, otherwise grade 12). We accept "English-language institutions" from the following countries: Australia, the United Kingdom, Ireland, Canada, New Zealand, the United States of America. Language certificates must be submitted during enrolment.
Application deadline	15 July
Submit application to	https://www.heicad.hhu.de/lehre/masters-programme-ai-and-data-science/application

Services

Possibility of finding part-time employment	A limited number of campus jobs are available. Students from non-EU countries are permitted to work 240 half days or 120 full days per calendar year without a work permit.
Accommodation	On-campus student accommodation is available, as is private accommodation near campus. For further information, please check http://www.stw-d.de or send an e-mail to info@stw-d.de. Doctoral students can contact the tutor service of the Junior Scientist & International Researcher Centre (JUNO) for information and support concerning accommodation in Düsseldorf

(www.juno.hhu.de/en/tutorservice).

Depending on the type of accommodation, the monthly rent in Düsseldorf usually ranges from around 500 to 600 EUR for a basic apartment or a room in a shared apartment ("Wohngemeinschaft").

Support for international students and doctoral candidates	• Accompanying programme
Supervisor-student ratio	1:5

Contact

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🌐 Course website: https://www.heicad.hhu.de/lehre/masters-programme-ai-and-data-science

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International Programmes in Germany - Database

www.daad.de/international-programmes
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