Learning how to turn real-world data sets into tools and useful insights, with the help of software and algorithms

Data plays a role in almost every scientific discipline, business industry, or social organisation. Medical scientists sequence human genomes, astronomers generate terabytes of data per hour, and the police employ data models that predict where crimes will occur. There is therefore an urgent need for data scientists in whole arrays of fields. In this specialisation you’ll learn how to turn data into knowledge and solutions, with the help of computers.

Why study this specialisation at Radboud University?

- The Institute for Computing and Information Sciences (iCIS) has a strong international reputation in areas such as machine learning, probabilistic modelling, and information retrieval.
- iCIS is leading in research on legal and privacy aspects of data science and on the impact of data science on society and policy.
- Our approach is pragmatic as well as theoretical.
- You can also take related courses at departments like language studies, artificial intelligence, chemistry, or biophysics.
- Exceptional students have the opportunity to study for a double degree with the specialisation in Web and Language Interaction (Artificial Intelligence).
Programme outline (2 years, 120 EC)
The programme of this specialisation consists of:
• Compulsory courses (18 EC)
• Specialisation electives (24 EC)
• Specialisation-external electives (12 EC)
• Free electives (12 EC)
• Philosophy and Ethics for Computing and Information Science (3 EC)
• Research seminar (6 EC)
• Research internship (15 EC)
• Master’s thesis (30 EC)

Students with a background in Artificial Intelligence have the possibility to follow Data Science and the Web & Language specialisation (offered by Artificial Intelligence) simultaneously in a period of three years. This results in a double Master’s degree in Computing Science and Artificial Intelligence.

Courses
Below you can find an overview of the compulsory courses and some examples of electives. Please have a look at the online prospectus (see 'More information') for more detailed information.

Compulsory courses
• Machine Learning in Practice (6 EC)
• Information Retrieval (6 EC)
• Bayesian Networks (6 EC)

Examples of specialisation electives
• Law in Cyberspace (6 EC)
• Natural Computing (6 EC)
• Statistical Machine Learning (6 EC)
• Text Mining (6 EC)

Research
This specialisation is focused on research. First you'll study scientific literature in the Research seminar. Next, during your research internship, you'll participate in a research project in a company, or scientific group. And in the Master's thesis you'll carry out your own research project, under the close supervision of our expert staff. At Radboud University, you can for example take part in the research of the Institute for Computing and Information Sciences (ru.nl/ics) on topics like:
• Machine learning
  > Prof. Elena Marchiori and Prof. Tom Heskes
• Information retrieval and recommender systems
  > Prof. Arjen de Vries and Prof. Martha Larson
• Privacy and law
  > Prof. Mireille Hildebrandt
You can also choose to perform an internship at another department, another university, a company or a research institute. There are, for example, close contacts with the Max Planck Institute in Germany. For other possibilities, you can always contact a lecturer or the student advisor (see 'More information').

Your advantages on the labour market
Industry desperately needs data science specialists at an academic level, and thus our graduates have no difficulty in finding an interesting and challenging job. A few of our graduates decide to go for a PhD and stay at the university, but most of our students go for a career in industry. They then typically either find a job at a larger company as consultant or data analyst, or start up their own company in data analytics.

Admission requirements
You are required to have a Bachelor's degree in Computing Science, Artificial Intelligence, or a closely related discipline. You must also have a sufficient proficiency in English.

Students from a University of Applied Sciences (HBO) need to follow a pre-Master’s in Computing Science. Other additional deficiency programmes are tailor-made. For details, please visit the website or contact the student advisor (see 'More information').

Application procedure
The programme starts in September. The application deadline is 1 April for students from non-EU/EEA countries and 1 May for students from within the EU/EEA.

You apply for the Master's programme in Computing Science via www.studielink.nl. After admittance to the Master’s programme, you can enrol for the specialisation in Data Science.

>>> More information

Prospectus: www.ru.nl/prospectus/sciencefaculty

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www.ru.nl/masters/datascience