

M.Sc. Data Science

1st semester	
18 CP	compulsory area and compulsory elective area "Machine Learning and Statistics"
12 CP	compulsory elective area "Specialization"
2nd semester	
18 CP	compulsory area and compulsory elective area "Machine Learning and Statistics"
12 CP	compulsory elective area "Specialization"
3rd semester	
12 CP	compulsory area and compulsory elective area "Machine Learning and Statistics"
18 CP	compulsory elective area "Specialization"
4th semester	
30 CP	Master's Thesis

What do you have to do for your degree in M.Sc. Data Science?

You must complete 120 CP based on modules described in detail in our module catalog. The 120 CP must be achieved through

- the compulsory modules amounting to at least 66 CP (incl. Master's thesis),
- the compulsory elective area "Machine Learning and Statistics" of at least 12 CP;
- the compulsory elective area "Specialization" of at least 42 CP. The specializations "Machine Learning and Statistics", "Computational Life-Sciences", "Human-Centred Data Science" and "Information Systems" are offered. If you complete these 42 CP from a single specialization following the conditions defined in each case, the completed specialization can be shown on your Master's certificate.

The specializations



The specialization "Machine Learning and Statistics" teaches the mathematical and statistical foundations of data science. It offers an in-depth insight into modern methods of machine learning and considers the inherent uncertainty in prediction models.



Graduates of the "Computational Life Science" specialization can develop and apply data science methods to biology questions to generate and test biological hypotheses. They have the basic biological expertise to pose relevant questions from biology and discuss them in interdisciplinary teams. They also have the methodological skills from mathematics, statistics, and computer science to formalize and solve data science problems from these questions.



In addition to a solid foundation in data science, the focus on human-centred computing offers specialization in problems of human-machine interaction, which are increasingly determined by the pre-processing of huge amounts of data. The focus is on concepts such as large language models as well as the associated ethical problems. Graduates will be able to systematically analyze problems in human-computer interaction (such as chatbots, text classification and recommender systems), develop practical, scalable solutions and evaluate them.



The "Information Systems" specialization provides in-depth knowledge at the interface between computer science content, business management aspects and economic framework conditions. Students learn to analyze and evaluate operational and cross-organizational information systems and to design effective, secure systems in order to make optimal use of the potential of new technologies and processes such as machine learning. In addition, they acquire the skills to further develop and critically apply advanced methods of business informatics and to both analyze and present their results.