# Course of Study Data Science (Study Cohort w23)

Sample course plan F  Bachelor Data Science (DSBS) Dual study program
Specialisation I. Mathematics/Computer Science, Specialisation II. Application

Legend

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| Core Qualification Compulsory | Specialisation Compulsory | Focus Compulsory | Thesis Compulsory |
| Core Qualification Elective Compulsory | Specialisation Elective Compulsory | Focus Elective Compulsory | Interdisciplinary complement |

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| 1 | **Discrete Algebraic Structures**<br>Discrete Algebraic Structures VL 2<br>Discrete Algebraic Structures GÜ 2 | **Automata Theory and Formal Languages**<br>Automata Theory and Formal Languages VL 2<br>Automata Theory and Formal Languages GÜ 2 | **Databases**<br>Databases VL 3<br>Databases - Exercise GÜ 2 | **Signals and Systems**<br>Signals and Systems VL 3<br>Signals and Systems GÜ 2 | **Introduction to Information Security**<br>Introduction to Information Security VL 2<br>Introduction to Information Security GÜ 2 | **Ethics in Information Technology**<br>Ethics in Information Technology VL 2<br>Ethics in Information Technology SE 2 |
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| 7 | **Procedural Programming for Computer Engineers**<br>Procedural Programming for Computer Engineers VL 2<br>Procedural Programming for Computer Engineers HÜ 1<br>Procedural Programming for Computer Engineers PR 2 | **Stochastics**<br>Stochastics VL 2<br>Stochastics GÜ 2 | **Numerical Mathematics I**<br>Numerical Mathematics I VL 2<br>Numerical Mathematics I GÜ 2 | **Graph Theory and Optimization**<br>Graph Theory and Optimization VL 2<br>Graph Theory and Optimization GÜ 2 | **Data Mining**<br>Data Mining VL 2<br>Data Mining PBL 2 | **Introduction into Medical Technology and Systems**<br>Introduction into Medical Technology and Systems VL 2<br>Introduction into Medical Technology and Systems PS 2<br>Introduction into Medical Technology and Systems HÜ 1 |
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| 13 | **Mathematics I (EN)**<br>Mathematics I VL 4<br>Mathematics I HÜ 2<br>Mathematics I GÜ 2 | **Foundations of Management**<br>Introduction to Management VL 3<br>Management Tutorial GÜ 2 | **Algorithms and Data Structures**<br>Algorithms and Data Structures VL 4<br>Algorithms and Data Structures GÜ 1 | **Seminars Computer Science**<br>Introductory Seminar Computer Science II SE 2<br>Introductory Seminar Computer Science I SE 2 | **Machine Learning II**<br>Machine Learning II VL 2<br>Machine Learning II GÜ 3 | **Bachelor thesis (dual study program)** |
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| 19 | | **Programming Paradigms**<br>Programming Paradigms VL 2<br>Programming Paradigms HÜ 1<br>Programming Paradigms PR 2 | **Statistics**<br>Statistics VL 3<br>Statistics GÜ 1 | **Scientific Programming**<br>Scientific Programming VL 3<br>Scientific Programming GÜ 2 | **Practical module 5 (dual study program, Bachelor's degree)**<br>Practical term 5 0 | |
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| 21 | **Practical module 1 (dual study program, Bachelor's degree)**<br>Practical term 1 0 | | | | | |
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| 25 | | **Mathematics II (EN)**<br>Mathematics II VL 4<br>Mathematics II HÜ 2<br>Mathematics II GÜ 2 | **Mathematics III (EN)**<br>Analysis III VL 2<br>Analysis III HÜ 1<br>Analysis III GÜ 1<br>Differential Equations 1 VL 2<br>Differential Equations 1 HÜ 1<br>Differential Equations 1 GÜ 1 | **Machine Learning I**<br>Machine Learning I VL 2<br>Machine Learning I GÜ 3 | **Introduction to Communications and Random Processes**<br>Introduction to Communications and Random Processes VL 3<br>Introduction to Communications and Random Processes HÜ 1<br>Introduction to Communications and Random Processes GÜ 1 | |
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| 27 | **Introduction to Data Science**<br>Introduction to Data Science VL 2<br>Introduction to Data Science SE 2 | | | | | |
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| 31 | | | | **Practical module 4 (dual study program, Bachelor's degree)**<br>Practical term 4 0 | **Introduction to Data Acquisition and Processing**<br>Measurements: Methods and Data Processing VL 2<br>Measurements: Methods and Data Processing GÜ 1<br>Data Acquisition and Data Processing PS 2 | |
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| 33 | | **Practical module 2 (dual study program, Bachelor's degree)**<br>Practical term 2 0 | **Practical module 3 (dual study program, Bachelor's degree)**<br>Practical term 3 0 | | | |
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Linking theory and practice (dual study program, Bachelor's degree) (from catalogue) - 6LP

The choice of courses from the catalogue is flexible (depends on the semestral work load), provided the necessary number of required credits is reached.