Course of Study Data Science (Study Cohort w23)

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

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

1–6

Discrete Algebraic Structures
| Discrete Algebraic Structures | VL | 2 |
| Discrete Algebraic Structures | GÜ | 2 |

Automata Theory and Formal Languages
| Automata Theory and Formal Languages | VL | 2 |
| Automata Theory and Formal Languages | GÜ | 2 |

Databases
| Databases | VL | 3 |
| Databases - Exercise | GÜ | 2 |

Signals and Systems
| Signals and Systems | VL | 3 |
| Signals and Systems | GÜ | 2 |

Introduction to Information Security
| Introduction to Information Security | VL | 2 |
| Introduction to Information Security | GÜ | 2 |

Ethics in Information Technology
| Ethics in Information Technology | VL | 2 |
| Ethics in Information Technology | SE | 2 |

7–12

Procedural Programming for Computer Engineers
Procedural Programming for Computer Engineers	VL	2
Procedural Programming for Computer Engineers	HÜ	1
Procedural Programming for Computer Engineers	PR	2

Stochastics
| Stochastics | VL | 2 |
| Stochastics | GÜ | 2 |

Numerical Mathematics I
| Numerical Mathematics I | VL | 2 |
| Numerical Mathematics I | GÜ | 2 |

Graph Theory and Optimization
| Graph Theory and Optimization | VL | 2 |
| Graph Theory and Optimization | GÜ | 2 |

Data Mining
| Data Mining | VL | 2 |
| Data Mining | PBL | 2 |

Logistics Management
| Logistics Economics | PBL | 3 |
| Introduction into Production Logistics | VL | 2 |

13–18

Mathematics I (EN)
Mathematics I	VL	4
Mathematics I	HÜ	2
Mathematics I	GÜ	2

Foundations of Management
| Introduction to Management | VL | 3 |
| Management Tutorial | GÜ | 2 |

Algorithms and Data Structures
| Algorithms and Data Structures | VL | 4 |
| Algorithms and Data Structures | GÜ | 1 |

Seminars Computer Science
| Introductory Seminar Computer Science II | SE | 2 |
| Introductory Seminar Computer Science I | SE | 2 |

Machine Learning II
| Machine Learning II | VL | 2 |
| Machine Learning II | GÜ | 3 |

Bachelor thesis (dual study program)

19–24

Programming Paradigms
Programming Paradigms	VL	2
Programming Paradigms	HÜ	1
Programming Paradigms	PR	2

Statistics
| Statistics | VL | 3 |
| Statistics | GÜ | 1 |

Scientific Programming
| Scientific Programming | VL | 3 |
| Scientific Programming | GÜ | 2 |

Practical module 5 (dual study program, Bachelor's degree)
| Practical term 5 | | 0 |

Practical module 1 (dual study program, Bachelor's degree)
| Practical term 1 | | 0 |

25–32

Mathematics II (EN)
Mathematics II	VL	4
Mathematics II	HÜ	2
Mathematics II	GÜ	2

Mathematics III (EN)
Analysis III	VL	2
Analysis III	HÜ	1
Analysis III	GÜ	1
Differential Equations 1	VL	2
Differential Equations 1	HÜ	1
Differential Equations 1	GÜ	1

Machine Learning I
| Machine Learning I | VL | 2 |
| Machine Learning I | GÜ | 3 |

Introduction to Communications and Random Processes
Introduction to Communications and Random Processes	VL	3
Introduction to Communications and Random Processes	HÜ	1
Introduction to Communications and Random Processes	GÜ	1

Introduction to Data Science
| Introduction to Data Science | VL | 2 |
| Introduction to Data Science | SE | 2 |

Practical module 4 (dual study program, Bachelor's degree)
| Practical term 4 | | 0 |

Image Processing
| Image Processing | VL | 2 |
| Image Processing | GÜ | 2 |

33–38

Practical module 2 (dual study program, Bachelor's degree)
| Practical term 2 | | 0 |

Practical module 3 (dual study program, Bachelor's degree)
| Practical term 3 | | 0 |

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.