Course of Study Data Science (Study Cohort w20)

Sample course plan B Bachelor Data Science (DSBS)
Specialisation Materials Science

Legend

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

LP	Semester 1	Form	Hrs/wk
1–6	**Discrete Algebraic Structures**		
	Discrete Algebraic Structures	VL	2
	Discrete Algebraic Structures	UE	2
7–12	**Procedural Programming**		
	Procedural Programming	VL	1
	Procedural Programming	HÜ	1
	Procedural Programming	PR	2
13–18	**Linear Algebra**		
	Linear Algebra	VL	4
	Linear Algebra	HÜ	2
	Linear Algebra	UE	2
19–24	**Fundamentals of Materials Science (part 1)**		
	Fundamentals of Materials Science I	VL	2
	Physical and Chemical Basics of Materials Science	VL	2
25–31			

LP	Semester 2	Form	Hrs/wk
1–6	**Automata Theory and Formal Languages**		
	Automata Theory and Formal Languages	VL	2
	Automata Theory and Formal Languages	UE	2
7–12	**Stochastics**		
	Stochastics	VL	2
	Stochastics	UE	2
13–18	**Mathematical Analysis**		
	Mathematical Analysis	VL	4
	Mathematical Analysis	HÜ	2
	Mathematical Analysis	UE	2
19–24	**Programming Paradigms**		
	Programming Paradigms	VL	2
	Programming Paradigms	HÜ	1
	Programming Paradigms	PR	2
25–28	**Fundamentals of Materials Science (part 2)**		
	Fundamentals of Materials Science II	VL	2
29–31	**Advanced Materials**		
	Advanced Materials Characterization	VL	2
	Advanced Materials Design	VL	2
	Advanced Materials	HÜ	2

LP	Semester 3	Form	Hrs/wk
1–6	**Databases**		
	Databases	VL	4
	Databases	PBL	1
7–12	**Numerical Mathematics I**		
	Numerical Mathematics I	VL	2
	Numerical Mathematics I	UE	2
13–18	**Mathematics III**		
	Analysis III	VL	2
	Analysis III	UE	1
	Analysis III	HÜ	1
	Differential Equations 1	VL	2
	Differential Equations 1	UE	1
	Differential Equations 1	HÜ	1
19–24	**Algorithms and Data Structures**		
	Algorithms and Data Structures	VL	4
	Algorithms and Data Structures	UE	1
25–31	**Advanced Stochastics**		
	Advanced Stochastics	VL	2
	Advanced Stochastics	UE	2

LP	Semester 4	Form	Hrs/wk
1–6	**Signals and Systems**		
	Signals and Systems	VL	3
	Signals and Systems	UE	2
7–12	**Foundations of Management**		
	Introduction to Management	VL	3
	Management Tutorial	UE	2
13–18	**Graph Theory and Optimization**		
	Graph Theory and Optimization	VL	2
	Graph Theory and Optimization	UE	2
19–24	**Scientific Programming**		
	Scientific Programming	VL	3
	Scientific Programming	UE	2
25–31	**Machine Learning**		
	Machine Learning	VL	2
	Machine Learning	UE	2

LP	Semester 5	Form	Hrs/wk
1–6	**Introduction to Information Security**		
	Introduction to Information Security	VL	3
	Introduction to Information Security	UE	2
7–12	**Data Mining**		
	Data Mining	VL	2
	Data Mining	UE	2
13–18	**Practical Course Data Science**		
	Practical Course Data Science	PR	8
19–24	**Ethics in Information Technology**		
	Ethics in Information Technology	VL	2
	Ethics in Information Technology	SE	2
25–31	**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	UE	1

LP	Semester 6	Form	Hrs/wk
1–6	**Seminars Data Science**		
	Seminar Data Science I	SE	2
	Seminar Data Science II	SE	2
7–12	**Enhanced Fundamentals of Materials Science**		
	Enhanced Fundamentals: Metals	VL	2
	Enhanced Fundamentals: Ceramics and Polymers	VL	2
	Enhanced Fundamentals: Ceramics and Polymers	HÜ	1
13–31	**Bachelor Thesis**		

32		Design	
33			
34			

Non-technical Courses for Bachelors (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.