

CURRICULUM B.Sc. DATA SCIENCE

myStudies, 180 ECTS

Month	Model 1: Programme Start October			Model 2: Programme Start January				Model 3: Programme Start April			Model 4: Programme Start July								
	Courses			Courses				Courses			Courses								
Oct	Introduction to Data Science	Introduction to Academic Work	Agile Project Management																
Nov																			
Dec																			
Jan	Introduction to Programming with Python	Mathematics: Analysis	Statistics - Probability and Descriptive Statistics	Introduction to Data Science	Introduction to Programming with Python	Mathematics: Analysis	Statistics - Probability and Descriptive Statistics												
Feb																			
Mar																			
Apr	Object Oriented & Functional Programming with Python	Mathematics: Linear Algebra	Statistics - Inferential Statistics	Introduction to Academic Work			Agile Project Management			Introduction to Data Science	Introduction to Academic Work	Agile Project Management							
May																			
Jun				Semester Break															
Jul	Intercultural and Ethical Decision-Making	Collaborative Work	Introduction to Data Protection & Cyber Security	Intercultural and Ethical Decision-Making	Collaborative Work	Introduction to Data Protection & Cyber Security	Introduction to Programming with Python	Mathematics: Analysis	Statistics - Probability and Descriptive Statistics	Introduction to Data Science	Introduction to Programming with Python	Mathematics: Analysis	Statistics - Probability and Descriptive Statistics						
Aug																			
Sep														Semester Break					
Oct	Database Modeling and Database Systems	Project: Build a Data Mart in SQL	Cloud Computing	Object Oriented and Functional Programming with Python	Mathematics: Linear Algebra	Statistics - Inferential Statistics	Object Oriented and Functional Programming with Python	Mathematics: Linear Algebra	Statistics - Inferential Statistics	Introduction to Academic Work		Agile Project Management							
Nov																			
Dec																			
Jan	Machine Learning - Supervised Learning	Machine Learning - Unsupervised Learning and Feature Engineering	Data Science Software Engineering	Machine Learning - Supervised Learning	Machine Learning - Unsupervised Learning and Feature Engineering	Data Science Software Engineering	Intercultural and Ethical Decision-Making	Collaborative Work	Introduction to Data Protection & Cyber Security	Intercultural and Ethical Decision-Making	Collaborative Work	Introduction to Data Protection & Cyber Security							
Feb																			
Mar																			
Apr	Business Intelligence ¹	Project: Business Intelligence ¹	Data Quality and Data Wrangling	Business Intelligence ¹	Project: Business Intelligence ¹	Data Quality and Data Wrangling	Business Intelligence ¹	Project: Business Intelligence ¹	Data Quality and Data Wrangling	Object Oriented & Functional Programming with Python	Mathematics: Linear Algebra	Statistics - Inferential Statistics							
May																			
Jun													Semester Break						
Jul	Explorative Data Analysis and Visualization	Time Series Analysis	Model Engineering	Explorative Data Analysis and Visualization	Time Series Analysis	Model Engineering	Explorative Data Analysis and Visualization	Time Series Analysis	Model Engineering	Explorative Data Analysis and Visualization	Time Series Analysis	Model Engineering							
Aug																			
Sep													Semester Break						
Oct	Big Data Technologies	Neural Nets and Deep Learning	Elective (online)	Elective (online)	Database Modeling and Database Systems	Project: Build a Data Mart in SQL	Cloud Computing	Database Modeling and Database Systems	Project: Build a Data Mart in SQL	Cloud Computing	Database Modeling and Database Systems	Project: Build a Data Mart in SQL	Cloud Computing						
Nov																			
Dec																			
Jan	Seminar: Ethical Considerations in Data Science	Elective (online)	Elective (online)	Seminar: Ethical Considerations in Data Science	Elective (online)	Elective (online)	Machine Learning - Supervised Learning	Machine Learning - Unsupervised Learning and Feature Engineering	Data Science Software Engineering	Machine Learning - Supervised Learning	Machine Learning - Unsupervised Learning and Feature Engineering	Data Science Software Engineering							
Feb																			
Mar																			
Apr	Project: From Model to Production	Elective (online)	Elective (online)	Project: From Model to Production	Elective (online)	Elective (online)	Project: From Model to Production	Elective (online)	Elective (online)	Business Intelligence ¹	Project: Business Intelligence ¹	Data Quality and Data Wrangling							
May																			
Jun													Semester Break						
Jul	Bachelor Thesis			Bachelor Thesis				Bachelor Thesis			Bachelor Thesis								
Aug	Semester Break																		
Sep	Semester Break																		
Oct	Big Data Technologies	Neural Nets and Deep Learning	Elective (online)	Elective (online)	Big Data Technologies	Neural Nets and Deep Learning	Elective (online)	Elective (online)	Big Data Technologies	Neural Nets and Deep Learning	Elective (online)	Elective (online)							
Nov																			
Dec																			
Jan	Seminar: Ethical Considerations in Data Science	Elective (online)	Elective (online)	Seminar: Ethical Considerations in Data Science	Elective (online)	Elective (online)	Seminar: Ethical Considerations in Data Science	Elective (online)	Elective (online)	Seminar: Ethical Considerations in Data Science	Elective (online)	Elective (online)							
Feb																			
Mar																			
Apr	Project: From Model to Production	Elective (online)	Elective (online)	Project: From Model to Production	Elective (online)	Elective (online)	Project: From Model to Production	Elective (online)	Elective (online)	Business Intelligence ¹	Project: Business Intelligence ¹	Data Quality and Data Wrangling							
May																			



Here you see the order in which you can study your courses in presence depending on your personal study start in October, January, April or July. IU International University of Applied Sciences offers you the flexibility to switch from campus to online studies or the other way around. You decide which semester you want to spend on campus or online.

The above is only valid for DACH students. For INT Students: attending the courses on Campus in presence is mandatory and will be verified due to VISA regulations.

Each semester consists of two blocks that conclude with a two-week exam preparation phase. You can also defer those exams to a later date that you do not want to take during this period. This way, your exam phases are always spread evenly over the year.

In each block, you attend classes on campus for usually three courses to deepen the content in direct exchange with your fellow students and lecturers. You have semester breaks in June and September.

Attention: Attendance times may vary slightly depending on public holidays and the federal state holidays the campus is located in.

If you are studying Model 2, 3 or 4 you will have to start your Bachelor Thesis before completing your final courses.

Elective A*	Elective B*	Elective C*
Data Engineer Data Engineering Project: Data Engineering Data Analyst Advanced Data Analysis Project: Data Analysis AI Specialist Artificial Intelligence Project: Artificial Intelligence	International Marketing and Branding International Marketing International Brand Management Applied Sales Applied Sales I Applied Sales II Supply Chain Management Supply Chain Management I Supply Chain Management II Managerial Economics and Corporate Finance and Investment Managerial Economics Corporate Finance and Investment Smart Factory Smart Factory I Smart Factory II Automation and Robotics Production Engineering Automation and Robotics Autonomous Driving Self-Driving Vehicles Seminar: Current Topics and Trends in Self-Driving Technology	Data Engineer Data Engineering Project: Data Engineering Data Analyst Advanced Data Analysis Project: Data Analysis AI Specialist Artificial Intelligence Project: Artificial Intelligence International Marketing and Branding International Marketing International Brand Management Applied Sales Applied Sales I Applied Sales II Supply Chain Management Supply Chain Management I Supply Chain Management II Managerial Economics and Corporate Finance and Investment Managerial Economics Corporate Finance and Investment
		Smart Factory Smart Factory I Smart Factory II Automation and Robotics Production Engineering Automation and Robotics Autonomous Driving Self-Driving Vehicles Seminar: Current Topics and Trends in Self-Driving Technology Foreign Language German, Italian, French or Spanish Studium Generale

* Electives: Choose one module with two courses from the Elective A, one module from the Elective B and one module from the Elective C. Every elective module can only be chosen once.

Note: The Electives are only offered in distance learning (online).

¹ These courses take place one after another within the same quarter.

Module	Course Code	Course	ECTS	Type of Exam
Introduction to Data Science	DLBDSIDS01	Introduction to Data Science	5	Oral Assignment
Intercultural and Ethical Decision-Making	DLBCSIDM01	Intercultural and Ethical Decision-Making	5	Case Study
Agile Project Management	DLBCSAPM01	Agile Project Management	5	Project Report
Introduction to Programming with Python	DLBDSIPWP01	Introduction to Programming with Python	5	Exam
Mathematics: Analysis	DLBDSMFC01	Mathematics: Analysis	5	Exam
Statistics - Probability and Descriptive Statistics	DLBDSPPDS01	Statistics - Probability and Descriptive Statistics	5	Exam
Object Oriented and Functional Programming with Python	DLBDSOFP01	Object Oriented and Functional Programming with Python	5	Portfolio
Mathematics: Linear Algebra	DLBDSMFLA01	Mathematics: Linear Algebra	5	Exam
Statistics - Inferential Statistics	DLBDSIS01	Statistics - Inferential Statistics	5	Exam
Introduction to Academic Work	DLBCSIAW01	Introduction to Academic Work	5	Basic Workbook (pass / not pass)
Collaborative Work	DLBCSCW01	Collaborative Work	5	Oral Assignment
Introduction to Data Protection and Cyber Security	DLBCSIDPITS01	Introduction to Data Protection and Cyber Security	5	Exam
Database Modeling and Database Systems	DLBCSDMDS01	Database Modeling and Database Systems	5	Exam
Project: Build a Data Mart in SQL	DLBDSBDM01	Project: Build a Data Mart in SQL	5	Portfolio
Cloud Computing	DLBDSCC01	Cloud Computing	5	Exam
Machine Learning - Supervised Learning	DLBDSMLSL01	Machine Learning - Supervised Learning	5	Exam
Machine Learning - Unsupervised Learning and Feature Engineering	DLBDSMLLUSL01	Machine Learning - Unsupervised Learning and Feature Engineering	5	Case Study
Data Science Software Engineering	DLBDSSE01	Data Science Software Engineering	5	Exam
Business Intelligence	DLBCSEB01	Business Intelligence	5	Exam
Project: Business Intelligence	DLBCSEB02	Project: Business Intelligence	5	Project Report
Data Quality and Data Wrangling	DLBDSQDW01	Data Quality and Data Wrangling	5	Written Assignment
Explorative Data Analysis and Visualization	DLBDSEDA01	Explorative Data Analysis and Visualization	5	Written Assignment
Time Series Analysis	DLBDSTSA01	Time Series Analysis	5	Exam
Model Engineering	DLBDSME01	Model Engineering	5	Case Study
Big Data Technologies	DLBDSBDT01	Big Data Technologies	5	Exam
Neural Nets and Deep Learning	DLBDSNDDL01	Neural Nets and Deep Learning	5	Oral Assignment
Seminar: Ethical Considerations in Data Science	DLBDSSECD01	Seminar: Ethical Considerations in Data Science	5	Research Essay
Project: From Model to Production	DLBDSMTP01	Project: From Model to Production	5	Oral Project Report
ELECTIVE A*		e.g. Data Analyst	10	
ELECTIVE B*		e.g. International Marketing and Branding	10	
ELECTIVE C*		e.g. Smart Factory	10	
Bachelor Thesis		Bachelor Thesis	9	Bachelor Thesis
		Thesis Defense	1	Presentation: Colloquium