

CURRICULUM B.SC. DATA SCIENCE
DISTANCE LEARNING



You've already planned out exactly how your course schedule should look? Wonderful!
The IU International University of Applied Sciences offers you the flexibility to choose any available module you like from any semester. You can work on a number of modules at the same time or one by one.



At the beginning, choose modules that particularly interest you or that you can use directly in your job. This motivates you and gives you success right from the start.



Information about electives D:
Decide at the beginning between an internship at a company or modules from electives D. You will complete the internship with a practical reflection. If you decide on the modules from electives D, all modules from this area must be completed. Mixed forms of internship and compulsory electives D are not possible.



* Electives: Two modules per elective to choose from, each elective module can only be chosen once.

FT: Full-Time, 36 months
PT I: Part-Time I, 48 months
PT II: Part-Time II, 72 months

Semester			Module	Course Code	Course	ECTS credits	Type of Exam	
FT	PT I	PT II						
1. Semester	1. Semester	1. Semester	Introduction to Data Science	DLBDSIDS01	Introduction to Data Science	5	Advanced Workbook	
			Introduction to Programming with Python	DLBDSIPWP01	Introduction to Programming with Python	5	Exam	
			Mathematics: Linear Algebra	DLBDSMFLA01	Mathematics: Linear Algebra	5	Exam	
	2. Semester	2. Semester	1. Semester	Introduction to Academic Work for IT and Technology	DLBIAWITT01	Introduction to Academic Work for IT and Technology	5	Advanced Workbook
				Project: Object Oriented and Functional Programming in Python	DLBDSOOFPP01	Project: Object Oriented and Functional Programming in Python	5	Portfolio
				ELECTIVES D		Internship or modules to choose	5	
2. Semester	3. Semester	3. Semester	Mathematics: Analysis	DLBDSMFC01	Mathematics: Analysis	5	Exam	
			Statistics: Probability and Descriptive Statistics	DLBDSPPDS01-01	Statistics: Probability and Descriptive Statistics	5	Exam	
			Database Modeling and Database Systems	DLBCSDMS01	Database Modeling and Database Systems	5	Exam	
	4. Semester	4. Semester	3. Semester	Introduction to Data Protection and Cyber Security	DLBCSIDPIT01	Introduction to Data Protection and Cyber Security	5	Exam
				Project: Build a Data Mart in SQL	DLBDSPBDM01	Project: Build a Data Mart in SQL	5	Portfolio
				ELECTIVES D		Internship or modules to choose	5	
3. Semester	5. Semester	5. Semester	Statistics - Inferential Statistics	DLBDSIS01	Statistics - Inferential Statistics	5	Exam	
			Machine Learning - Supervised Learning	DLBDSMLS01	Machine Learning - Supervised Learning	5	Exam	
			Machine Learning - Unsupervised Learning and Feature Engineering	DLBDSMLUSL01	Machine Learning - Unsupervised Learning and Feature Engineering	5	Case Study	
	4. Semester	6. Semester	4. Semester	Neural Nets and Deep Learning	DLBDSNNDL01	Neural Nets and Deep Learning	5	Oral Assignment
				Project: Business Intelligence	DLBCSEBI02	Project: Business Intelligence	5	Project Report
				ELECTIVES D		Internship or modules to choose	5	
4. Semester	5. Semester	7. Semester	Big Data Technologies	DLBDSBDT01	Big Data Technologies	5	Exam	
			Cloud Computing	DLBDS0101	Cloud Computing	5	Exam	
			Exploratory Data Analysis and Visualization	DLBDS0102	Exploratory Data Analysis and Visualization	5	Written Assignment	
	8. Semester	8. Semester	5. Semester	Seminar: Ethical Considerations in Data Science	DLBDSSECD01	Seminar: Ethical Considerations in Data Science	5	Research Essay
				Project: NLP	DLBAIPNLP01	Project: NLP	5	Project Report
				ELECTIVES D		Internship or modules to choose	5	
5. Semester	6. Semester	9. Semester	ELECTIVES A*		e.g. Data Engineering, Project: Data Engineering	10		
			ELECTIVES B*		e.g. Advanced Data Analysis, Project: Data Analysis	10		
			Project: From Model to Production	DLBDSMTP01	Project: From Model to Production Environment	5	Oral Project Report	
	7. Semester	10. Semester	6. Semester	ELECTIVES D		Internship or modules to choose	5	
				ELECTIVES C*		e.g. Artificial Intelligence, Project: Artificial Intelligence	10	
				Project: Agile Project Management	DLBCSAPM01	Project: Agile Project Management	5	Project Report
6. Semester	8. Semester	11. Semester	ELECTIVES D*		Internship or modules to choose	10		
			Bachelor Thesis	DLBBT01 DLBBT02	Bachelor Thesis Thesis Defense	9 1	Bachelor Thesis Presentation: Colloquium	
Total								
180 ECTS credits								

Electives A:	Electives B:	Electives C:	Electives D:
Data Engineering Project: Data Engineering Advanced Data Analysis Project: Data Analysis Artificial Intelligence Project: Artificial Intelligence	Data Engineering Project: Data Engineering Advanced Data Analysis Project: Data Analysis Artificial Intelligence Project: Artificial Intelligence Time Series Analysis Project: AI Excellence with Creative Prompt Techniques Smart Factory I Production Engineering Industry 4.0 Automation and Robotics Self-Driving Vehicles Seminar: Current Topics and Trends in Self-Driving Technology	Data Engineering Project: Data Engineering Advanced Data Analysis Project: Data Analysis Artificial Intelligence Project: Artificial Intelligence Time Series Analysis Project: AI Excellence with Creative Prompt Techniques Smart Factory I Production Engineering Industry 4.0 Automation and Robotics Self-Driving Vehicles Seminar: Current Topics and Trends in Self-Driving Technology International Marketing Applied Sales I Applied Sales II Managerial Economics Supply Chain Management I Supply Chain Management II Business Intelligence and Data Visualization Stadium Generale I	Internship: Bachelor Data Science or Collaborative Work Interkultur Business Ir Data Quality and Data Wrangling Data Science Software Engineering Model Engineering