BACHELOR (B.SC.)
DATA SCIENCE

Data Science encompasses the generation of insights and value from raw data and is the core of digital businesses across all sectors. It's a field that requires a diverse mix of capabilities and skills—and never gets boring. Data informs key decisions, leads to optimisation of existing processes, and is the enabler of entirely new business models via data insights and automation.

The IU bachelor in Data Science is an ideal opportunity to dive deep into the technical skills step-by-step—with a hands-on approach and expert guidance. Our professors make sure you gain the hacking skills, math and statistical knowledge, and domain expertise needed with the right balance of supervised and independent study. We put much emphasis on practical work throughout your degree, helping you to acquire a portfolio of projects to demonstrate your skills once you graduate. When you take a bachelor's degree in data science you join the data revolution that is leading major changes in businesses, economies, and societies today.

Degree
Bachelor of Science (B.Sc.)

Study start
Start online studies: Anytime

Study model and accreditation
– Online studies
– German accredited institution, recognised by ZFU (German Central Office for Distance Learning)

Duration
Online: 36, 48, or 72 months

Credits
180 ECTS credits

Apply Now

iu INTERNATIONAL UNIVERSITY OF APPLIED SCIENCES

Study Content (180 ECTS credits)

MODULE TITLE	SEMESTER	CREDITS (ECTS)	TEST TYPE
	1		
Introduction to Data Science		5	OA
Introduction to Academic Work		5	BWB
Agile Project Management		5	WAPR
Introduction to Programming with Python		5	E
Mathematics: Analysis		5	E
Statistics – Probability and Descriptive Statistics		5	E
	2		
Object Oriented and Functional Programming with Python		5	P
Mathematics: Linear Algebra		5	E
Statistics – Inferential Statistics		5	E
Intercultural and Ethical Decision-Making		5	CS
Collaborative Work		5	OA
Introduction to Data Protection and Cyber Security		5	E
	3		
Database Modeling and Database Systems		5	E
Project: Build a Data Mart in SQL		5	P
Cloud Computing		5	E
Machine Learning – Supervised Learning		5	E
Machine Learning – Unsupervised Learning and Feature Engineering		5	WACS
Data Science Software Engineering		5	E
	4		
Business Intelligence		5	E
Project: Business Intelligence		5	WAPR
Data Quality and Data Wrangling		5	WAWA
Explorative Data Analysis and Visualization		5	WAWA
Time Series Analysis		5	E
Model Engineering		5	WACS
	5		
Big Data Technologies		5	E
Neural Nets and Deep Learning		5	OA
Elective A		10	
Seminar: Ethical Considerations in Data Science		5	WARE
Elective B		10	
	6		
Project: From Model to Production		5	OPR
Elective C		10	
Bachelor Thesis		10	WABT & PC

CHOOSE YOUR ELECTIVES

Choose one elective from "Electives A" list*:
– AI Specialist
– Data Analyst
– Data Engineer

Choose one elective from "Electives B" list*:
– Applied Sales
– Autonomous Driving
– International Marketing and Branding
– Managerial Economics and Corporate Finance and Investment
– Production Engineering, Automation and Robotics
– Smart Factory
– Supply Chain Management

Choose one elective from "Electives C" list*:
– AI Specialist
– Applied Sales
– Autonomous Driving
– Career Development
– Business Process Integration – Application Associate
– Data Analyst
– Data Engineer
– Foreign Language: French
– Foreign Language: Italian
– Foreign Language: Spanish
– International Marketing and Branding
– Internship***
– Mastering Prompts
– Managerial Economics and Corporate Finance and Investment
– Microsoft ERP – Dynamics 365 Business Central – Functional Consultant
– Production Engineering, Automation and Robotics
– Smart Factory
– Studium Generale**
– Supply Chain Management

* Each elective module can only be chosen once.
**This elective cannot be taken if you would like to receive a dual degree.
***Only available for on campus study programmes.

AWB = Advanced Workbook, BWB = Basic Workbook, BG = Business Game CWB = Creative Workbook, OA = Oral Assignment, CS = Case Study, WA = Written Assignment, E = Exam, E/OA = Exam or Oral Assignment, E/CS = Exam or Case Study, E/WA = Exam or Written Assignment, E/AWB = Exam or Advanced Workbook, ME = Module Exam, PO = Portfolio, PP = Proof of Participation, PR = Project Report, OPR = Oral Project Report, RE = Research Essay, T = Thesis, CO = Colloquium

ELECTIVES

All of our study programmes offer a wide selection of industry-focused elective courses for you to choose from. Below you'll find more details on a select number of these courses – for the full list of electives available in this programme, please check the Course Schedule.

The elective courses that are a part of this study programme, are a cluster of courses dedicated to diving deep into a specific topic related to the programme. When choosing an elective, you get to explore a potential future career path, or just develop a strong knowledge base about a topic that particularly interests you.

In semesters 5 and 6 of this programme, you'll choose three electives, amounting to 30 ECTS credits. You have a wide range of options to choose from, according to your interests and ambitions. Some of the electives offered are:

SMART FACTORY
Dive into the world of production systems digital networking. Compare different digital architecture models for smart factory building. Tackle the unique engineering challenges that an autonomously operated and decentralized production facility offers. Come up with possible IT security solutions for these challenges, and gain an edge in the production management career field.

APPLIED SALES
Focus your studies on sales, and take a close look at the relationship between marketing, business strategy and after-sales activities. Learn what tools companies use to increase sales, the different sales channels and distribution systems they use, and analyse negotiation, telephone and digital sales tactics.

SUPPLY CHAIN MANAGEMENT
Plan, optimise and execute individual production units and logistics work processes. Learn how to create an organised system where different departments can collaborate efficiently across daily business operations. This specialisation will introduce to you the theory and terminology surrounding supply chain management, and the origins of value creation networks. Upon completion of this module, you'll know how to build or modify specific logistical solutions for different customer profiles.ç

CAREER OUTLOOK

With our approach to learning, you will gain the expertise, knowledge, and soft skills to become a valuable employee in any team or company. Whether analysing data, creating pipelines, or offering data consultancy services, you are sure to find an exciting career that could take you anywhere in the world.

(JUNIOR) DATA ENGINEER
As a Data Engineer, you take care of the data pipelines of your enterprise. You employ technical expertise in relevant Cloud and Big Data technologies together with current operational methodologies in order to reliably ensure access to data for all business functions.

(JUNIOR) DATA SCIENTIST
From the layout of analytic pipelines to the design of machine learning models, from data quality improvements to the presentation and communication of data related insights, the job market for Data Scientists is as variegated as the field itself, offering a host of opportunities to find someone's niche.

(JUNIOR) ANALYTICS CONSULTANT
Virtually all major consulting companies as well as a lot of specialised consultancies have taken up on the huge demand in the field of Data Science by offering consultancy services with analytics focus. Thus, there is a thriving job market with a wealth of interesting opportunities to tap into.

ADMISSION

We try to keep admission as simple as possible at IU. To successfully enrol, there are just a few requirements we need you to prove.

ADMISSION REQUIREMENTS
– Higher Secondary School Leaving Certificate such as A-Levels or IB Diploma and your transcript of records.
– A subject-related higher education entrance qualification.

Depending on your qualifications, you might have to meet additional requirements, such as successfully passing a university entrance examination or one of the following programmes to make sure you are ready to study with us:
– Bachelor Entrance Examination (included in Scholarship Program)

Please get in touch with our Study Advisory Team to find out the exact requirements applicable for your application.

SCHOLARSHIP PROGRAMME
Start in our Scholarship Programme as a participant with immediate access to 50% of your courses. You can do this by taking our Entrance Examination which will be included in your course as part of the Scholarship Programme. Once admission and the courses are completed, you can finish your degree.

Questions? Speak to your study advisor, they will guide your through every step of the process.

PROOF OF ENGLISH LANGUAGE SKILLS
At IU, we teach in English to prepare you for the international market. We, therefore, ask for proof of your English language skills.*
– TOEFL (minimum 80 points) or
– IELTS (minimum Level 6) or
– Duolingo English-Test (min. 95 points) or
– PTE Academics (minimum 59 points) or
– Cambridge Certificate (minimum Grade B)

*Proof must be provided before the start of the study and must not be older than five years.

8 STEPS TO COMPLETE YOUR STUDIES

1 Register and apply online

2 Choose your course

3 Download your study scripts

4 Work independently with study scripts

5 Take part in Q&A sessions

6 Prepare for exams and take them either:
– directly online, or
– at an IU examination centre (remember to register in time).

7 Bachelor thesis and colloquium

8 Complete your studies with certificate