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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.)



Duration

Online: 36, 48, or 72 months
On Campus: 36 months



Study start

Start online studies: Anytime
Start (on campus): October 2023*
(then 4 times a year; Oct, Jan, Apr or Jul)



Credits

180 ECTS



Study model and accreditation

- Online studies or On Campus
- German accredited institution, recognised by ZFU (German Central Office for Distance Learning)

iu INTERNATIONAL
UNIVERSITY OF
APPLIED SCIENCES

*Subject to approval by the Thuringian Ministry of Economy, Science and Digital Society. We expect the Ministry's approval no later than the start of the studies. So far, the approval has always been on time.

Study Content (180 ECTS)

PRESENCE TIMEFRAME	MODULE TITLE	SEMESTER	CREDITS (ECTS)	TEST TYPE
		1		
Oct/Nov/Dec	Introduction to Data Science		5 ECTS	OA
Oct/Nov/Dec	Introduction to Academic Work		5 ECTS	BWB
Oct/Nov/Dec	Agile Project Management		5 ECTS	WAPR
Jan/Feb/Mar	Introduction to Programming with Python		5 ECTS	E
Jan/Feb/Mar	Mathematics: Analysis		5 ECTS	E
Jan/Feb/Mar	Statistics – Probability and Descriptive Statistics		5 ECTS	E
		2		
Apr/May	Object Oriented and Functional Programming with Python		5 ECTS	P
Apr/May	Mathematics: Linear Algebra		5 ECTS	E
Apr/May	Statistics – Inferential Statistics		5 ECTS	E
Jul/Aug	Intercultural and Ethical Decision-Making		5 ECTS	CS
Jul/Aug	Collaborative Work		5 ECTS	OA
Jul/Aug	Introduction to Data Protection and Cyber Security		5 ECTS	E
		3		
Oct/Nov/Dec	Database Modeling and Database Systems		5 ECTS	E
Oct/Nov/Dec	Project: Build a Data Mart in SQL		5 ECTS	P
Oct/Nov/Dec	Cloud Computing		5 ECTS	E
Jan/Feb/Mar	Machine Learning – Supervised Learning		5 ECTS	E
Jan/Feb/Mar	Machine Learning – Unsupervised Learning and Feature Engineering		5 ECTS	WACS
Jan/Feb/Mar	Data Science Software Engineering		5 ECTS	E
		4		
Apr/May	Business Intelligence		5 ECTS	E
Apr/May	Project: Business Intelligence		5 ECTS	WAPR
Apr/May	Data Quality and Data Wrangling		5 ECTS	WAWA
Jul/Aug	Explorative Data Analysis and Visualization		5 ECTS	WAWA
Jul/Aug	Time Series Analysis		5 ECTS	E
Jul/Aug	Model Engineering		5 ECTS	WACS
		5		
Oct/Nov/Dec	Big Data Technologies		5 ECTS	E
Oct/Nov/Dec	Neural Nets and Deep Learning		5 ECTS	OA
Online	Elective A		10 ECTS	
Jan/Feb/Mar	Seminar: Ethical Considerations in Data Science		5 ECTS	WARE
Online	Elective B		10 ECTS	
		6		
Apr/May	Project: From Model to Production		5 ECTS	OPR
Online	Elective C		10 ECTS	
Online	Bachelor Thesis		10 ECTS	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
- Data Analyst
- Data Engineer
- Foreign Language: French
- Foreign Language: Italian
- Foreign Language: Spanish
- International Marketing and Branding
- Internship***
- Managerial Economics and Corporate Finance and Investment
- Production Engineering, Automation and Robotics
- Smart Factory
- Studium Generale**
- Supply Chain Management

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. 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.

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)
- Pathway Programme (for on-campus studies)

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 you through every step of the process.

PROOF OF ENGLISH LANGUAGE SKILLS

We therefore ask for proof of your English language skills*. If English is your native language or you graduated from an English-speaking school/university, you don't need to prove your English skills.

Accepted certifications:

- English Courses (complimentary when signing up with IU)**
- TOEFL (min. 80 points) or
- IELTS (min. Level 6.0 out of 9 points) or
- Duolingo English test (min. 95 points) or
- Cambridge Certificate (min. B grade overall) or
- Equivalent proof

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

**Please note that English Courses aren't accepted as a language certificate for on campus study programmes.

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