

Introduction for First-Semester Students

Bachelor Data Engineering (B-DE)

Prof. Dr. Peter Tröger

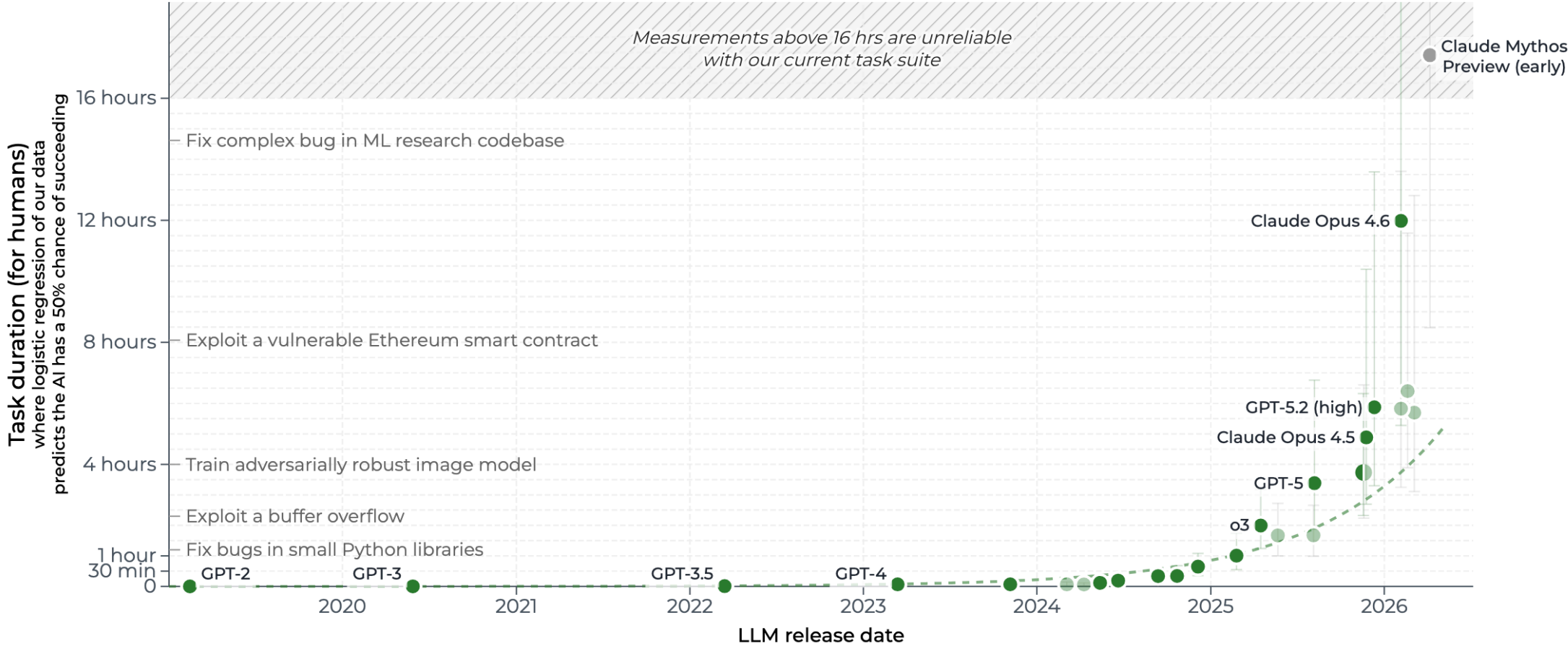
Oct. 2nd 2026



Why are you here?

LLM Race

Length of software tasks that
different LLMs can complete 50% of the time



LLM Race

BBC

Home News Sport Business Innovation Culture Arts Travel Earth Video

Tech giants are putting \$500bn into 'Stargate' to build up AI in US

2 days ago

João da Silva, Natalie Sherman & Imran Rahman-Jones
Business reporters & technology reporter

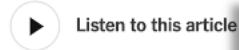


The New York Times

Intelligence > | Hallucinatory A.I.'s Benefits | A.I.'s Boom Towns | A Looming Slowdown? | Tech Insiders Fall f

Meta to Increase Spending to \$65 Billion This Year in A.I. Push

Much of the capital investment, a big jump from 2024, will fund expansion of Meta's data centers, which provide the computing power needed by A.I. products and algorithms.



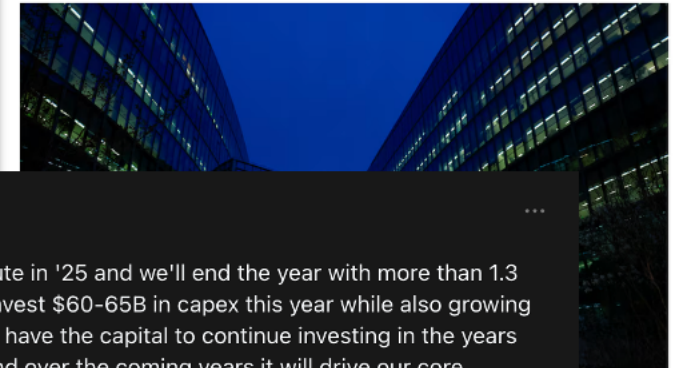
Reuters

World Business Markets Sustainability Legal Breakingviews Technology Investigation

Microsoft plans to invest \$80 billion on AI-enabled data centers in fiscal 2025

By Reuters

January 4, 2025 12:22 AM GMT+1 · Updated 21 days ago



yahoo/finance

Search for news, symbols or c...



LIVE Updated 17 mins ago

yahoo/finance

Stock market today: Nasdaq clobbered, S&P 500 tumbles as AI fears rock Nvidia, tech stocks

LIVE

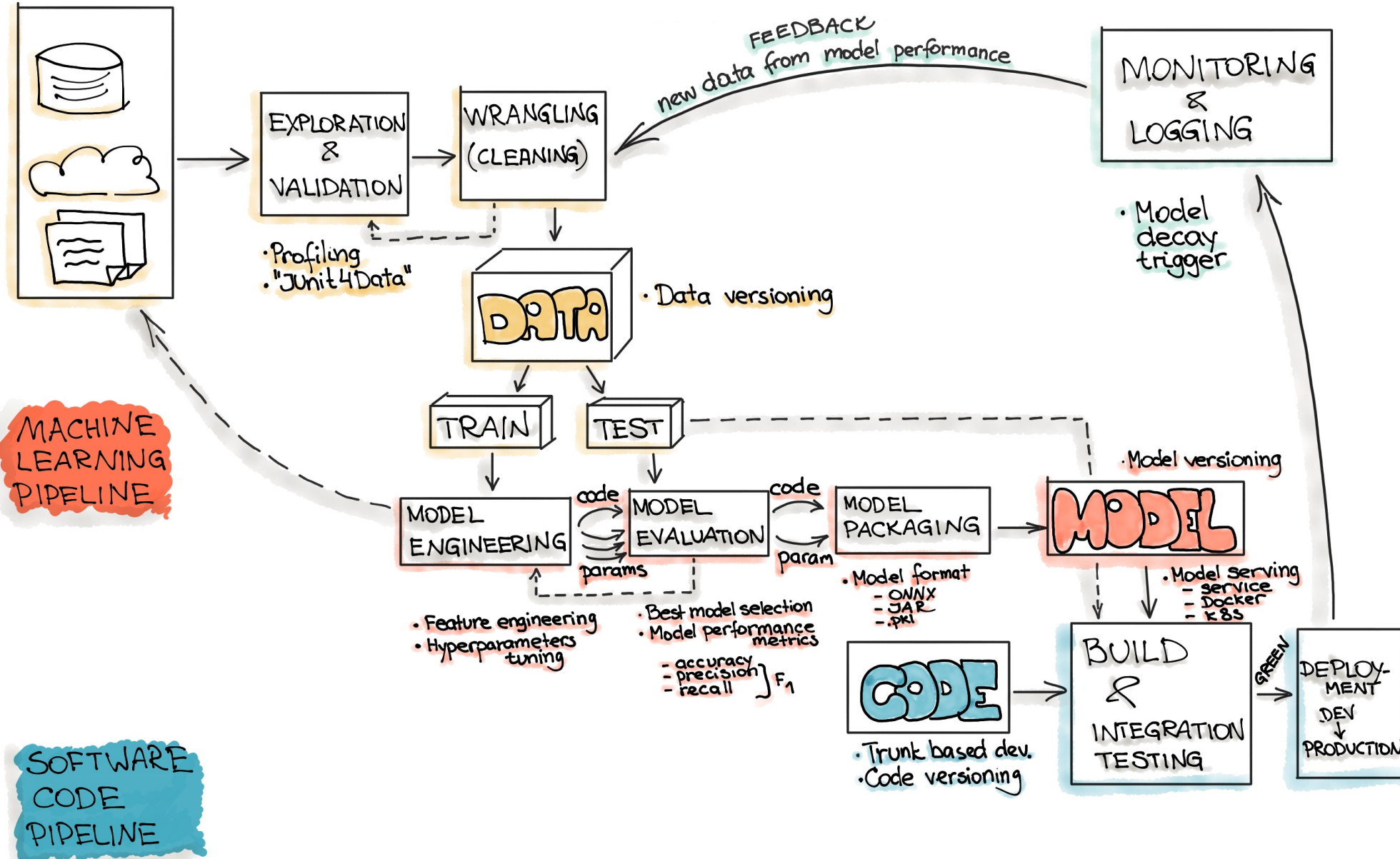


zuck 4d

We'll bring online ~1GW of compute in '25 and we'll end the year with more than 1.3 million GPUs. We're planning to invest \$60-65B in capex this year while also growing our AI teams significantly, and we have the capital to continue investing in the years ahead. This is a massive effort, and over the coming years it will drive our core products and business, unlock historic innovation, and extend American technology leadership. Let's go build! 🙌

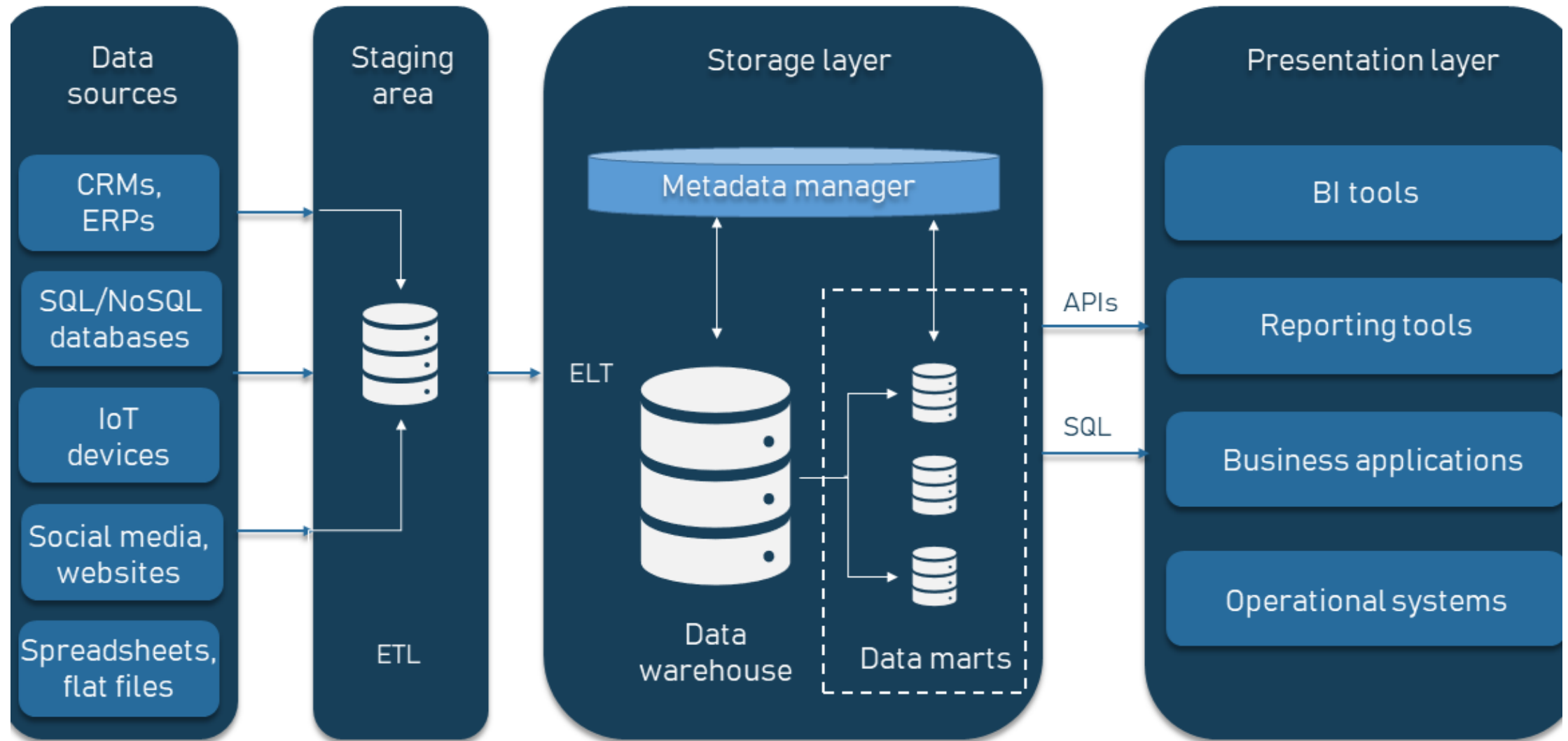
MACHINE LEARNING ENGINEERING

DATA PIPELINE



<https://ml-ops.org>

ENTERPRISE DATA WAREHOUSE COMPONENTS



Official goal

Objectives of the Study Program

The objective of this study program shall be to prepare students for a successful professional career in the field of Data Engineering. The program shall focus on the education and training of Data Engineers on the basis of the thematic pillars of programming, mathematics and statistics, data mining and machine learning, as well as distributed systems and databases. Graduates of this program shall possess the necessary theoretical and practical knowledge to design, develop, and operate distributed and scalable data pipelines that constitute the foundation of productive machine learning applications. Data Engineers thereby establish the basis for professional data processing in both academia and industry.

Data Engineer



Data Engineer Energy (m/w/d)

[thyssenkrupp Steel Europe AG](#) [Duisburg](#) Feste Anstellung Vollzeit

Erschienen: vor 1 Woche

Ich bin interessiert >

Speichern

...



thyssenkrupp Steel Europe gehört zu den weltweit technologisch führenden Qualitätsflachstahl-Anbietern. Mit rund 28.000 engagierten Mitarbeitern und hoch effizienten Anlagen liefern wir den wichtigsten Werkstoff für die Innovationen von morgen, zum Beispiel an die Automobilindustrie oder den Energiesektor. In ganz Europa, in großen und in kleinen Unternehmen, aber immer gemeinsam. thyssenkrupp Steel Europe, das sind über 200 Jahre Industriegeschichte und modernste Technologie. Diese Geschichte wollen wir mit Ihnen weiterschreiben.

Life at BHT

Activity: Being a data engineer

Before we start, here is your first manual data engineering task:

Task: Find out who these people are. What do they do?

People to your left and right are your data team.

Think about data sources you have, and use them.

Use your smartphone or laptop.

Humans



Humans

Head of
Study Program



Prof. Zbigniew Jerzak



Prof. Amy Siu



Prof. Ute Wagner



Prof. Valentin Flunkert



Prof.
Felix Biessmann



Prof.
Steffen Wagner



Prof.
Peter Tröger

FB VI Dean



Prof.
Patrick Erdelt



Prof.
Petra Sauer

Prof. Dr. Zbigniew Jerzak

Professor for distributed systems since 2024

B-DE modules

Distributed Systems I (2. Semester)

Distributed Systems II (3. Semester)

Bachelor's Thesis Colloquium (6. Semester)



Head of computer- and information systems lab (*Labor für Rechner- und Informationssysteme - RIS*)

Head of the study program

Prof. Dr. Peter Tröger

Professor for distributed systems since 2018

B-DE modules

Machine Learning Operations (3. Semester)

Data Protection and Bias (3. Semester)

Paper Reading Seminar (6. Semester)

Dependable Systems Seminar (6. Semester)

Co-head of computer- and information systems lab (*Labor für Rechner- und Informationssysteme - RIS*)

Chief Information Officer for BHT



Prof. Dr. Amy Siu

Professor for software development since 2018

B-DE modules

- Computer Systems Introduction (1. Semester)

- Programming 1 (1. Semester)

- Programming 2 (1. Semester)

- Programming 3 (2. Semester)

- Programming 4 (2. Semester)

Co-head of software development lab (*Labor für Softwareentwicklung - SWE*)

Women's and equal opportunities officer



Dean's Office / Department Administration —> „Dekanat“

Dekanin

→ Prof. Dr. oec. Petra Sauer



Prodekan

→ Prof. Dr. rer. nat Martin von Löwis

Dekanat

→ Haus Gauß, Raum B 131

☎ 030 4504-5860

📠 030 4504-2013

✉ fb6[at]bht-berlin.de

Missing teachers,
teachers you cannot
get hold of,
examination conflicts,
confusing deadlines,
scary administration
papers, internship
issues, ...

They know whom to
ask.

Leitung Fachbereichsverwaltung

→ Daniela Berndt-Scheide

Dekanatsmitarbeiter*innen

→ Moritz Gerdum

→ Saskia Gintaut

→ David Leu

→ Corinna Mansour

Sprechzeiten Dekanat:

Mo., Di., Mi., Do.: 09:30-12:30 Uhr

Labore (*labs*)

Universities have chairs:

Single professor

+ large staff

+ office rooms

We have labs:

Group of professors

+ small staff

+ office rooms

+ **exercise rooms**

Labs are grouped

per department

11 labs in FB VI

Labor	Laborleitung
<u>Automatisierungstechnik</u>	 Prof. Dr.-Ing. Francisco Morales Serrano  Prof. Dr.-Ing. Wolfgang Kessler (<i>Stellv. Laborleiter</i>)
<u>Computergrafik und interaktive Medien</u>	 Prof. Dr. Hartmut Schirmacher  Prof. Dr. rer. nat. Henrik Tramberend (<i>Stellv. Laborleiter</i>)
<u>Digitaltechnik</u>	 Prof. Dr. Sven-Hendrik Voß  Prof. Dr.-Ing. Thomas Loewel (<i>Stellv. Laborleiter</i>)
<u>Drucktechnik und Weiterverarbeitung</u>	 Prof. Dr. Shahram Hauck  Prof. Dr. Franziska Loh (<i>Stellv. Laborleiterin</i>)
<u>Film und Fernsehen</u>	 Prof. Bernd Fischer  Prof. Dr. phil. Titus Faschina (<i>Stellv. Laborleiter</i>)
<u>Informatik-Service</u>	 Prof. Dr. rer. nat. Martin von Löwis  Prof. Dr. Dragan Macos (<i>Stellv. Laborleiter</i>)
<u>Online-Learning</u>	 Prof. Dr.-Ing. Stefan Edlich
<u>Pervasive Systems Engineering</u>	 Prof. Dr. Dragan Macos  Prof. Dr. rer. nat. Martin von Löwis (<i>Stellv. Laborleiter</i>)
<u>PrePress und Publishing</u>	
<u>Rechner- und Informationssysteme</u>	
<u>Softwareentwicklung</u>	 Prof. Dr. Sv  Prof. Dr. An (<i>Stellv. Laborleiterin</i>)



Labore (*labs*)

Universities have chairs:

Single professor
+ large staff
+ office rooms

We have labs:

Group of professors
+ small staff
+ office rooms
+ **exercise rooms**

Labs are grouped
per department

9 labs in FB II

Labor	Laborleitung
<u>Anorganische und Analytische Chemie und Service</u>	 Prof. Dr. Claudia Pacholski  Prof. Dr. Oliver Krüger (<i>Stellv. Laborleiter</i>)
<u>Chemische und Pharmazeutische Technologie</u>	 Prof. Dr. rer. nat. Hartmut Wesenfeld
<u>Medizinische Strahlungsphysik und Bildgebung</u>	 Prof. Dr. rer. nat. Kay-Uwe Kasch  Prof. Dr. rer. nat. Markus Buchgeister (<i>Stellv. Laborleiter</i>)
<u>Medizinische und physikalische Medizintechnik</u>	 Prof. Dr.-Ing. Ingo Röhle
<u>Numerische Mathematik</u>	 Prof. Dr. Patrick Erdelt  Prof. Dr. rer. nat. Marc Kirch (<i>Stellv. Laborleiter</i>)
<u>Optik und Lasertechnik</u>	 Prof. Dr. Ingeborg Beckers  Prof. Dr. rer. nat. Georg Sommerer (<i>Stellv. Laborleiter</i>)
<u>Organische Chemie</u>	 Prof. Dr. Jochen Pfeifer  Prof. Dr. Monika Buchholz (<i>Stellv. Laborleiterin</i>)
<u>Physik</u>	 Prof. Dr. Astrid Haibel
<u>Physikalische Chemie</u>	 Prof. Dr. Oliver Krüger

Strange committees and vocabulary

Prüfungsausschuss (*examination board*): Board of professors deciding about examination conflicts.

Bafög-Beauftragte (*BAföG officer*): Helps with financial support for your studies

Praktikumsbeauftragte (*internship coordinator*): Helps you with an internship (companies, rules)

Auslandsbeauftragte (*international coordinator*): Helps you with getting abroad for a semester

Dekanin (*dean*): Head of department VI

Prodekan / Studiendekan (*vice dean*): Coordinates all teaching efforts in the FB VI study programs

Frauen- und Gleichstellungsbeauftragte (*women's and equal opportunities officer*)

Use the Dekanat as dispatcher, they tell you where to go

Rules Rules Rules (and some content)

TL;DR

<https://www.bht-berlin.de/b-de>

The screenshot shows the website of the Berliner Hochschule für Technik (BHT) Berlin. The main navigation bar includes a search bar and links for 'Schnellzugriff' and 'Informationen für ...'. The 'Das Studium' section is highlighted, with sub-sections for 'Studieninhalte', 'Praxisbezug und Berufsperspektiven', and 'Das bekommen Sie nur an der BHT'. The 'Studienplan' section is active, showing a table of modules for the 1st semester. A large red arrow points from the 'Studienplan' section to the 'Dokumente' section, which lists various documents including the '2025 Studien- und Prüfungsordnung und Modulhandbuch - Study And Examination Regulations And Module Catalogue - Data-Engineering'.

Das Studium

- Studieninhalte
- Praxisbezug und Berufsperspektiven
- Das bekommen Sie nur an der BHT

Studienplan

Semester 1 2. 3. 4. 5. 6. Wahlpflichtmodule

1. Semester

Modul	Modultitel	SU SWS	Ü SWS	LP	P/WP	FB
PR1	Programmierung 1	2	2	5	P	VI
PR2	Programmierung 2	2	2	5	P	VI
CT1	Computergestützte Werkzeuge im Ingenieurwesen 1	2	2	5	P	II
MAP	Mathematik für Programmierung	2	2	5	P	II
CSI	Einführung in Computersysteme	2	2	5	P	VI
SG1	Studium Generale 1	2		2,5	WP	I
SG2	Studium Generale 2		2	2,5	WP	I

Quelle: Amtliche Mitteilung, 47. Jahrgang, Nr. 14/2026 vom 01.07.2025

Kontakt

Prof. Dr. Zbigniew Jerzak
(Studienfachberater)

Dokumente

2025 Studien- und Prüfungsordnung und Modulhandbuch - Study And Examination Regulations And Module Catalogue - Data-Engineering

Ältere Dokumente

Amtliche Mitteilung

47. Jahrgang, Nr. 14/2026



- Studien- und Prüfungsordnung
für den englischsprachigen Bachelorstudiengang
Data Engineering
des Fachbereichs VI
der Berliner Hochschule für Technik

vom 01.07.2025

- Study and Examination Regulations
for the English-Language Bachelor's Degree Program
in Data Engineering
Department VI
Berlin University of Applied Sciences and Technology
dated 01 July 2025

Thematic Pillars

Bachelor of Data Engineering

Programming

Mathematics and
Statistics

Data Mining and
Machine Learning

Distributed
Systems

Databases

Study program

- (3) The standard period of study for the Bachelor's degree program shall comprise six semesters.
- (4) The study program shall comprise 180 ECTS credits.
- (5) The language of instruction and examination shall be English. An English-language elective offering shall be available within the Studium Generale. It is recommended to use the Studium Generale to acquire the required German language proficiency.

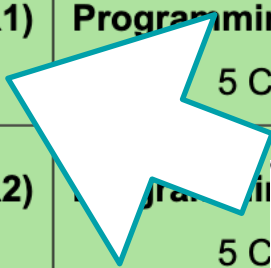
Semester 1 „settle-in“	Semester 2 „scale-up“	Semester 3 „scale-out“	Semester 4 „synthesize“	Semester 5 „apply“	Semester 6 „finish“
Computer Systems Introduction (CSI) 5 CP	Relational Databases (DB1) 5 CP	Applied Databases (DB2) 5 CP	Cloud Databases (DB3) 5 CP	Internship (INT) 30 CP	Bachelor's Thesis and Oral Final Exam (BTX) 12 CP
Programming 1 (PR1) 5 CP	Programming 3 (PR3) 5 CP	Machine Learning Concepts (MLC) 5 CP	Machine Learning Applications (MLA) 5 CP		
Programming 2 (PR2) 5 CP	Programming 4 (PR4) 5 CP	Machine Learning Operations (MLO) 5 CP	Data Mining Applications (DMA) 5 CP		Bachelor's Thesis Colloquium (BTC) 3 CP
Computational Tools in Engineering 1 (CT1) 5 CP	Computational Tools in Engineering 2 (CT2) 5 CP	Data Protection and Bias (DTP) 5 CP	Elective Subject 1 (ES1) 5 CP		Paper Reading Seminar (PRD) 5 CP
Math for Programmers (MAP) 5 CP	Distributed Systems 1 (DS1) 5 CP	Distributed Systems 2 (DS2) 5 CP	Elective Subject 2 (ES2) 5 CP		Elective Subject 4 (ES4) 5 CP
General Studies (SG) 5 CP	Information from Data 1 (ID1) 5 CP	Information from Data 2 (ID2) 5 CP	Elective Subject 3 (ES3) 5 CP		Elective Subject 5 (ES5) 5 CP

180 CP

Semester 1 „settle-in“	Semester 2 „scale-up“	Semester 3 „scale-out“	Semester 4 „synthesize“	Semester 5 „apply“	Semester 6 „finish“
Computer Systems Introduction (CSI) 5 CP	Relational Databases (DB1) 5 CP	Applied Databases (DB2) 5 CP	Cloud Databases (DB3) 5 CP		Bachelor's Thesis and Oral Final Exam (BTX)
Programming 1 (PR1) 5 CP	Programming 2 (PR2) 5 CP	Machine Learning (ML1) 5 CP	Machine Learning (ML2) 5 CP		Machine Learning (ML3) 5 CP
Programming 2 (PR2) 5 CP	Programming 3 (PR3) 5 CP	Machine Learning (ML4) 5 CP	Machine Learning (ML5) 5 CP		Machine Learning (ML6) 5 CP
Computational Tools in Engineering 1 (CT1) 5 CP	Computational Tools in Engineering 2 (CT2) 5 CP	Computational Tools in Engineering 3 (CT3) 5 CP	Computational Tools in Engineering 4 (CT4) 5 CP		Computational Tools in Engineering 5 (CT5) 5 CP
Math for Programmers (MAP) 5 CP	Distributed Systems 1 (DS1) 5 CP	Distributed Systems 2 (DS2) 5 CP	Elective Subject 2 (ES2) 5 CP		Elective Subject 4 (ES4) 5 CP
General Studies (SG) 5 CP	Information from Data 1 (ID1) 5 CP	Information from Data 2 (ID2) 5 CP	Elective Subject 3 (ES3) 5 CP		Elective Subject 5 (ES5) 5 CP

Students develop an understanding of the fundamental components of modern computer systems and their interaction within the Linux operating system. They learn to work confidently with the Linux command line, including the creation of regular expressions and script programs to efficiently automate common tasks. They understand the basic principles of file systems and network protocols and are able to apply this knowledge in practical scenarios. Additionally, they acquire knowledge of managing installed software and system resources, as well as configuring networks in a Linux environment.

Semester 1 „settle-in“	Semester 2 „scale-up“	Semester 3 „scale-out“	Semester 4 „synthesize“	Semester 5 „apply“	Semester 6 „finish“
Computer Systems Introduction (CSI) 5 CP	Relational Databases (DB1) 5 CP	Applied Databases (DB2) 5 CP	Cloud Databases (DB3) 5 CP		Bachelor's Thesis and Oral Final Exam (BTX) 12 CP
Programming 1 (PR1) 5 CP	Programming 3 (PR3) 5 CP	Machine Learning Concepts (MLC) 5 CP	Machine Learning Applications (MLA) 5 CP		
Programming 2 (PR2) 5 CP	Programming 4 (PR4) 5 CP	Machine Learning Projects (MLP) 5 CP	Machine Learning Research (MLR) 5 CP		Bachelor's Thesis Summary (BTC) 5 CP
Computational Tools in Engineering 1 (CT1) 5 CP	Computational Tools in Engineering 2 (CT2) 5 CP	Computational Tools in Engineering 3 (CT3) 5 CP	Computational Tools in Engineering 4 (CT4) 5 CP		Reading Paper (PRD) 5 CP
Math for Programmers (MAP) 5 CP	Distributed Systems 1 (DS1) 5 CP	Distributed Systems 2 (DS2) 5 CP	Elective Subject 2 (ES2) 5 CP		Elective Subject 4 (ES4) 5 CP
General Studies (SG) 5 CP	Information from Data 1 (ID1) 5 CP	Information from Data 2 (ID2) 5 CP	Elective Subject 3 (ES3) 5 CP		Elective Subject 5 (ES5) 5 CP



Students can create robust software in Python. They can write Python programs according to the principles of object-oriented programming. They can apply modern software engineering principles (test driven development, unit testing, integration testing) in their software development efforts. Students learn how to program in teams and use source control tools such as git.

Semester 1 „settle-in“	Semester 2 „scale-up“	Semester 3 „scale-out“	Semester 4 „synthesize“	Semester 5 „apply“	Semester 6 „finish“
Computer Systems Introduction (CSI) 5 CP	Relational Databases (DB1) 5 CP	Applied Databases (DB2) 5 CP	Cloud Databases (DB3) 5 CP	Internship (INT) 30 CP	Bachelor's Thesis and Oral Final Exam (BTX) 12 CP
Programming 1 (PR1) 5 CP	Programming 3 (PR3) 5 CP	Machine Learning Concepts (MLC) 5 CP	Machine Learning Applications (MLA) 5 CP		Bachelor's Thesis Colloquium (BTC) 3 CP
Programming 2 (PR2) 5 CP	Programming 4 (PR4) 5 CP	Machine Learning Operations (MLO) 5 CP	Data Mining Applications (DMA) 5 CP		Reading Paper (PRD) 5 CP
Computational Tools in Engineering 1 (CT1) 5 CP	General Tools (CT2) 5 CP	General Tools (CT3) 5 CP	General Tools (CT4) 5 CP		Subject 4 (S4) 5 CP
Math for Programmers (MAP) 5 CP	Distributed Systems (DS) 5 CP	General Tools (CT5) 5 CP	General Tools (CT6) 5 CP		Subject 5 (S5) 5 CP
General Studies (SG) 5 CP	Information Systems 1 (IS1) 5 CP	General Tools (CT7) 5 CP	General Tools (CT8) 5 CP		General Studies (SG) 5 CP

Students understand various data structures (list, tree, stack, queue) and the relevant algorithms to manipulate these data structures and search for the data within them. They understand more aspects of programming beyond common Python programs; specifically, (a) they can understand programs written via functional programming as well as reactive programming; and can solve simple problems by writing programs in these paradigms; and (b) they are able to write simple programs in Kotlin, another programming language.

Semester 1 „settle-in“	Semester 2 „scale-up“	Semester 3 „scale-out“	Semester 4 „synthesize“	Semester 5 „apply“	Semester 6 „finish“
Computer Systems Introduction (CSI) 5 CP	Relational Databases (DB1) 5 CP	Applied Databases (DB2) 5 CP	Cloud Databases (DB3) 5 CP	Internship (INT) 20 CP	Bachelor's Thesis and Oral Final Exam (BTX) 12 CP
Programming 1 (PR1) 5 CP	Programming 3 (PR3) 5 CP	Machine Learning Concepts (MLC) 5 CP	Machine Learning Applications (MLA) 5 CP		Bachelor's Thesis Colloquium (BTC) 3 CP
Programming 2 (PR2) 5 CP	Programming 4 (PR4) 5 CP	Machine Learning Operations (MLO) 5 CP	Data Mining Applications (DMA) 5 CP		Peer Reading Seminar (PRD) 5 CP
Computational Tools in Engineering 1 (CT1) 5 CP	Computational Tools in Engineering 2 (CT2) 5 CP				Elective Subject 4 (ES4) 5 CP
Math for Programmers (MAP) 5 CP	Math for Engineers (ME) 5 CP				
General Studies (SG) 5 CP	Information from Data 1 (ID1) 5 CP	Information from Data 2 (ID2) 5 CP	Elective Subject 3 (ES3) 5 CP		Elective Subject 5 (ES5) 5 CP

The students know elementary mathematical functions and their properties as well as basic concepts of two- and three-dimensional vector spaces. The students can apply their knowledge on the computer, carry out calculations and visualize important aspects. Students can use technical terms from mathematical fundamentals of engineering disciplines to communicate with application areas.

Semester 1 „settle-in“	Semester 2 „scale-up“	Semester 3 „scale-out“	Semester 4 „synthesize“	Semester 5 „apply“	Semester 6 „finish“	
Computer Systems Introduction (CSI) 5 CP	Relational Databases (DB1) 5 CP	Applied Databases (DB2) 5 CP	Cloud Databases (DB3) 5 CP		Bachelor's Thesis and Oral Final Exam (BTX) 12 CP	
Programming 1 (PR1) 5 CP	Programming 3 (PR3) 5 CP	Machine Learning Concepts (MLC) 5 CP	Machine Learning Applications (MLA) 5 CP			
Programming 2 (PR2) 5 CP	Programming 4 (PR4) 5 CP	Machine Learning Operations (MLO) 5 CP	Data Mining Applications (DMA) 5 CP		Bachelor's Thesis Colloquium (BTC) 3 CP	
Computational Tools in Engineering 1 (CT1) 5 CP	Computational Tools in Engineering 2 (CT2) 5 CP	Students are familiar with the fundamental concepts of logic and can formally describe simple scenarios. They are acquainted with the notation and have studied important elementary structures of sets. Students learn about the connections to programming and are able to implement practical examples in which they apply logic and set theory to basic data structures on a computer, thereby preparing them for database courses. They understand how logical and set-based concepts can be integrated into programming environments such as Python and Pandas to develop efficient data structures and algorithms.			Reading Seminar (PRD) 3 CP	
Math for Programmers (MAP) 5 CP	Discrete Mathematics (DM) 5 CP				Subject 4 (S4) 3 CP	
General Studies (SG) 5 CP	Information Systems 1 (ID1) 5 CP	Information Systems 2 (ID2) 5 CP	Information Systems 3 (ES3) 5 CP		Subject 5 (ES5) 5 CP	

180 CP

Semester 1 „settle-in“	Semester 2 „scale-up“	Semester 3 „scale-out“	Semester 4 „synthesize“	Semester 5 „apply“	Semester 6 „finish“
Computer Systems Introduction (CSI) 5 CP	Relational Databases (DB1) 5 CP	Applied Databases (DB2) 5 CP	Cloud Databases (DB3) 5 CP	Internship (INT)	Bachelor's Thesis and Oral Final Exam (BTX) 12 CP
Programming 1 (PR1) 5 CP	Programming 3 (PR3) 5 CP	Machine Learning Concepts (MLC) 5 CP	Machine Learning Applications (MLA) 5 CP		Bachelor's Thesis Colloquium (BTC) 3 CP
Programming 2 (PR2) 5 CP	Programming 4 (PR4) 5 CP	Machine Learning Operations (MLO) 5 CP	Data Mining Applications (DMA) 5 CP		
Computational Technology in Engineering (CT1) 5 CP	(5) The language of instruction and examination shall be English. An English-language elective offering shall be available within the Studium Generale. It is recommended to use the Studium Generale to acquire the required German language proficiency.				
Math for Programmers (MA) 5 CP	Distributed Systems 1 (DS1) 5 CP	Distributed Systems 2 (DS2) 5 CP	Elective Subject 2 (ES2) 5 CP		Elective Subject 4 (ES4) 5 CP
General Studies (SG) 5 CP	Information from Data 1 (ID1) 5 CP	Information from Data 2 (ID2) 5 CP	Elective Subject 3 (ES3) 5 CP		Elective Subject 5 (ES5) 5 CP

180 CP

Study plan: Gathering credits

Bachelorstudiengang Data Engineering			LV-Typ		Unit		Modul			Durchführende Lehrinheit (FB / Cluster)
Modul- kürzel	Modultitel	Studien- plan- semester	SU SWS	Ü SWS	Beur- teilung D/U/I	Ge- wicht	LP	Ge- wicht	P/WP	
PR1	Programmierung 1	1					5	5	P	Eigener Studiengang
PR1.1	Programmierung 1		2		I	100%				
PR1.2	Programmierung 1 Übg.			2	I					
PR2	Programmierung 2	1					5	5	P	Eigener Studiengang
PR2.1	Programmierung 2		2		I	100%				
PR2.2	Programmierung 2 Übg.			2	I					
CT1	Computergestützte Werkzeuge im Ingenieurwesen 1	1					5	5	P	FB II M
CT1.1	Computergestützte Werkzeuge im Ingenieurwesen 1		2		I	100%				
CT1.2	Computergestützte Werkzeuge im Ingenieurwesen 1 Übg.			2	I					
MAP	Mathematik für Programmierung	1					5	0	P	FB II M
MAP.1	Mathematik für Programmierung		2		I	100%				
MAP.2	Mathematik für Programmierung Übg.			2	I					
CSI	Einführung in Computersysteme	1					5	0	P	Eigener Studiengang
CSI.1	Einführung in Computersysteme		2		U	100%				
CSI.2	Einführung in Computersysteme Übg.			2	I					
SG1	Studium Generale 1	1	2		D	100%	2,5	2,5	WP	FB I
SG2	Studium Generale 2	1		2	D	100%	2,5	2,5	WP	FB I
PR3	Programmierung 3	2					5	5	P	Eigener Studiengang
PR3.1	Programmierung 3		2		I	100%				
PR3.2	Programmierung 3 Übg.			2	I					
PR4	Programmierung 4	2					5	5	P	Eigener Studiengang

Studienplansemester (*scheduled semester in the curriculum*):
When you should (!) study this topic.

SWS: Semesterwochenstunden (*weekly contact hours per semester*). 1 SWS is 45 minutes per week.

SU: Seminaristischer Unterricht (*seminar style teaching*):
A lecture. We work and you try to stay awake.

Ü: Übung (*exercise*): A practical exercise. You work.

D: Differenzierte Bewertung (*graded assessment*).

U: Undifferenzierte Bewertung (*pass/fail assessment*).

I: Integrated module with graded assessment. The sub modules
must be studied in the same semester and get one grade.

LP: Leistungspunkte (*ECTS credits*). 1 LP represents 30 hours
of workload in the semester, at university **and** at home.

Gewicht (*weight*): Level of influence on the final grade of your
studies.

P: Pflichtmodul (*mandatory course*)

WP: Wahlpflichtmodul (*mandatory elective course*)

Study plan: Gathering credits

Bachelorstudiengang Data Engineering			LV-Typ		Unit		Modul			Durchführende Lehreinheit (FB / Cluster)
Modul- kürzel	Modultitel	Studien- plan- semester	SU SWS	Ü SWS	Beur- teilung D/U/I	Ge- wicht	LP	Ge- wicht	P/WP	
ID2.2	Informationen aus Daten 2 Übg.			2	I					
DS2	Verteilte Systeme 2	3					5	5	P	Eigener Studiengang
DS2.1	Verteilte Systeme 2		2		I	100%				
DS2.2	Verteilte Systeme 2 Übg.		2		I					
DB2	Datenbankanwendungen	3					5	5	P	Eigener Studiengang
DB2.1	Datenbankanwendungen		2		I	100%				
DB2.2	Datenbankanwendungen Übg.			2	I					
MLA	Anwendungen des Maschinellen Lernens	4					5	5	P	Eigener Studiengang
MLA.1	Anwendungen des Maschinellen Lernens		2		I	100%				
MLA.2	Anwendungen des Maschinellen Lernens Übg.			2	I					
DMA	Anwendungen des Data Mining	4					5	5	P	Eigener Studiengang
DMA.1	Anwendungen des Data Mining		2		I	100%				
DMA.2	Anwendungen des Data Mining Übg.			2	I					
DB3	Cloud-Datenbanken	4					5	5	P	Eigener Studiengang
DB3.1	Cloud-Datenbanken		2		I	100%				
DB3.2	Cloud-Datenbanken Übg.		2		I					
ES1	Wahlpflichtmodul 1	4		4	D	100%	5	5	WP	Eigener Studiengang
ES2	Wahlpflichtmodul 2	4		4	D	100%	5	5	WP	Eigener Studiengang
ES3	Wahlpflichtmodul 3	4		4	D	100%	5	5	WP	Eigener Studiengang
INT	Praxisphase	5			U		30	0	P	Eigener Studiengang
ES4	Wahlpflichtmodul 4	6		4	D	100%	5	5	WP	Eigener Studiengang
ES5	Wahlpflichtmodul 5	6		4	D	100%	5	5	WP	Eigener Studiengang
PRD	Wissenschaftliche Veröffentlichungen	6	2		U		5	0	P	Eigener Studiengang
BTC	Kolloquium zur Bachelorarbeit	6		1	U		3	0	P	Eigener Studiengang
BTX	Bachelorarbeit und Abschlussprüfung	6					12	30	P	Eigener Studiengang

Study plan: Gathering credits

Bachelorstudiengang Data Engineering			LV-Typ		Unit		Modul			Durchführende Lehreinheit (FB / Cluster)
Modul- kürzel	Modultitel	Studien- plan- semester	SU SWS	Ü SWS	Beur- teilung D/U/I	Ge- wicht	LP	Ge- wicht	P/WP	
BTX.1	Bachelorarbeit				D	50 %				
BTX.2	Abschlussprüfung				D	50%				
Summe							180			

Wahlpflichtmodule (WP)			LV-Typ		Unit		Modul			Durchführende Lehreinheit (FB / Cluster)
Modul- Nr.	Modulname	Studien- plan- semester	SU SWS	Ü SWS	Beur- teilung D / U	Ge- wicht	LP	Ge- wicht	P/WP	
DEP	Verlässliche Systeme	6		4	D	100%	5	5	WP	Eigener Studiengang
LLM	Große Sprachmodelle	6		4	D	100%	5	5	WP	Eigener Studiengang
EMB	Eingebettete Künstliche Intelligenz	4		4	D	100%	5	5	WP	Eigener Studiengang
VIS	Rechnergestützte Bildverarbeitung	4		4	D	100%	5	5	WP	Eigener Studiengang
DEL	Deep Learning	6		4	D	100%	5	5	WP	Eigener Studiengang
BEN	System Leistungsvergleich	6		4	D	100%	5	5	WP	FB II M
GEO	Geoinformatik	4		4	D	100%	5	5	WP	FB III G
SBI	Intelligente Gebäudeinfrastruktur	4		4	D	100%	5	5	WP	FB IV G
BIO	Systembiologie	4		4	D	100%	5	5	WP	FB V B
ROB	Robotik	4		4	D	100%	5	5	WP	FB VII M
ENE	Ethik in der Data Engineering	6		4	D	100%	5	5	WP	FB I
EX1	Externer Kurs 1	4	-	-	D	100%	5	5	WP	Studiengangsleitung
EX2	Externer Kurs 2	6	-	-	D	100%	5	5	WP	Studiengangsleitung

Example: CSI

5 credit points

30 hours per credit point

150 hours of work

68 hours at BHT:

17 weeks with 4 hours per week

82 hours at home:
approx. **5 hours per week per course**

Compulsory Modules / Pflichtmodule

Module ID Modulkürzel	CSI
Title Titel	Computer Systems Introduction Einführung in Rechnersysteme
Credit Points Leistungspunkte	5 CP
Workload	68 hrs. Presence, 82 hrs. Self-study (2 contact hours per week seminar lessons + 2 contact hours per week exercise) 68 Stunden Präsenz, 82 Stunden Selbststudium (2 SWS SU + 2 SWS Ü)
Applicability Verwendbarkeit	Own Study Programme Eigener Studiengang
Learning Area Lerngebiet	Subject-specific basics Fachspezifische Grundlagen
Learning objectives and competencies Qualifikationsziele / Kompetenzen	Students develop an understanding of the fundamental components of modern computer systems and their interaction within the Linux operating system. They learn to work confidently with the Linux command line, including the creation of regular expressions and script programs to efficiently automate common tasks. They understand the basic principles of file systems and network protocols and are able to apply this knowledge in practical scenarios. Additionally, they acquire knowledge of managing installed software and system resources, as well as configuring networks in a Linux environment. --

Example: PRD

Pre-conditions:

Recommended courses
you should have passed
before

(Teacher cannot demand
that)

Level:

Planned semester
according to study plan

(Teacher can refuse
admission if you take the
course too early)

	Sozialkompetenzen durch Diskussionen und Präsentationen zu fördern.
Pre-conditions Voraussetzungen	Recommendations: DB3, MLA, DMA Empfohlen: DB3, MLA, DMA
Level Niveaustufe	6th semester 6. Studienplansemester
Teaching and learning forms/ Lehr- und Lernform	Seminar lessonsSeminarunterricht
Status	Compulsory module Pflichtmodul
Frequency of module offer Häufigkeit des Angebotes	Every summer semester jedes Sommersemester
Examination form/ conditions to grant credit points Prüfungsform/ Voraussetzungen für die Vergabe von Leistungspunkten	The form of examination is determined by the teacher in accordance with §19 (2) RSPO. The teacher chooses between the following forms of examination: (1) group presentation (45 minutes); non-graded assessment or (2) Oral exam (30 min.); non-graded assessment Die Prüfungsform wird nach §19 (2) RSPO durch die Lehrkraft festgelegt. Die Lehrkraft wählt zwischen folgenden Prüfungsformen: (1) Gruppenpräsentation (45 Minuten); Unbenotete Prüfung

Elective Subjects - Broadening your scope

Elective Subjects / Wahlpflichtmodule		
DEP	Dependable Systems	Verlässliche Systeme
LLM	Large Language Models	Große Sprachmodelle
EMB	Embedded Artificial Intelligence	Eingebettete Künstliche Intelligenz
ROB	Robotics	Robotik
VIS	Computer Vision	Rechnergestützte Bildverarbeitung
GEO	Geoinformatics	Geoinformatik
BEN	Systems Benchmarking	System Leistungsvergleich
BIO	Systems Biology	Systembiologie
DEL	Deep Learning	Deep Learning
SBI	Smart Building Infrastructure	Intelligente Gebäudeinfrastruktur
EDE	Ethics in Data Engineering	Ethik im Data Engineering
EX1	External Course 1	Externer Kurs 1
EX2	External Course 2	Externer Kurs 2

Activity: Raise your hand

Who moved to Berlin for their studies?

Who is still moving to Berlin for their studies?

Who grew up outside Germany?

Who has lived in more than one country?

Who has German as first language?

Who is the first person in their family to study?

Who already knew someone in this room before yesterday?

Who worked or did something else before starting university?

Who has used Linux before?

Who has worked with a database before?

Who has already used Kubernetes?

Who is interested in AI or machine learning?

Who has absolutely no idea yet what they want to do after graduation?

Who has already met someone today they would like to study or work together with?

Who hates math?

RSPO - The Other Thing

Amtliche Mitteilung

37. Jahrgang, Nr. 16



22. März 2016

Seite 1 von 42

Rahmenstudien- und Prüfungsordnung
(*general study and examination regulations*):

The general rules for all study programs, basically the defaults. If your study regulations do not cover it, RSPO will do it.

(Welcome to Germany.)

■ Rahmenstudien- und Prüfungsordnung (RSPO 2016)
der Beuth-Hochschule für Technik Berlin

Vom 04.02.2016

RSPO: Examination

Course enrollment is mandatory.

There is a time frame for that.

You can enroll endlessly ~~4 times max.~~

Being enrolled means you are eligible for examination.

If you submitted something that results in a (partial) grade, you are automatically in an examination attempt:

- First submission in „Übung“
- First answer in course exam

For every examination (except thesis), you have 3 4 attempts.

§ 13 Belegung, Prüfungsanmeldung

- (1) Zu Beginn eines Semesters belegen die Studierenden die Lehrveranstaltungen, an denen sie im betreffenden Semester teilnehmen wollen. Belegungen sind grundsätzlich nur innerhalb der hierfür von der Hochschulleitung festgesetzten Frist (Belegzeitraum) in einem online-Verfahren möglich.
- (2) Jedes Modul darf vier Mal belegt werden. Die Anzahl der Prüfungsversuche nach § 25 Abs. (1) bleibt davon unberührt.
- (3) Die Belegung ist eine Prüfungsanmeldung. Eine Berechtigung zur Prüfungsteilnahme besteht nur, wenn die Belegung innerhalb der Belegzeit erfolgt ist. Eine Pflicht zur Prüfungsteilnahme besteht nicht.
- (4) Die Rücknahme einer Belegung ist innerhalb des Belegzeitraums jederzeit möglich, dies gilt jedoch nicht in Fällen des § 22 Abs. (2).

§ 22 Modulnoten

- (1) Die Modulnote wird erteilt, wenn alle zugehörigen Teilleistungsnachweise erbracht sind.
- (2) Nimmt der/die Studierende in einem Modul an mindestens einem Teilleistungsnachweis teil, so gilt der Prüfungsversuch als im zugehörigen Semester unternommen. Wenn das Modul in dem entsprechenden Semester nicht insgesamt erfolgreich abgeschlossen wird, so ist für dieses Modul ein Prüfungsversuch verbraucht. Dies gilt nicht für Teilleistungsnachweise, die im Rahmen eines studienbezogenen Auslandsaufenthalts erworben werden.
- (3) Die Ergebnisse von Teilleistungsnachweisen für Lehrveranstaltungen werden gespeichert, wenn das Modul in einzelne Lehrveranstaltungen gegliedert ist (Schablone der Studienverwaltung). Dies gilt nicht für *Integrierte Module* nach § 21 Abs. (2).

RSPO: Examination

Vacation planning is important :-)

Vorlesungsende (*teaching period end*) is centrally defined

Erster Prüfungszeitraum (*first examination period*) at the end of the teaching period

Zweiter Prüfungszeitraum (*second teaching period*) from March 16th / September 16th

If you fail in the first period, you can immediately retry in the second!

- (3) Für jedes Modul wird am Ende der Vorlesungszeit ein abschließender Leistungsnachweis angeboten (1. Prüfungszeitraum). Abschließende Leistungsnachweise können auch vom 16. März bzw. vom 16. September bis zum letzten Werktag des betreffenden Semesters erbracht werden (2. Prüfungszeitraum). Fällt der Fristbeginn auf einen Sonn- oder Feiertag, beginnt die Frist mit dem darauf folgenden Werktag. Der 2. Prüfungszeitraum kann für Studiengänge nach § 1 Abs. (1) Satz 3 abweichend festgelegt werden.

<https://www.bht-berlin.de/termine>

▾ Vorlesungszeiten

	Semester-/Vorlesungsbeginn	Semesterende	Vorlesungsende	Vorlesungszeit	Vorlesungsfrei
Wintersemester 2025/2026	01.10.2025	31.03.2026	14.02.2026	18 Wochen	22.-31.12.2025
Sommersemester 2026	01.04.2026	30.09.2026	01.08.2026	17 Wochen	04.04.2026 und 15.-16.05.2026
Wintersemester 2026/2027	01.10.2026	31.03.2027	13.02.2027	18 Wochen	23.12.2026-02.01.2027
Sommersemester 2027	01.04.2027	30.09.2027	24.07.2027	17 Wochen	07.-08.05.2027

More Vocabulary

Attention: Most things are mandatory to attend in one or the other way.

Modul, Fach (*module*): Formal entity of the study program, has one or more courses

Lehrveranstaltung, Kurs (*course / class / sub-module*): A singular teaching unit you get credits for.

Seminaristischer Unterricht, Vorlesung (*lecture*): Somebody talking to you in a lecture hall. You listen.

Übung (*exercise*): You try out things and have to show results.

Praktikum (*internship*): Special module. You work outside of the university and get credits for that.

Wahlpflichtfach (*mandatory elective module*): You must do some module from a catalogue.

Studium Generale (*general studies*): You must do some module that is not computer science / data engineering.

Stundenplan (*timetable*): Your courses during the week of this semester

Abschlussarbeit (*thesis*): Special module. You write a thesis and defend it.

Zug (*cohort group*): Concept not relevant in this study program

Enrollment and IT

IT: Polli vs. Moodle

Enrollment deadline:
Oct. 17th, 23:59

Polli (<https://polli.bht-berlin.de>)

Campus Management System

Meeting point for administration and students

Course enrollments, official grades, transcript of records, time tables for rooms and study programs

Accessible from the Internet

Examination portal (<https://polli.bht-berlin.de/exams/my>)

Moodle (<https://lms.bht-berlin.de>)

Learning Management System

Meeting point for teachers and students

Accessible from the Internet

Specific courses, slides for download, weekly tasks, exercises, additional material, electronic exams

Course enrollment (*Belegung*)

This is a full-time study program!

Course enrollment is critical

No enrollment —> no right to participate —> no course exam —> no course grade

Check <https://www.bht-berlin.de/belegung> for deadlines

Capacity management system for university

You are building your study schedule

Trivial for first semester: Only mandatory courses, you are still on track

Typical: Enrollment for lecture (*Vorlesung* / *Seminaristischer Unterricht* / *SU*) **and** exercise (*Übung* / *Ü*)

Result is your personal timetable for the week

Stundenplan für Studierende
1. Semester / Data Engineering Bachelor of Engineering
Wintersemester 2026 / Zug 1

Rooms are notoriously hard to find, renovations everywhere.

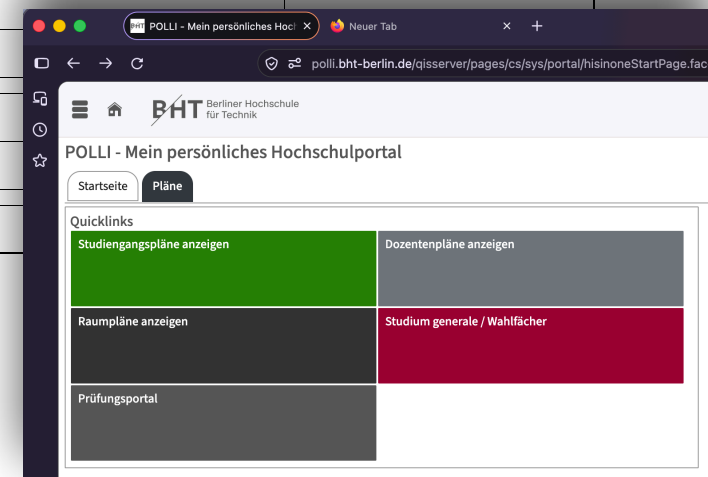
Check homepage for general maps (<https://www.bht-berlin.de/lageplan>)

Some space for learning at the university (Lernräume), check <https://www.bht-berlin.de/lernraeume>

Some labs offer access outside scheduled teaching hours

	Montag		Dienstag		Mittwoch	Donnerstag		Freitag
8:00	B 521 PR1.1 Programmierung 1 Siu, Yin Amy	B 521 PR2.1 Programmierung 2 Siu, Yin Amy	D 132 PR1.1 Programmierung 1 Übg. Siu, Yin Amy	226001 PR2.2 Programmierung 2 Übg. Siu, Yin Amy	D 132 PR2.2 Programmierung 2 Übg. Siu, Yin Amy	D 419 PR1.1 Programmierung 1 Siu, Yin Amy	D 419 PR2.1 Programmierung 2 Siu, Yin Amy	
8:45								
9:30								
10:00	B 521 CSI.1 Einführung in Computersysteme Siu, Yin Amy Flunkert, Valentin	226008	A 321 MAP.1 Mathematik für Programmierung Wagner, Ute	226006	A 324 CT1.1 Computergestützte Werkzeuge im Ingenieurwesen 1 Wagner, Ute	D 132 PR1.2 Programmierung 1 Übg. Siu, Yin Amy	A 129 CT1.2 Computergestützte Werkzeuge im Ingenieurwesen 1 Übg. Wagner, Ute	D 132 PR2.2 Programmierung 2 Übg. Siu, Yin Amy
10:45								
11:30								
12:15	D 132 CSI.2 Einführung in Computersysteme Übg. Flunkert, Valentin	226009 Gr. 1a	D E16b CSI.2 Einführung in Computersysteme Übg. Siu, Yin Amy	226009 Gr. 1b	A 129 MAP.2 Mathematik für Programmierung Übg. Wagner, Ute	226007 Gr. 1b	A 129 CT1.2 Computergestützte Werkzeuge im Ingenieurwesen 1 Übg. Wagner, Ute	D 132 PR2.2 Programmierung 2 Übg. Siu, Yin Amy
13:00								
13:45								
14:15					A 129 MAP.2 Mathematik für Programmierung Übg. Wagner, Ute	226007 Gr. 1a	D 132 PR1.2 Programmierung 1 Übg. Siu, Yin Amy	D 132 PR2.2 Programmierung 2 Übg. Siu, Yin Amy
15:00								
15:45								
16:00								
16:45								
17:30								
17:45								
18:30								
19:15								
19:30								
20:15								
21:00								
21:15								

Stand 28. September 2026 um 14:26



Course enrollment (*Belegung*)

Got enrolled?

Automated registration in matching Moodle course

Check regularly for details after enrollment (lecture start, additional registrations, rooms, ...)

Teachers may have individual course rules and announcements, notification by mail

Nobody tracks your progress —> your responsibility

Course is full?

Write a polite E-Mail to the teacher, explain the problem („I am late“, „I got sick“, ...)

There are very specific prioritization rules:

First enrollment / correct semester (beats) second enrollment (beats) third / fourth enrollment (beats) the rest

Try to stay with the recommended plan, doing courses later may become difficult

IT: E-Mail

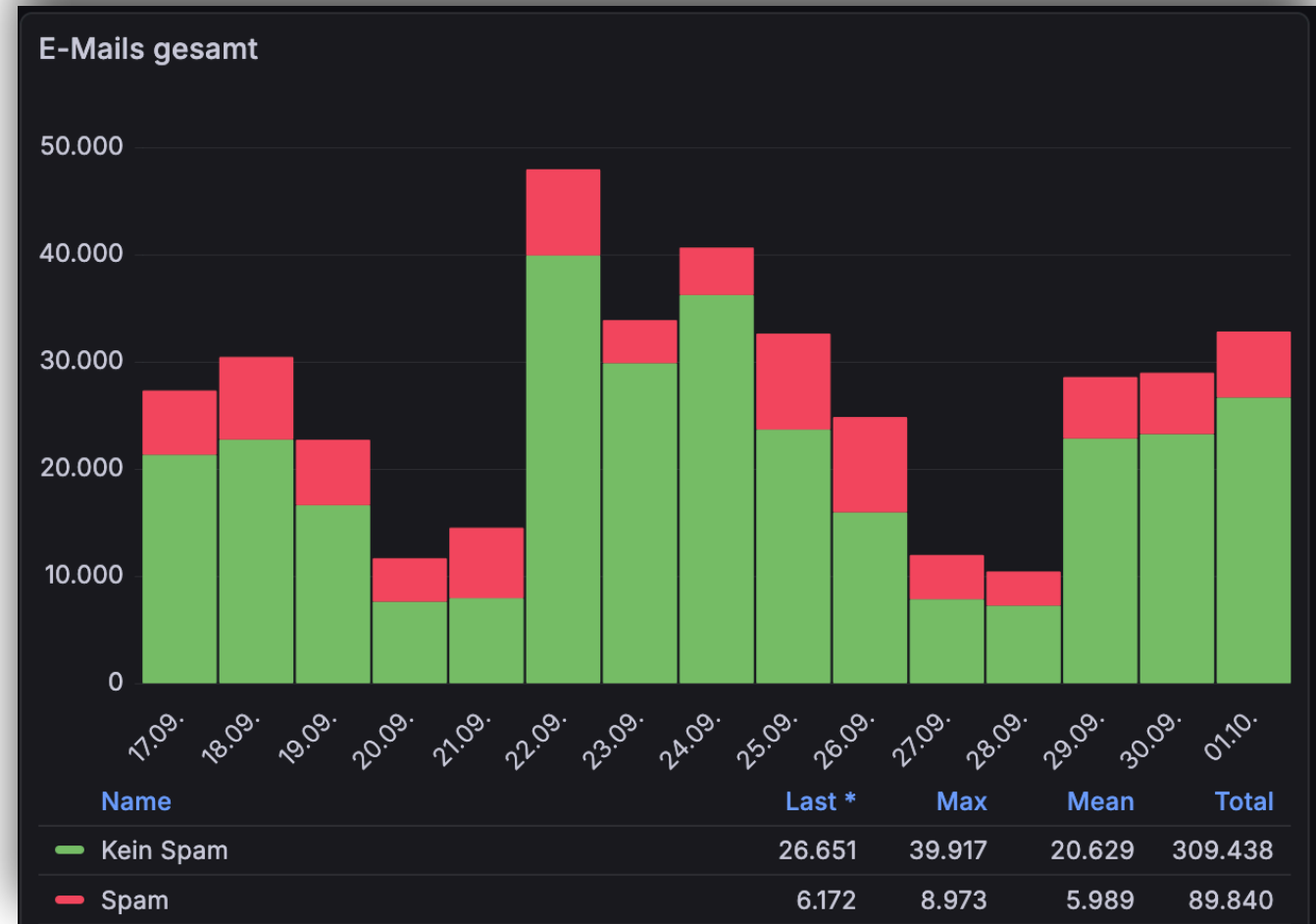
You already got your university email address

This is your primary communication tool

Do not use your private mail address to contact BHT staff (spam problem)

Check BHT mail account regularly (IMAP, webmail.bht-berlin.de)

Mail forwarding is forbidden, sorry (spam problem)



IT: E-Mail

Writing to teachers?

Always add your Matrikelnummer (*student ID*) and your course / study program.

Explain the problem, not the solution.

Attach proof (study transcripts, ...)

No blame game. We are all humans.

No answer? Try personal contact instead (office hours on homepage, hunt the prof after lectures)



IT: How to WiFi

Awesome worldwide WLAN federation:

<https://www.eduroam.org>

Check IT docs for configuring your device:

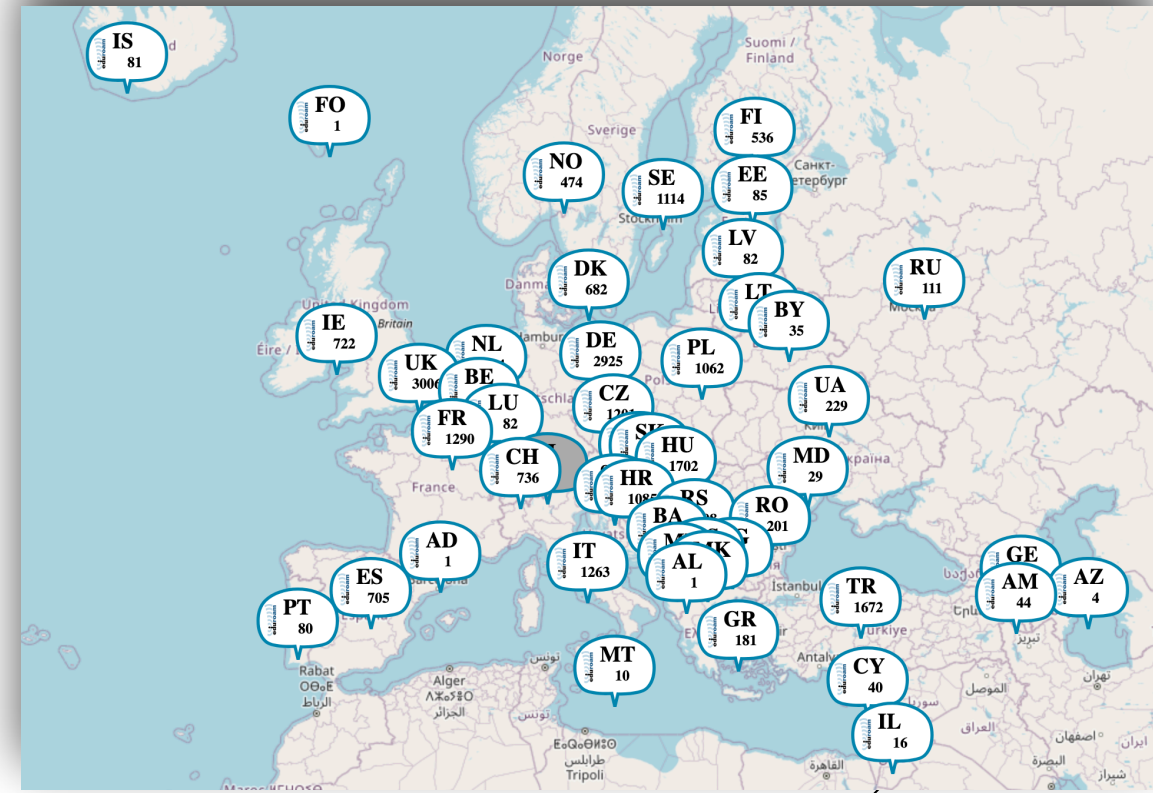
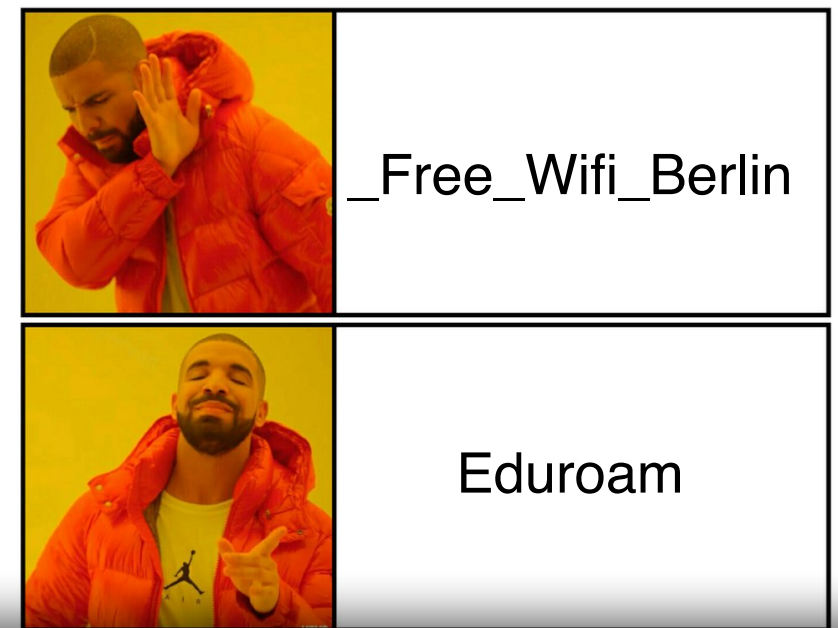
<https://doku.bht-berlin.de/zugang/wlan>

Guided installation with portal:

<https://www.easyroam.de/>

Eduroam WLAN gives you maximum bandwidth on campus

For course-specific access in the university network, VPN dial-in is often also needed



IT: VPN

University has its own VPN dial-in

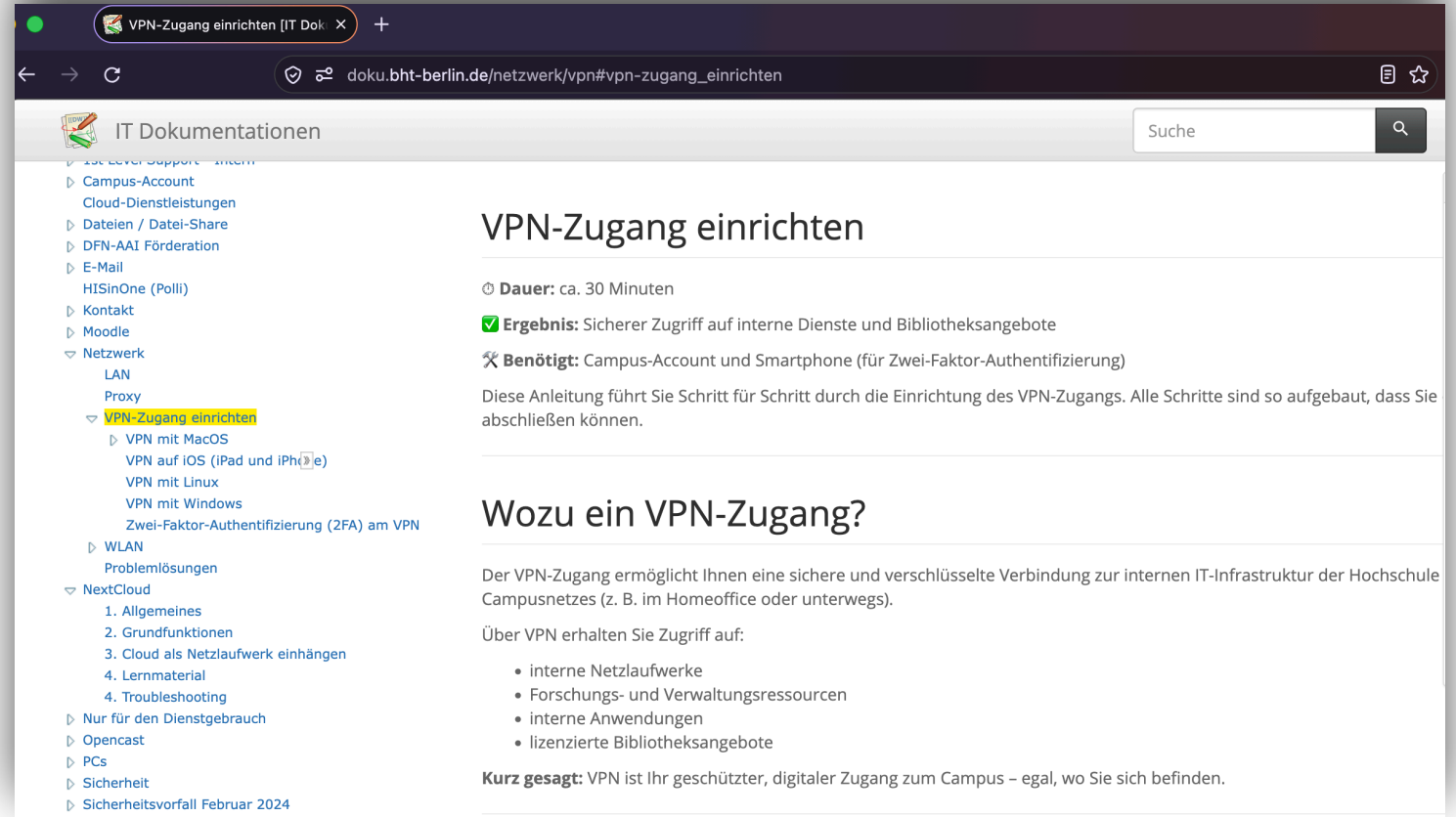
Your device becomes part of the university network

Access to restricted servers, file shares and databases

Becomes mandatory in later courses (machine ops, machine learning, ...)

Helpful for library access from home

Check IT documentation



<https://doku.bht-berlin.de/netzwerk/vpn>

IT: Other Services

Shared storage: Nextcloud (<https://cloud.bht-berlin.de>), Microsoft OneDrive 1TB storage

Video conferencing: Big Blue Button (<https://conference.bht-berlin.de>), Microsoft Teams

Office products: Office365 apps available for students (check your mail)

User certificate for mail encryption: <https://selfservice.bht-berlin.de>

LinkedIn Learning: <https://www.linkedin.com/learning/activate>

Password change: <https://selfservice.bht-berlin.de>

Compute power: Data Science cluster

AI services: To be announced next week ...



Student Participation

Fachbereich (*department*):

Computer Science and Media = FB VI. Remember Prof. Sauer, yesterday.

Fachbereichsrat / FBR (*department council*):

Central decision board for the department. Students are members.

Fachschaftsrat / FSR (*student council*):

FB VI student representatives. They are your friends. And they have old exams.

Allgemeiner Studierendenausschuss / AStA (*general student committee*):

The student parliament. They can annoy the university executive board, if they want. Students are members.

Last activity: Get to know your neighbors

Form groups of 4 people. Discuss:

What is your name?

Where did you live before coming here?

What have you done before starting your studies here?

Why did you choose data engineering?

What do you like to do when you are not studying?

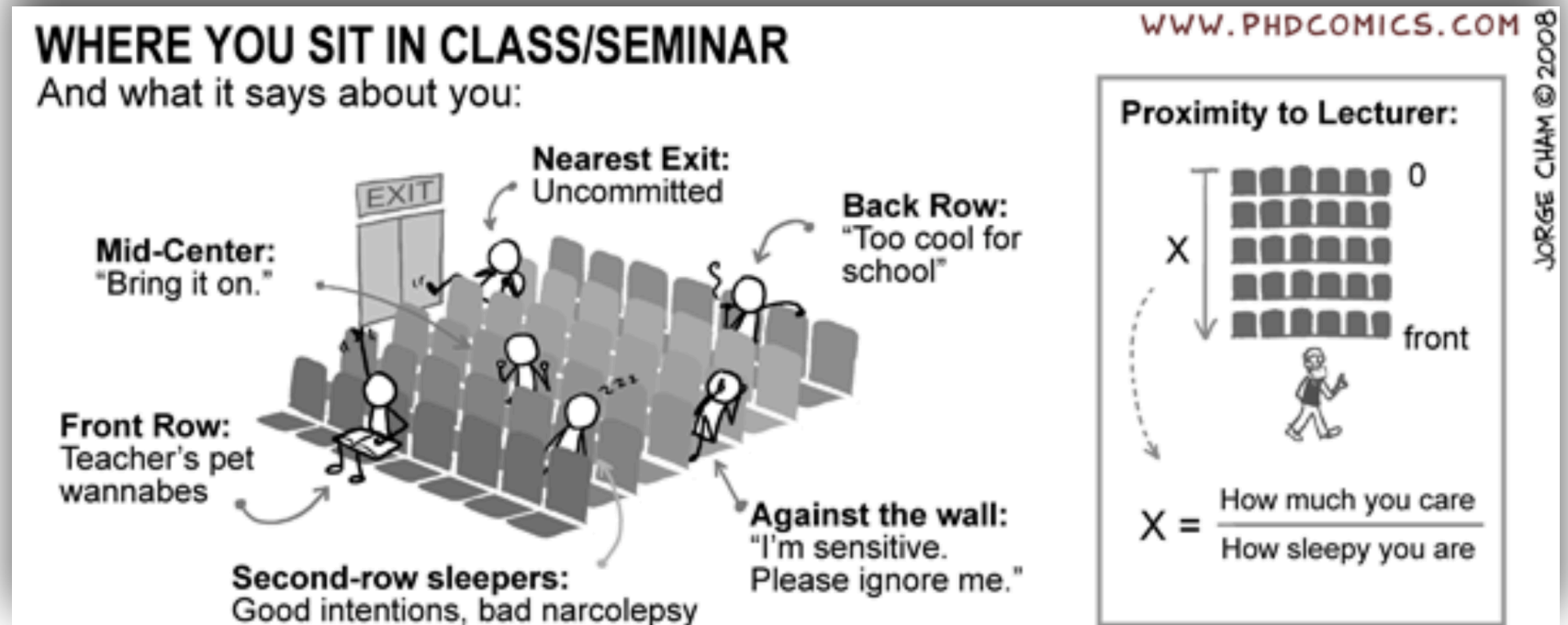
Exchange your contact details
(Signal, Discord, Instagram, ...)
and keep sharing.

Task: Find two surprising commonalities in your group. Tell everybody.

And besides all that ...

Touch grass.
You will forget everything we told you.
That's ok, as long as it is not our topic.
We teach you thinking, not facts.
At the end, grades are irrelevant.

Gain experience. That's what really matters.
You are surrounded by supportive people.
Learning means starting with something you don't know. That's ok.
Professors like engaged and curious people.
Have fun. This can be the best time of your life.



Feedback:
ptroeger@bht-berlin.de

Q & A