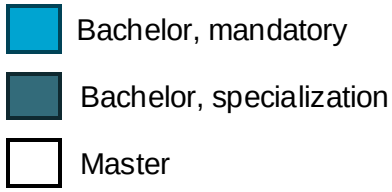
FREIE UNIVERSITÄT BERLIN

Operating Systems & Computer Networks
0. Organization

Dr. Larissa Groth
Computer Systems & Telematics (CST)

Structure of CST-Lectures



Computer Architecture

Microprocessor Lab (MPP, 10 ECTS)
Programming of embedded systems, IoT, mobile/wireless devices

Embedded Systems Architecture (AES, 6 ECTS)
structure and components of embedded systems, operating systems for embedded systems, interfaces, I/O

Computer Architecture (RA, 6 ECTS)
Harvard/v. Neumann, micro architecture, RISC/CISC, branch prediction, pipelining, cache, memory hierarchy, assembler, multi-processor systems

Operating Systems

Operating Systems (BS, 10 ECTS)
operation modes, resource mgmt, process mgmt, address space mgmt, IPC, file mgmt

Cluster Computing (CC, 5 ECTS)
HPC architectures, resource allocation and mgmt, parallel programs, runtime behavior

Operating Systems and Computer Networks (BKS, 6 ECTS)

Operating Systems
Input/output, DMA/PIO, interrupts, buffer, process/thread, UNIX/Windows

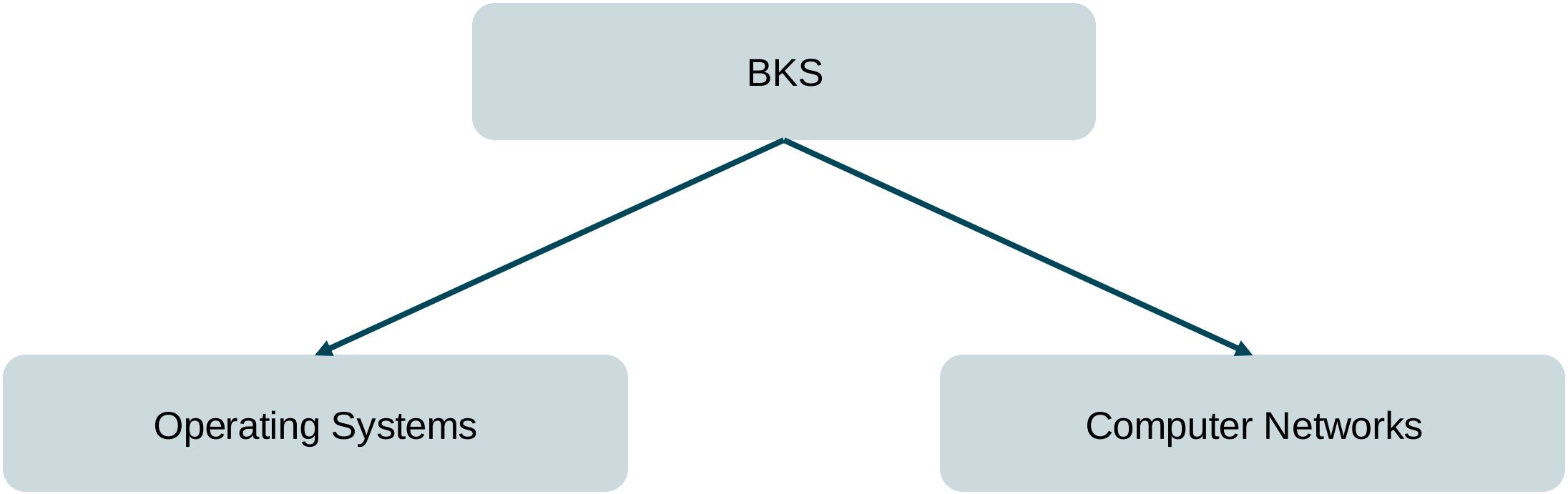
Computer Networks
networks, media access, protocols, TCP/IP, Internet

Networks

Telematics (10 ECTS)
Protocols, services, standards, security, QOS, routing, applications

Mobile Communications (5 ECTS)
Wireless transmission, media access, mobile IP, ad-hoc networks

Contents



Team

Lecturer

Dr. Larissa Groth (she/her)
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Office hours by appointment

Tutors

Dori Pfefferkorn (all pronouns)
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Fynn Völkening (he/him)
voelkenil05@zedat.fu-berlin.de

Course Organization

General:

News and Updates

- Whiteboard course site (via announcements)

Lecture

- Monday, 12-14h, T9 lecture hall
- Slides: see whiteboard resources
- (former) lecture videos of Prof. Schiller: http://www.mi.fu-berlin.de/inf/groups/ag-tech/teaching/resources/Course-Material.html

Attendance

- participation is voluntary, but strongly recommended!

Exercise:

Live Tutorials

- Groups of approx. 25-30 students
- Time depends on group
- Registration via whiteboard section info (opens today at 2pm)

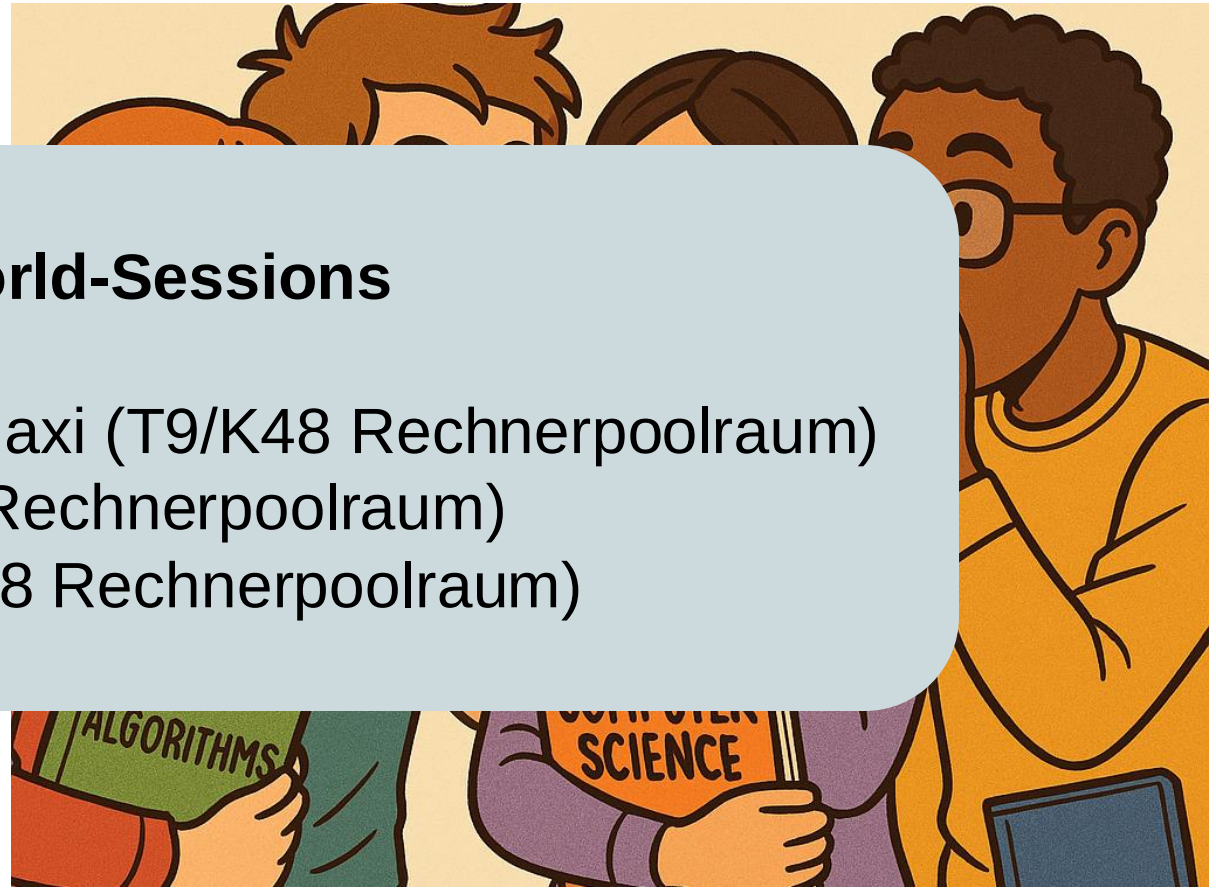
Attendance

- participation is mandatory
  - criteria of “regular attendance” is met if n-2 exercises have been attended

C-Programming

- substantial part of live tutorials
- “Selber denken macht schlau”
  - ➢ teaching ass… support yo…
  - ➢ following t… assistance‘…
- Whiteboard l…
- Gitlab:
  - one branch…
  - Readmes in…
  - Wiki with detailed explanation for each programming exercise

Rumour has it…



C-Toolchain- & helloWorld-Sessions

- Di 10 - 12 Antonia & Maxi (T9/K48 Rechnerpoolraum)
- Mi 8-10 Dori (T9/K38 Rechnerpoolraum)
- Do 16-18 Fynn (T9/K38 Rechnerpoolraum)

Workload

Lehr- und Lernformen	**Präsenzstudium** (Semesterwochen-stunden = SWS)	**Formen aktiver Teilnahme**	**Arbeitsaufwand** (Stunden)	
Vorlesung	2	–	Präsenzzeit V	30
			Vor- und Nachbereitung V	30
			Präsenzzeit SPC	30
Seminar am PC	2	Schriftliche Bearbeitung von Übungsaufgaben. Moderation einer Übung oder eines Teils davon.	Vor- und Nachbereitung SPC	60
			Prüfungsvorbereitung und Prüfung	30

- 15 lectures, 2 hours each
- 15 live tutorials, 2 hours each

➢ 6 **additional** hours per week for:
- the programming exercises, and
- pre- and post-lecture study!

Criteria for successful Active Participation

Criterion 1: **At least 80% of points in every online test in whiteboard for every lecture chapter and for C**

- 80% in each and every test individually!
- when and where you want
- how often you want
- your best results count

➢ reduced pressure on you (hopefully)

Criterion 2: **Live demonstration of independent, unassisted C-programming skills**

Criteria for successful Active Participation

Criterion 1: **At least 80% of points in every online test in whiteboard for every lecture chapter and for C**

Criterion 2: **Live demonstration of independent, unassisted C-programming skills**

either:

- 2 on-site tests during the semester
- taking place during the tutorials

or:

- considerably more complex C software project & review session
- independently developed project with documented code and written report, completed outside of tutorials
- submitted at least 1 week before the review session; meeting scheduled individually with your tutor

Criteria for successful Regular Attendance

- attending n-2 Live Tutorials

Exams

1. 21.07.2025, 12-14 h (s.t.), tba
2. 25.08.2025, 12-14 h (s.t.), tba

ProInformatik 2025:

- BKS: 28.07.2025 - 15.08.2025
- RA: 01.09.2025 - 19.09.2025

Only the exam counts for grading!

Literature

The course is based on:

- William Stallings, Operating Systems: Internals and Design Principles, Prentice Hall International
- Larry L. Peterson, Bruce S. Davie, Computernetze – Eine systemorientierte Einführung, dpunkt Verlag

Additional literature:

- Andrew S. Tanenbaum, Modern Operating Systems,
  Prentice Hall
- Abraham Silberschatz, Peter B. Galvin, Greg Gagne,
  Operating System Concepts, John Wiley & Sons

Lecture Etiquette & Expectations

- **Please, do not disturb!**
  - ➢ Especially not the other students!
  - punctuality is your responsibility
  - you may drink & eat & take bio breaks
  - you may use your phone, tablet, or laptop
  - ➢ **but all with minimal disturbance!**

- **No Go: Voice Messages!**

Make the most of your Lecture Time!

Staying focused is harder than ever!

- We're constantly available.
- Notifications, messages, and dopamine kicks are just one swipe away.
- Our minds crave stimulation – even if it disrupts deep learning.

What helped me (and might help you):

- use Focus Mode (on your phone & laptop)
  - ➢ block push notifications, silence distractions
- put your phone out of reach
  - ➢ out of sight = out of mind

*I wouldn’t have finished my PhD without **actively pushing back** against these distractions!*