



Distributed Systems

Winter Term 2025/26

Roland Wismüller
Universität Siegen
roland.wismueller@uni-siegen.de
Tel.: 0271/740-4050, Büro: H-B 8404

Stand: October 17, 2025



Distributed Systems

Winter Term 2025/26

0 Organisation

About Myself



- ➔ Studies in Computer Science, Techn. Univ. Munich
 - ➔ Ph.D. in 1994, state doctorate in 2001
- ➔ Since 2004 Prof. for Operating Systems and Distributed Systems
- ➔ **Research:** Secure component based systems; Pattern recognition in network data; Parallel and distributed systems
- ➔ Head of Examination Board
- ➔ **E-mail:** roland.wismueller@uni-siegen.de
- ➔ **Tel.:** 0271/740-4050
- ➔ **Room:** H-B 8404
- ➔ **Office Hour:** Mon., 14:15-15:15

About the Chair “Operating Systems / Distrib. Sys.”



Andreas Hoffmann
andreas.hoffmann@uni-...
0271/740-4047
H-B 8405

- ➔ E-assessment and e-labs
- ➔ IT security
- ➔ Web technologies
- ➔ Mobile applications



Felix Breitweiser
felix.breitweiser@uni-...
0271/740-4719
H-B 8406

- ➔ Operating systems
- ➔ Programming languages
- ➔ Virtual machines



Sven Jacobs
sven.jacobs@uni-...
0271/740-2533
H-B 8407

- ➔ E-assessment and e-labs
- ➔ Generative artificial intelligence
- ➔ Web technologies



Lectures/Labs

- ➔ Rechnernetze I, 6 CP (Bachelor, summer term)
- ➔ Rechnernetze Praktikum, 6 CP (Bachelor, winter term)
- ➔ Rechnernetze II, 6 CP (Master, summer term)
- ➔ Betriebssysteme und nebenläufige Programmierung, 6 CP (Bachelor, summer term)
- ➔ Parallel processing, 6 CP (Master, winter term)
- ➔ Distributed systems, 6 CP (Bachelor, winter term)

Teaching ...



Project Groups

- ➔ e.g., secure cooperation of software components
- ➔ e.g., concepts for secure management of Linux-based thin clients

Theses (Bachelor, Master)

- ➔ Topic areas: secure virtual machine, parallel computing, pattern recognition in sensor data, e-assessment, ...

Seminars

- ➔ Topic areas: IT security, programming languages, pattern recognition in sensor data, ...
- ➔ Procedure: block seminar (30 min. talk, 5000 word paper)
- ➔ Master: attend the lecture “Scientific Working” beforehand!
 - ➔ block course end of Feb. / beginning of March

Notes for slide 6:

A note on external Master theses: The right to give you a topic for a Master thesis lies with the University only!

This means, if you want to do a thesis at an external company or research institute, you **first** have to find a professor who will supervise you, and then, if she or he is interested, the professor may define a topic together with the company.

6-1

About the Lecture



➔ Lecture:

➔ Thursday, **08:30 - 10:00**, room H-C 6321

➔ Exercises:

➔ Thursday, 10:15-11:45, room H-C 6321

➔ start: 30.10.2025

➔ includes programming exercises (Java, python)



Information, Slides and Announcements

➔ On the course's webpage:

<http://www.bs.informatik.uni-siegen.de/lehre/vs>

➔ If necessary, updates/supplements shortly before the lecture

➔ look at the date!

➔ Exercise sheets will be put online as PDF

➔ please print and process them yourself!

➔ There is also a moodle course

➔ submission of mandatory exercise solutions

➔ self tests

Registration for “Course Achievement” (Studienleistung)

➔ Passing the course requires successful completion of homework:

➔ 10 exercise sheets with two mandatory exercises

➔ 6 exercise sheets must be successfully processed

➔ You must register for “4INFBA303-S - Coursework Distributed Systems” **before you can submit a solution!** (do it right now!)

➔ independent of the registration to the course and the lab!

➔ if you cannot complete the course work: **deregister** again!



The screenshot shows a Moodle course registration page. At the top, there is a dropdown menu with a green plus icon and the text "4INFBA303 - Verteilte Systeme - empf. FS 4 - Wahlpflicht - 6,0 Credits". Below this, there are four course entries, each with a right-pointing arrow icon and a blue book icon:

- 4INFBA303-VG1 - Verteilte Systeme (Vorlesung) - empf. FS 4 - Pflicht
- 4INFBA303-VG2 - Verteilte Systeme (Übung) - empf. FS 4 - Pflicht
- 4INFBA303-S - Studienleistung Verteilte Systeme - empf. FS 4 - Pflicht - 2,0 Credits
- 4INFBA303-P - Prüfungsleistung Verteilte Systeme - empf. FS 4 - Pflicht - 4,0 Credits

To the right of the last two entries, there are green buttons with a white plus icon and the text "Anmelden".



- ➔ Oral examination
 - ➔ duration about 30-40 minutes

- ➔ Registration:
 - ➔ first register at the campus management system (unisono)
 - ➔ at least 1 week before the exam date (better 3-4 weeks)
 - ➔ then fix a date with my secretary (Ms. Zetsche, H-B 8403)
 - ➔ at least 1 week before the exam date (better 3-4 weeks)
 - ➔ phone: -4048
 - ➔ email: `bsvs.zetsche@eti.uni-siegen.de`
 - ➔ cancellation is possible up to 7 days before the exam
 - ➔ via unisono
 - ➔ please inform me, too!



- ➔ Introduction
- ➔ Middleware
- ➔ Distributed programming (Java RMI, gRPC)
- ➔ Name services
- ➔ Process management
- ➔ Time and global state
- ➔ Fault tolerance
- ➔ Coordination
- ➔ Replication and consistency
- ➔ Distributed file systems

(Some changes compared to last year's lecture!)



- ➔ Understand the properties of distributed systems
 - absence of a global state
 - problems with synchronization and with consistency of replicated data
- ➔ Understand the approaches to solve the problems and be able to apply them to given challenges
- ➔ Be able to develop simple distributed programs
- ➔ Distinguish architecture models for distributed systems as well as different types and tasks of middleware and be able to assess their usability for given problems



- ➔ Andrew S. Tanenbaum, Marten van Steen. *Verteilte Systeme, Grundlagen und Paradigmen*. Pearson Studium, 2003. (English: *Distributed Systems: Principles and Paradigms, 2nd Edition*. Pearson Education, 2016. Available [online](#).)
- ➔ Ulrike Hammerschall. *Verteilte Systeme und Anwendungen*. Pearson Studium, 2005.
- ➔ George Coulouris, Jean Dollimore, Tim Kindberg. *Verteilte Systeme, Konzepte und Design, 3. Auflage*. Pearson Studium, 2002. (English: *Distributed Systems: Concepts and Design, 5th Edition*. Pearson Education, 2012.)
- ➔ Andrew S. Tanenbaum., Herbert Bos *Moderne Betriebssysteme, 5. Auflage*. Pearson Studium, 2025.
- ➔ William Stallings. *Betriebssysteme – Prinzipien und Umsetzung, 4. Auflage*. Pearson Studium, 2003.



- ➔ Jim Farley, William Crawford, David Flanagan. *Java Enterprise in a Nutshell*. O'Reilly 2002.
- ➔ Cay S. Horstmann, Gary Cornell. *Core Java 2, Band 2 – Expertenwissen*. Sun Microsystems Press / Addison Wesley, 2008.
- ➔ Robert Orfali, Dan Harkey. *Client/Server-Programming with Java and Corba*. John Wiley & Sons, 1998.
- ➔ Torsten Langner. *Verteilte Anwendungen mit Java*. Markt + Technik, 2002.

Werbung



Zentrum für akademisches Schreiben (ZefaS)

Deine Anlaufstelle für alle Fragen zum Schreiben im Studium

Angebote für Bachelor- und Masterstudierende aller Fächer:

- Individuelle Peer-to-Peer-Beratungen
- Workshops
- Schreib-Peer-Tutor*innen-Ausbildung
- ZefaS-Schreib- und Lesezeit

Mehr Informationen: 

UB Universitätsbibliothek Siegen  **Universität Siegen**