

Communications and Computer Networks

Summer Term 2023

Overview

- The team
- Lectures
- Exercises
- Labs
- Exam

- Preparation for the course
 - VPN
 - GNS3
 - Wireshark



About Prof. Dr. Daniel Spiekermann

- Since 2023 Professor at the FH Dortmund
 - Communication and Computer Networks
 - IT-infrastructure

- Previously:
 - 2020 – 2023 Professor at Police Academy of Lower Saxony
 - Digital investigation
 - Network forensics
 - Cybercrime

- Research focus:
 - Virtual environments
 - Digital forensics

About Prof. Dr. Rolf Schuster

- since July 2016 Professor at the FH Dortmund
 - Embedded Software
 - Software engineering
- Previously industrial activity in the field of telecommunications and IT
 - International telecommunications company
 - Technology Strategy and Innovation Management
 - R&D Management
 - Managing Director of start-up companies (Trust Center, Mobile Health)
- Research Focus: Edge Computing





Tutors

Arnim, 22 – PI-Student since 2019

- Working in server hosting industry since 2017, primary field of work: system administration and customer support
- Tutor at FH Dortmund since 2022

Tutors



Max, 31 – TI-Student since 2020

- Previously BA Elementary School Teaching (2020) at the TU Dortmund
- School support worker in the youth support center VSE Dortmund
- DaF/DaZ Teacher
- Tutor for CCN and AuD since today ;)



Tutors

Henning, 25 – PI-Student since 2017

- Current Master Student at FH-Dortmund
- Tutor at FH Dortmund since 2018
- Tutor in Theoretical computer science
- Working as a Scientific Assistant at the FH Südwestfalen since 2021

Introduction

Relevant information

- Documents for lectures, exercises and practical courses (Lab) in ILIAS:
- https://www.ilias.fh-dortmund.de/ilias/goto_ilias-fhdo_crs_2042.html

- Please join the course in ILIAS

- All documents will be published in time

 Exercises

 Groups

 Lab

 Lecture

■ Lectures:

- Wednesday 02:15 – 03:50pm in room A.E.01
- Lecturer: Prof. Dr. Daniel Spiekermann

■ Topics:

- Reference Models (OSI, TCP/IP)
- Physical layer, Transmission Media
- Ethernet, Network Components: Hub, Switch, Router; Virtual LANs (VLAN)
- IP protocols, addressing, routing, Network Address Translation (NAT)
- Transport Layer Protocols
- Wireless communication

Lecture agreements ...

... for an active and efficient learning atmosphere

- **I want to...**

- ... offer exciting and practice-relevant lectures.
- ... make the lecture interactive and varied.
- ... respond to individual questions and problem areas.

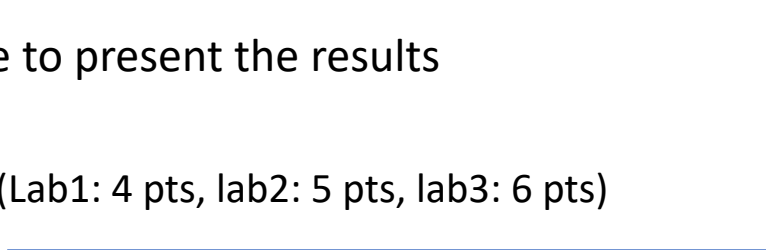
- **You should...**

- ... bring questions to the last lecture.
- ... download and prepare the lecture notes BEFORE the lecture.
- ... actively participate and take notes during the lecture.
- ... ask questions at any time
- ... summarize the respective contents after the lecture.
- ... do not disturb the course of the lecture.

Exercises

- 6 exercises at all
- Monday or Tuesday (depends on your choice)
- Discussion of the exercises, questions, understanding of lecture topics
- Lecture and exercises are interconnected
- Exercises will be published on fixed dates (E01 today)
 - Approx one week before exercise discussion slot
 - Working on exercises is highly recommended
 - But still voluntary
- Preparation for the subsequent labs

Points exam	Grade exam	Bonus-points	Final grade
80	2,0	15	1,0
74	2,3	10	1,7
70	2,7	6	2,3
50	4,3	15	3,3

- Same time slots as for exercises
 - Working in teams of 3 members
 - Self-administrating
 - But every member has to be able to present the results
 - Even voluntary, but
 - Bonus points available, up to 15 (Lab1: 4 pts, lab2: 5 pts, lab3: 6 pts)
 - Might improve your exam grade
 - Your presentation of the results at given date (approx 2 or 3 weeks after publishing of the lab), date will be draw by lot
- 

Result acceptance

- Presentation of the solution with GNS3 (appearance at the given date is mandatory to get the bonus points) in your team
- Submit your results **at least one day before** presentation date
- Presentation date will be published 7-10 days before
- Check by lecturer (Spiekermann, Schuster) / tutor with questions or tasks to perform:
- **Possible** questions / tasks:
 - ping from host1 to host2
 - Show routing table
 - Explain this network packet
 - Change the vlan assignment to VLAN ID 17
- Additional bonus points for correct presentation / answering

!!! No deadline extensions !!!

- Exam at the end of the term
- Exam preparation lesson in block week 3
- Bonus points will be added (more than 100 points are impossible)
- 100 points for 1.0
- 50 points for passing
- Lower than 50 points in exam = you **need** bonus points to reach 50 points
- Lower than 50 points in exam + bonus points = Not passed

Groups and teams

- Main structure for exercises and labs
- 7 time slots are available
- = 7 groups
- 3 time slots on Monday, 4 on Tuesday
 - One online slot (Tuesday: 17:30 – 19:00)
- Each slot 90 min
- Your FH lesson plan won't provide lots of possibilities

Groups and teams

- Find a team
 - 3 members is a must
 - Use Discord server for team findings
- Choose a time slot
 - ILIAS → CCN → Groups



Inhalt



Intern



Discord Link - Still server prep to do

Verfügbarkeit: 01. Jun 2023, 15:30 - 22. Jun 2023, 15



Excercises



Groups



Lab










Lecture

Groups and teams

- Find a team
 - 3 members is a must
 - Use Discord server for team findings
- Choose a time slot



Inhalt

	Group1 - Monday - 10:15 - 11:50
	Group2 - Monday - 12:00 - 13:35
	Group3 - Monday - 14:14 - 15:50
	Group4 - Tuesday - 08:30 - 10:05
	Group5 - Tuesday - 10:15 - 11:50
	Group6 - Tuesday - 14:15 - 15:50
	Group7 - Tuesday - 17:30 - 19:05 - online

Groups and teams

- Find a team
 - 3 members is a must
 - Use Discord server for team findings
- Choose a time slot
- Join ONE (!!!) group object at the time slot in ILIAS
- Each time slot provides 14 teams
- Come to the chosen slot **each** week
 - Exercises and lab
- No switching


 Team 1
Freie Plätze: 3


 Team 10
Freie Plätze: 3


 Team 11
Freie Plätze: 3

 Team 12
Freie Plätze: 3

 Team 2
Freie Plätze: 3

 Team 3
Freie Plätze: 3

 Team 4
Freie Plätze: 3

 Team 5
Freie Plätze: 3

Additional literature

- **Computer Networks**

Andrew S. Tanenbaum, David J. Wetherall
6. Edition, Pearson Studium, 2021

- **Internetworking with TCP/IP**

Douglas E. Comer
6. Auflage, Pearson Studium, 2013

- **Wireshark® 101: Essential Skills for Network Analysis - Second Edition**

Wireshark Solution Series (English Edition)
Laura Chappell, Gerald Combs, 2017

Summary

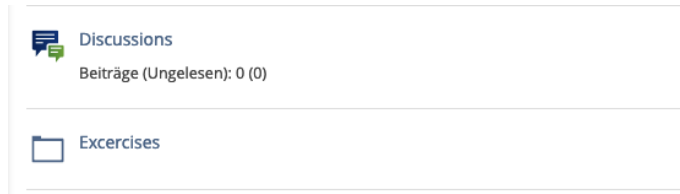
- Read every information carefully
- Watch the timetable, watch the news feed
- Try to understand every information
- **Try to understand networking, otherwise your exam might fail**
- Only participating or consuming is not sufficient
- Take care of the deadlines
- Have fun, try to work on your network skills

For general and common questions:

Use the tutor-provided Discord-Server:

<https://discord.com/invite/RMx8agG8n2>

or the discussions forum in ILIAS:



Group mailbox for **specific** questions.

Please check news, Discord and forum first:

ccn@fh-dortmund.de