

HPS

<https://hps.vi4io.org>

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Seminar with Practical: Scalable Computing Systems and Applications in AI, Big Data and HPC

Seminar with Practical: Learning Objectives

- Describe approaches for the development of scalable systems and apps
- Sketch efficient algorithms and concepts
- Analyze and summarize state-of-the-art concepts, tools and research papers
- Deliver a technical presentation for a professional audience
- Explore and apply concepts or tools to improve scalability for a use case
- Quantify efficiency and scalability of selected use cases

Seminar with Practical

- The module consists of the parts:
 - ▶ Topic Introduction Presentation 15 min, not marked
 - ▶ Practically working on the topic (individually)
 - ▶ Topic Result Presentation 25 min (30% of grade)
 - + 5 min Q&A + 5 min feedback
 - Leeway of ± 5 min
 - ▶ Report about topic and your results (70% of grade)
 - 10-15 pages (core content, without preamble/appendix)
- We aim to publish all presentations and reports on our webpage
 - ▶ You can disagree without any disadvantage
- Please check also [organisational remarks](#)
- A supervisor for formative assessment will be assigned per student
- Today, you can pick topics from the webpage!

Practical Aspect

- You'll look deeper into the selected topic, various options:
 - ▶ Evaluate practically a tools (on GWDG system and/or your Laptop)
 - ▶ Write your own use case to demonstrate framework/tool
 - ▶ Perform a performance analysis, write a benchmark
 - ▶ Compare different tools (theoretically and practically)
 - ▶ Extend the existing tool(s)
- Create a presentation and report from your findings with content such as:
 - ▶ Your problem description
 - ▶ Background (tool, context), existing knowledge
 - ▶ Your methodology
 - ▶ Your results
 - ▶ Your conclusion
- For best results, involve your supervisor:
 - ▶ Discuss proposal of activities
 - ▶ Discuss results

Schedule for Preparation of Presentation/Report

- 3 Weeks **before** presentation
 - ▶ Submission of a structure/rough sketch of the presentation to the supervisor
 - ▶ Receive feedback and optional discussion with the supervisor
- 2 Weeks **before** presentation
 - ▶ Sketch of the slides, feedback of the supervisor
 - ▶ Recommendation: practice the slides to find gaps
- 1 Week **before** presentation
 - ▶ Send slides to Jonathan to confirm that you can present in following week
 - If not done, your presentation will be **cancelled!**
 - ▶ Recommendation: practice slides for smooth transitions
- **Before** the end of the semester
 - ▶ Receive feedback on structure, style and content of report from supervisor
 - ▶ Submission of the report as PDF per email to Jonathanjonathan.decker@uni-goettingen.de

Course Organization

- 2025-10-30 Meeting: Introduction & Scientific Presentation
- 2025-11-06 Meeting: L^AT_EX Crash Course & Scientific Writing
- 2025-11-07 You have submitted your topic to Jonathan by email
- 2025-11-14 You have been assigned a supervisor and presentation date
- 2025-11-20 Meeting: Effective Literature Search
- 2025-12-04 Meeting: And following weeks, 2 student presentations per week
 - ▶ Project topic presentations in first half of semester
 - ▶ Project result presentations in second half
- 2026-03-31 Deadline for submitting reports

Additional Remarks

- It is your responsibility to contact your supervisor
 - ▶ They might take a few days to answer
- If you get stuck/need help ⇒ ask your supervisor
- Ask for feedback for the direction of your work, presentation, report
 - ▶ Be specific in your questions and feedback requests to get faster responses
- If you have a problem with your supervisor, contact Jonathan
jonathan.decker@uni-goettingen.de
 - ▶ If you have a problem with Jonathan, escalate to Prof. Kunkel
julian.kunkel@gwdg.de
- Remember to submit slides one week before the presentation
- If you are unhappy with your topic, discuss with your supervisor
 - ▶ Switching early on is possible
- We will inform you when FlexNow registration is open

Expectations

You will be graded based on

- Quality of presentation
 - ▶ Form/Style
 - ▶ Content/Depth
 - ▶ Present the results you have (not necessarily final)
- Quality of report
 - ▶ Form/Style
 - ▶ Content/Depth
 - ▶ Project Structure
- Requires in-depth work on topic
 - ▶ Even if desired results are not achieved
 - ▶ Write about what you have done and learned
- Bonus: Scientific context via reading (recent) papers

*"Students shouldn't go into life without the ability to communicate.
Your success in life will be determined largely by...*

- your ability to speak,*
 - your ability to write, and*
 - the quality of your ideas,*
- in that order."***

— Prof. Patrick Winston