# CFD-Lab Organizational Remarks

Benjamin Rüth, Gerasimos Chourdakis
Technical University of Munich
Department of Informatics
Scientific Computing

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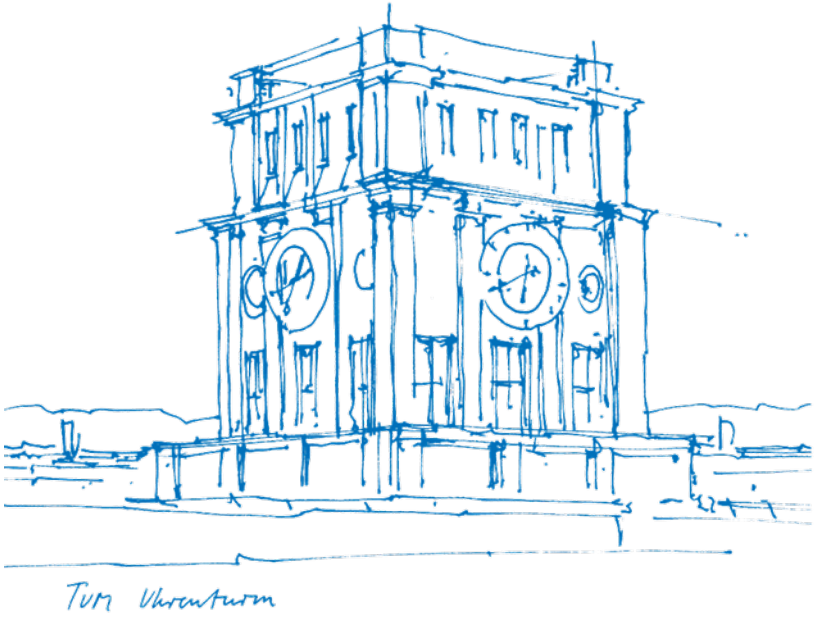

# Before we start

## A few Zoom (TUM-Conf) tips

- You don't need to share your video
  - but it is helpful for all while speaking
  - and it is helpful for us to get feedback
- Everybody starts muted to avoid background noise
  - "mute" button bottom-left
  - If somebody forgets to re-mute, we may do it
  - Please use headphones to avoid echo
- There is a chat (public and 1-to-1)
- You can use the status buttons to give us live feedback

**Important:** Stay until the end today!

# CFD Lab: Corona version

- Business as usual, but everything is different
- Learn how to work in groups (remotely)
- First task: understand Navier-Stokes basics (script)
- Lazy lecturers? Keep us busy!
- If you need help, ask (more true than ever)
  - Use the Moodle forum: share knowledge, avoid duplication, create a community
  - Help improving the script

## Remote working in a group

- Set clear rules
- Define communication channels
- Be creative: find out what works for you
- Communicate enough, document and share results
- If you have problems: ask us! We have some experience.

# General

Whole lab is done in group work

- groups of 3 (mixed groups CSE/CS are encouraged)
- oral examination for the whole group
- approx. 2 weeks for each worksheet
- approx. 1 month for your project

Course of Action

1. lecture on theoretical background
2. explanation of task
3. programming
4. examination
5. `GOTO 1`

# Examination **compulsory**

- one code handed in
- theoretical knowledge is tested
- questions concerning the implementation have to be answered
- **compulsory for each team member**
- grades are accumulated during the course
- 1 worksheet/examination failed $\Rightarrow$ lab failed

# Timeline

| Date | Time | Room | Type | Content |
|---|---|---|---|---|
| Thu 23 Apr, 2020 | 12:00–13:30 | Zoom | Lecture / Q&A | Navier-Stokes Equations 1 |
| Thu 30 Apr, 2020 | 12:00–13:30 | Zoom | Lecture / Q&A | Navier-Stokes Equations 2 |
| Wed 13 May, 2020 | tba | tba | Review Session | WS1 |
| Thu 14 May, 2020 | 12:00–13:30 | ??? | Lecture / Q&A | Arbitrary Geometries & Heat Transport |
| Wed 27 May, 2020 | tba | tba | Review Session | WS2 |
| Thu 28 May, 2020 | 12:00–13:30 | ??? | Lecture / Q&A | Parallelization |
| Wed 17 Jun, 2020 | tba | tba | Review Session | WS3 |
| Thu 4 Jun, 2020 | 12:00–13:30 | ??? | Lecture / Q&A | Introduction: Project Topics |
| Wed 24 Jun, 2020 | tba | tba | Review Session | Project Status 1 |
| Wed 1 Jul, 2020 | tba | tba | Review Session | Project Status 2 |
| Wed 8 Jul, 2020 | tba | tba | Review Session | Project Status 3 |
| Thu 16 Jul, 2020 | 12:00–??? | ??? | Lecture / Q&A | Final Project Presentations |

“Classroom” (this Zoom meeting) open every Thursday, 12:00–13:30 – come to discuss anything

# The usual

- Submission deadline on Tuesday 12:00 (noon)
- Choose slot for review session till Tuesday 12:00
- Review session on Wednesday afternoon (check Moodle for room and time slot)
- If no slot works, please trigger Gerasimos Chourdakis early on (`chourdak@in.tum.de`)
- Next lecture on Thursday Thu 30 Apr, 2020

# The usual

- C++ code, do not change framework structure (suggestions for improvement welcome)
- use IDEs, e.g. Eclipse / CLion / Visual Studio Code/-ium
- use debuggers, e.g. GDB
- use repositories to collaborate, stick to our Git + LRZ GitLab infrastructure
- **New:** We are preparing a Virtual Machine image for you, based on Kubuntu 20.04.

## Disclaimer

This is a well-tried course with a long history of improvements. This is the first year that we give a skeleton in C++ (before: C) and your feedback is crucial!

# Now: Small-group discussions

## Get to know your colleagues

- We split you in small groups, so that everybody can talk
- Introduce yourselves:
  - What are you studying?
  - What are you excited about regarding this course?
  - What are special skills you can bring to a CFD Lab group?
  - How long since your last haircut?
- Three rounds of 10 minutes
- We will go around the rooms, you can also click “ask for help”
- At the end: back here

**Remember:** You will need to form a group for the rest of the semester and we encourage interdisciplinary groups.

# Workflow in the time of Corona

- Read our lecture notes “script” (new!)
- Ask (and, if possible, answer) questions in the Moodle Forum
- Discuss questions every Thursday, 12:00 – 13:30 (or as long as needed), here
- In the announced sessions we only guide you to the material
- **Bonus:** Meet in a group of 3-6 people, discuss the theory together, submit a short “report” of who met, what you discussed, what questions you had, and how you answered them (until next week). Award: Get a *Bang!*-like “missed” card to discard one of our exam questions.

**Why asynchronous?** We expect a synchronous approach to be challenging for many students (network issues, time zones, etc), without adding much value. To not lose the class feeling, we use this mixed approach.

**Why no videos?** A lot of work to create, without clear benefit. If needed, we can record videos for specific topics (ask!).

# Meet here every Thursday, 12:00 – 13:30

- Optional!
- Prefer the Moodle forum for concrete questions!
- Discuss anything regarding the course, or just have a coffee break with your colleagues.
- We can also present tools.
- If group too large, we can again split it.

# Wrap-up and next steps

## Next steps

- “Sign” that you were in the Kick-off **now**! (link in Zoom chat)
- Read the script, sections 1 and 2 until next week
- Choose your group (fixed until the end of the semester!) till Thu 30 Apr, 2020 12:00 (before next lecture!)
- Point of no return: Tue 12 May, 2020 12:00 (submission first worksheet)
- First submission + choose review slot: Tue 12 May, 2020 12:00
- First review slot: Wed 13 May, 2020 (12:30 - 18:00)

## In the meantime

- Work on you remote working skills
- Use Moodle for questions
- Establish a learning group and use the opportunity to get a “missed!” card.

# Advertisements

## SCCS Colloquium

- Students and (sometimes) doctoral candidates presenting their research
  - B.Sc. & M.Sc. theses, Guided Research, IDP, conference talk rehearsals, ...
- Ideal way to start networking with our chair: Talk to people afterwards.
- Every Wednesday at 15:00 (if talks available), currently online
- `https://www5.in.tum.de/wiki/index.php/SCCS_Colloquium`

## preCICE

- The software project(s) we are developing for our research
- Most of our developing experience comes from this
- Free software (LGPL3), on GitHub, growing community
- Thesis / HiWi opportunities from time to time: send us an email
- `https://www.precice.org/`

## Other student projects possibilities at SCCS

See `https://www5.in.tum.de/wiki/index.php/Student_Projects`