

INTERNET OF THINGS

Introduction into Scientific Work

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AGENDA

- Organizational
- Scientific Work
- Presentations
- Scientific Writing

ORGANIZATIONAL

REGISTRATION

- You have to register for the course via the HIS
(**deadline to be announced**)
- Registrations are **binding**
⇒ you cannot withdraw from a registration after this date
- If you do not register before the deadline you cannot pass the course

STUDENT ADVISORY SERVICE FACULTY 2

FOR SUCCESS IN YOUR STUDIES

Workshops

www.frankfurt-university.de/start-fb2



StudyCompass

www.frankfurt-university.de/studycompass



Instagram: @ study.compass

CampUAS : StudyCompass

E-Mail: INFO-LETTER

RSS-Feed: subscribe

Student mentoring

www.frankfurt-university.de/mentoring-fb2



Study counseling

www.frankfurt-university.de/studienberatung-fb2

INDIVIDUAL (STUDY) ADVICE

Your student advisors for the **Fb 2:**
Rieke Jürgensen & Anja Ruhland

They offer you support in all matters relating to your studies!

Advice on

- effective learning
- course of studies
- study and future planning
- financing your studies & scholarships
- important life decisions
- and many other topics

To the appointment booking portal:
<https://www.frankfurt-university.de/studienberatung-fb2>



WORKSHOPS (ENGLISH, ON CAMPUS)

- **November 09, 2024** and **December 07, 2024:**
Academic Writing and Working
- **January 18, 2025:** Presenting in English

SCIENTIFIC WORK

HOW TO APPROACH YOUR SCIENTIFIC WORK?

*How would you start?
What are your biggest uncertainties right now?*

SEMINAR WORKFLOW

1. Choose your research area
2. Survey the area
3. Browse the literature
 - **Make notes!**
4. Identify a relevant research question
5. Prepare your presentation
6. Write your report
 - **Start early!**

WHAT TO READ?

*What should I read?
How do I read?
Where do I find it?*

RESEARCH LITERATURE

What?

- Browse generic sources (blog articles, magazines, Wikipedia etc.)
- Scientific papers
- Standards/Protocol specifications
- Technical documentation

Where?

- Library
- Google Scholar
- ResearchGate
- Search engine of your choice

How do you properly build upon existing research results?

“STANDING ON THE SHOULDERS OF GIANTS”

Correct Citation

- Back your statements
- Insert a reference for any direct or indirect citation
- Direct citations must be marked with quotation marks
- Use a consistent citation style

TYPES OF PUBLICATIONS

Content/Style

- Original Research
- Review/Survey Article
- Position/Opinion Paper
- Case Study
- Problem Statement

Format/Publication

- Conference/Workshop Proceedings
- Journal Paper
- Short Paper
- Poster
- Demo
- Non-scientific Publication

PRESENTATIONS

PRESENTATION FORMAT

- Presentations will happen during the semester
- One or two presentations per session
- Each presentation should be 20–25 minutes + 5 minutes Q+A

We all want to learn something

- ⇒ Infotain us!
- ⇒ Participate!

What is a good presentation?

PREPARING YOUR PRESENTATION

- Tell a story!
 - Focus on the key points/highlights
- Uncritical brainstorming, critical selection
- Focus on the content first, then on the format (→ slides)
- What does the audience need to know to follow your presentation
- Make the audience interested in your work
 - Motivate your topic
 - Convince them that your paper is worth reading
 - Ensure they understand why you present each piece of information
- Target your audience



Photo by [Lala Azizli](#) on [Unsplash](#)

PRESENTING YOUR WORK

- Start with an appealing introduction (→ question, example ...)
- Rule of thumb: \approx one slide per minute
- Time management is crucial
- Keep your slides lean: the less text, the better
- Leave out any non-essential detail
- Use pictures (→ but mind the license)
- User appropriate headlines
- Do not leave anyone behind
- Conclude your talk



Own work

TYPICAL STRUCTURE

- Motivation
- Overview over your talk
- Related work
- Contribution
- Key insights (or evaluation)
- Conclusion

KEEP IN MIND!

- There is no need for n+1 introductions into IoT!
- Name the (or at least some) challenges for your field
- You're doing it for the rest of the course - not for me
- Don't convert your report into a presentation

When using slides

- Don't forget the page numbers
- Prepare and present an agenda

CHECKLIST WRT THE CONTENT

- What is the key thing the audience should remember?
- Is there enough background material for the intended audience?
- Is any material unnecessary? Could some of the material be left for people to read about later?
- Is the talk self-contained? Is it appropriate to an audience of mixed background?
- Is the length appropriate? Is the structure right for the length?
- Does the talk have a motivating preamble?
- Is the talk balanced, without too much time given to any one element?
- Are complex issues explained in gentle stages?
- Are the results explained? Is the impact of the results made clear?
- What were the limitations of the research? Where are they discussed?

CHECKLIST WRT THE SLIDES

- Have you found good tools, or methods, for drafting a talk?
- Are figures uncluttered, with legible, horizontal text?
- Is there any unnecessary animation? Is the style appropriate, or flashy?
- Are the font sizes reasonable?
- Are the numbers necessary? Are more diagrams needed?
- Are the slides simple? Do they have unnecessary ornamentation or distracting use of colour?
- Does each figure illustrate a major point? Does it illustrate the point unambiguously?
- Are there enough examples?
- Do you have the right to use the figures and illustrations?

CHECKLIST WRT THE PRESENTATION

- Have you prepared something to say about each slide?
- Do you explain why the research is interesting or important?
- Is there a clear conclusion?
- Have you rehearsed the talk? What mechanisms are you using to keep yourself to time?
- Have you memorized the talk?
- If you are asked a question you can't answer, how will you respond?
- Have you rehearsed your manner? Will your enthusiasm show?
- Do you know how to use the equipment?

SCIENTIFIC WRITING

WRITING A PAPER

- Define the scope
- Develop a *red thread*
- First Draft
- Iterations and getting feedback
- Polishing



ORGANIZATION

- Title and authors (with affiliation and contact data)
- Abstract
- Introduction (including a TOC)
- Body
- Conclusion
- Optional: Outlook
- Bibliography

STRUCTURE

Example Structure (Survey)

- Introduction
- Definition of key terms
- Classification/Categorization
- Case studies
- Discussion
- Conclusion

VISUALIZATIONS



- Graphs and figures can help understanding
- Tables are valuable for categorizations and comparisons
- Always put captions and labels to graphs, figures, and tables
- Refer to them in the text
- Readability is key!

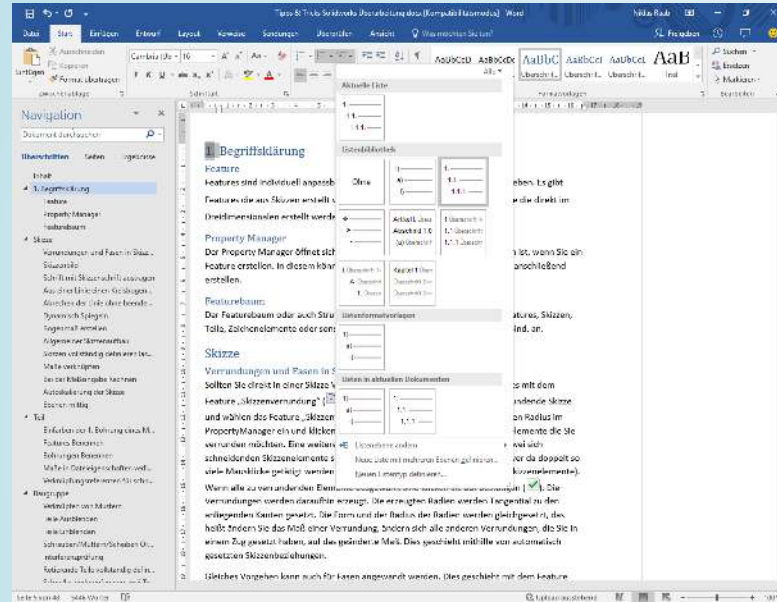
STYLE

- Be concise
- Be objective and accurate
- Keep sentences and paragraphs short
- Use a simple language
- Avoid indirect (passive) statements



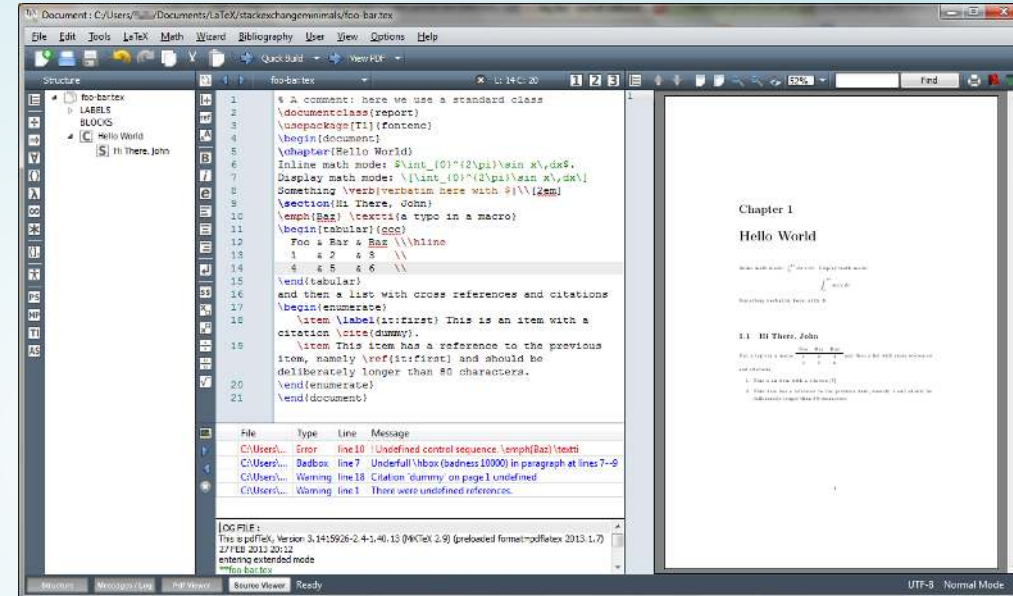
TOOLING

Microsoft Word



Happy writing!

LaTeX



SUMMARY



Any Questions?