

Seminar Algorithmentechnik

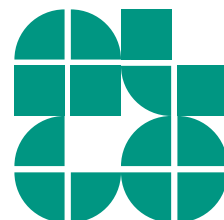
Geometry, Graphs and Algorithms

Introduction and Topic Distribution

LEHRSTUHL PROF. WAGNER · INSTITUT FÜR THEORETISCHE INFORMATIK · FAKULTÄT FÜR INFORMATIK

Tamara Mchedlidze · Torsten Ueckerdt

18.10.2019



1. Organizational issues

- Structure
- Your Participation

2. Topics

- Presentation of the topics
- Distribution
- Meeting your advisor

Institute of Theoretical Informatics, Algorithms Group

- Tamara Mchedlidze
- Torsten Ueckerdt
- Lukas Barth
- Lars Gottesbüren
- Sascha Gritzbach
- Marcel Radermacher
- Franziska Wegner
- Matthias Wolf
- Tim Zeitz

Participants



Short presentation:

- Name
- Direction of studies/Semester
- Background in Graphs,
Computational Geometry and
Algorithms

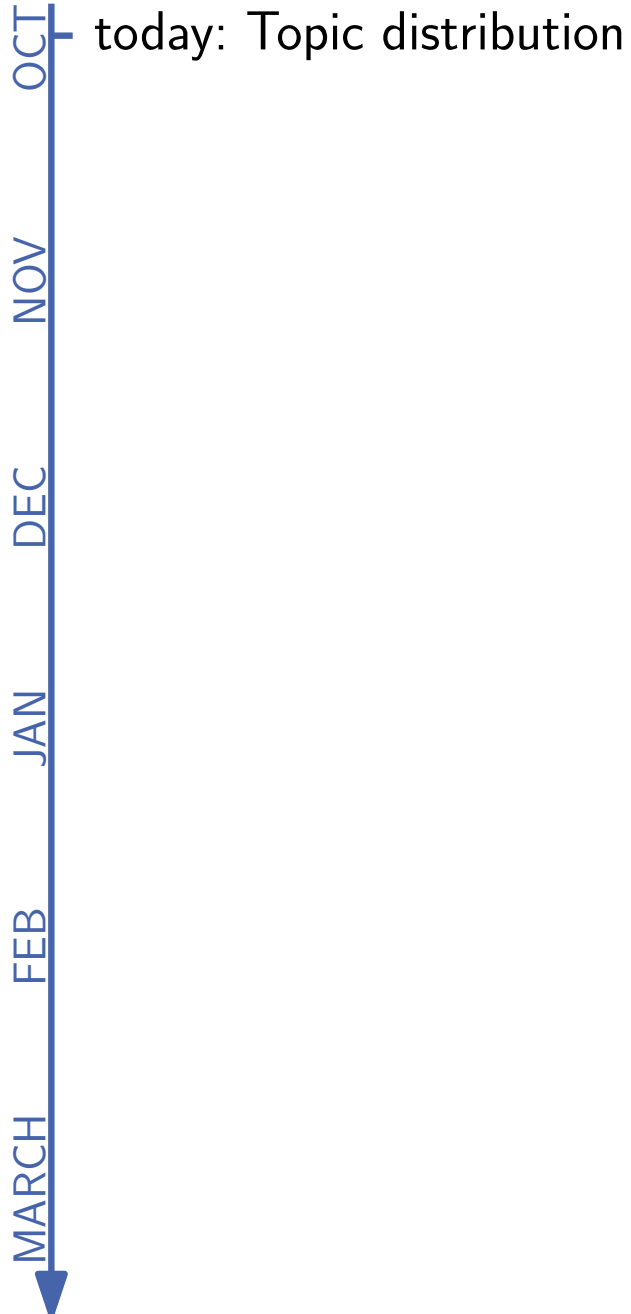
Seminar Summary

- **independent work** on a recent research topic
- extraction of the **highlights** of the topic and their **short** presentation
- investigation of the topic and **scientific presentation** of it
- **actively discuss** the topics of the other participants
- present the details of the topics in **your own words** in a written document
- **evaluation** of a scientific text

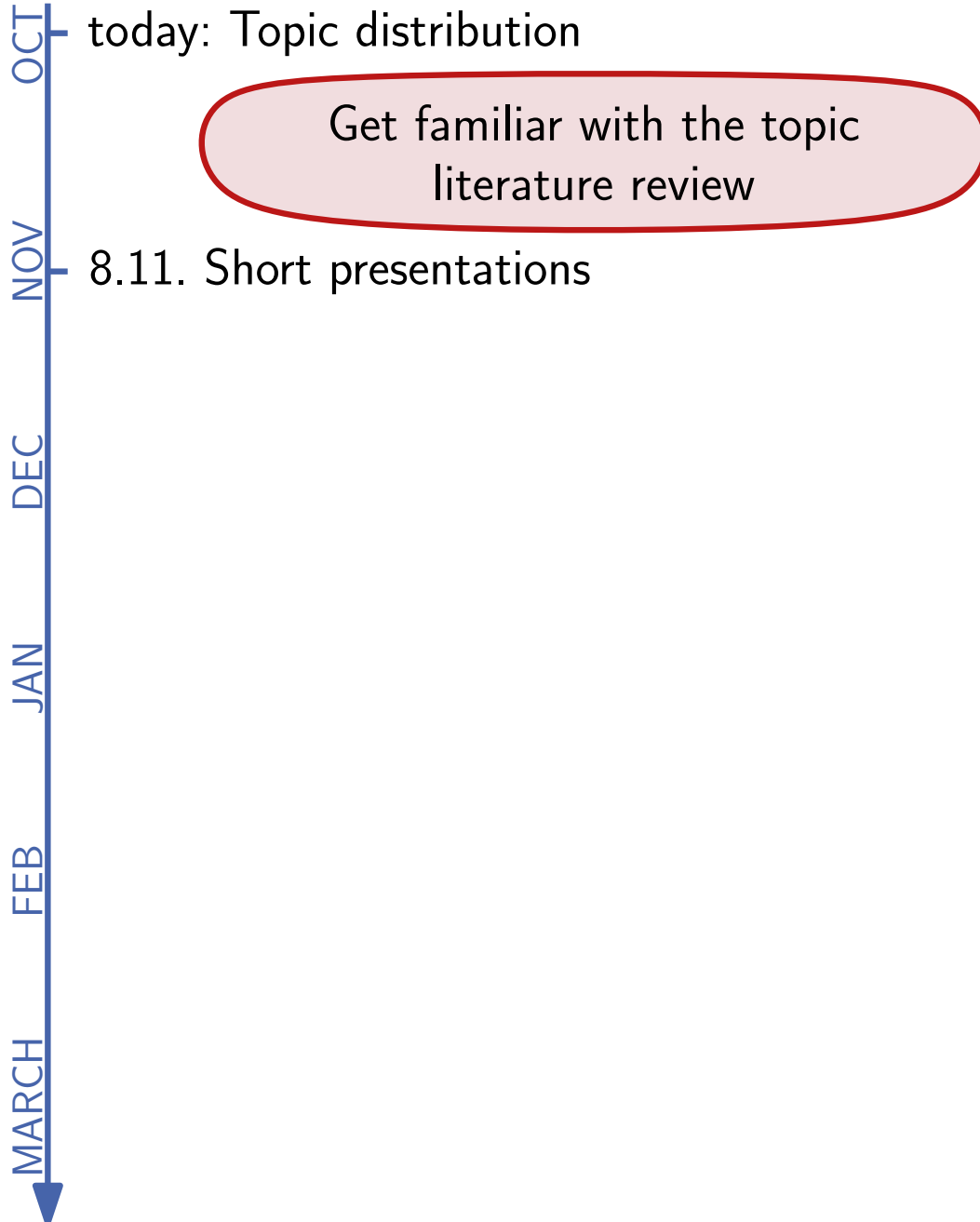
Seminar Summary

- **independent work** on a recent research topic
 - extraction of the **highlights** of the topic and their **short** presentation
 - investigation of the topic and **scientific presentation** of it
 - **actively discuss** the topics of the other participants
 - present the details of the topics in **your own words** in a written document
 - **evaluation** of a scientific text
- Opening of your horizon on the various topics in theoretical computer science
- Basic skills of scientific work
- Preparation for the Master thesis and its presentation

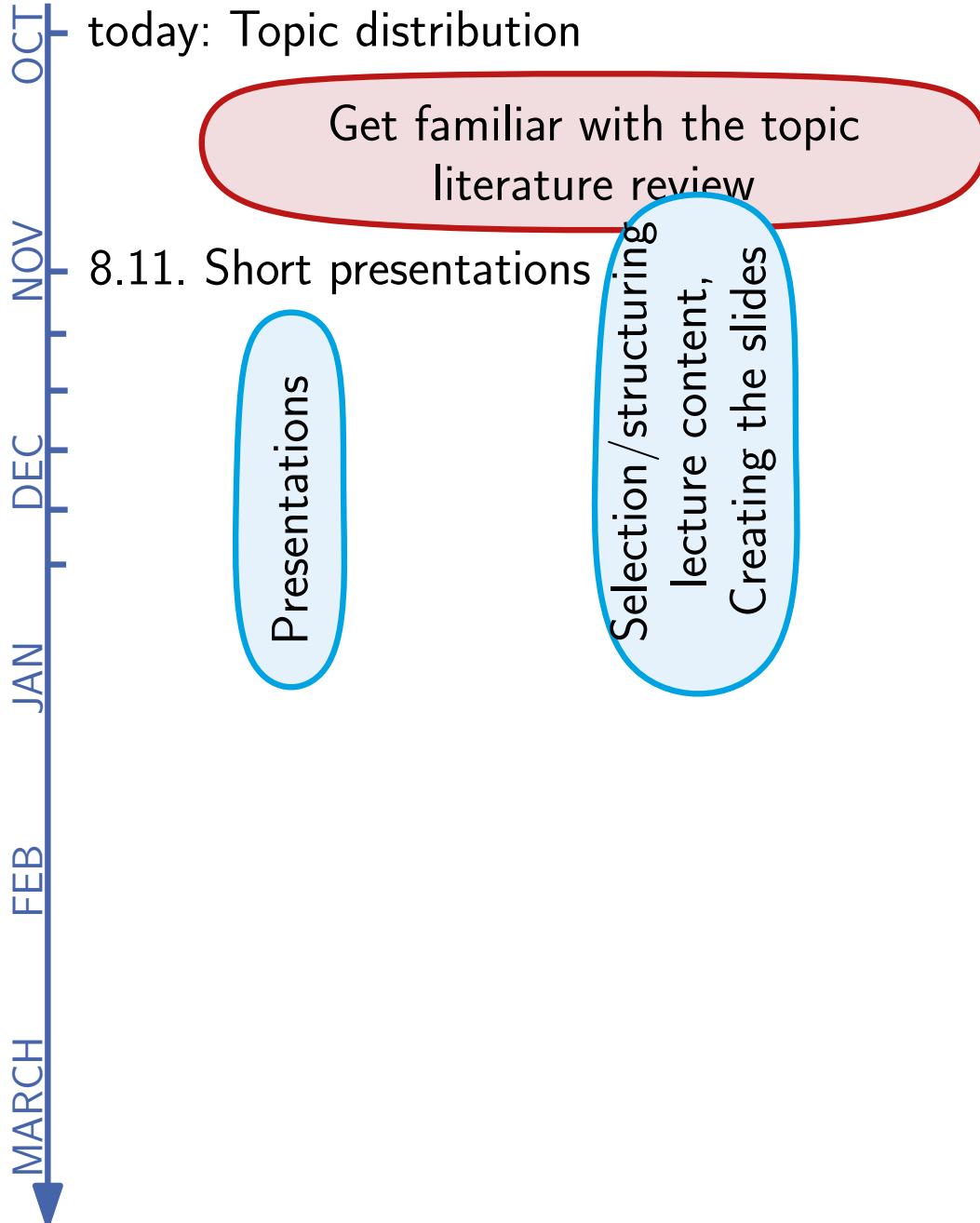
Time-line



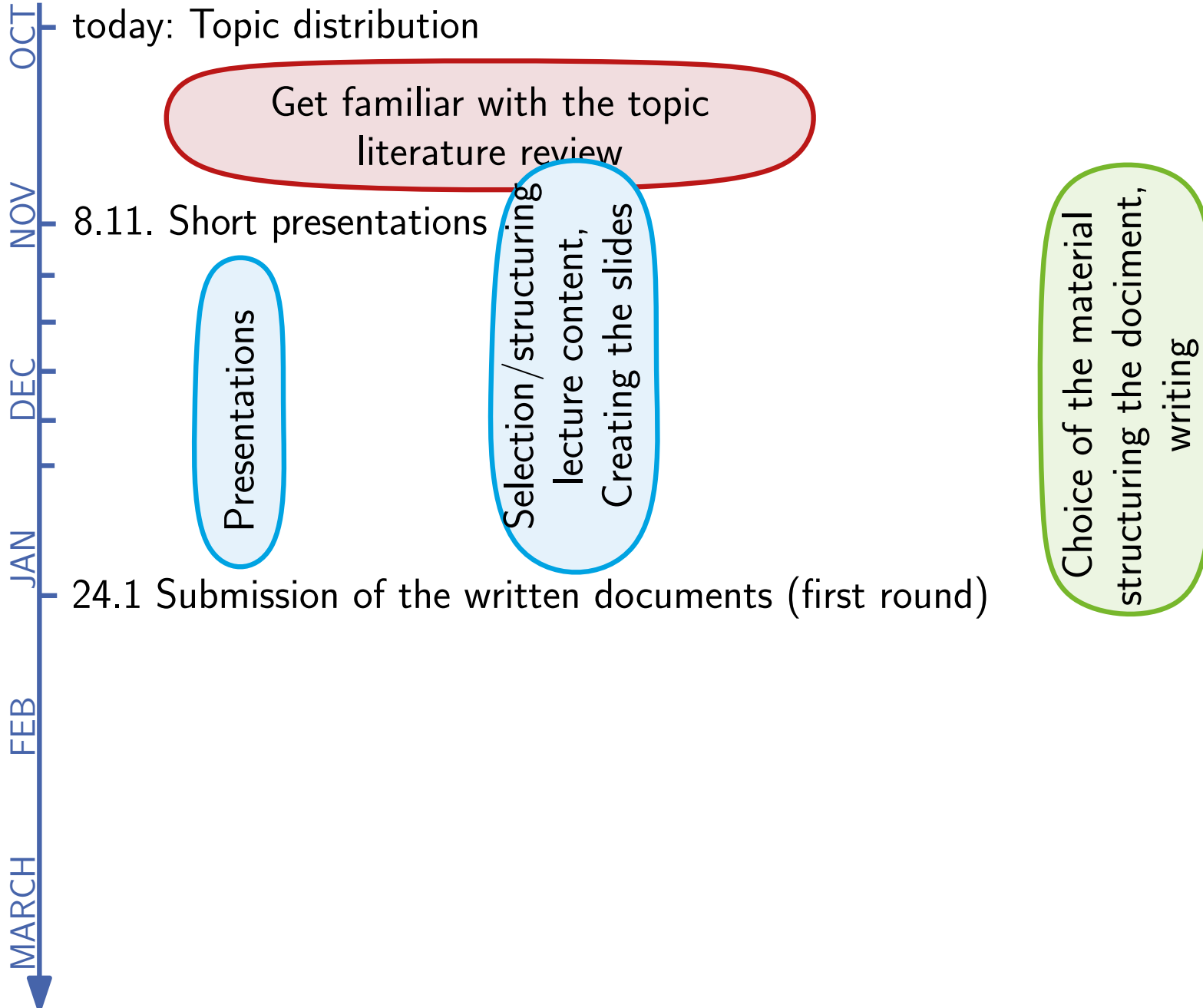
Time-line



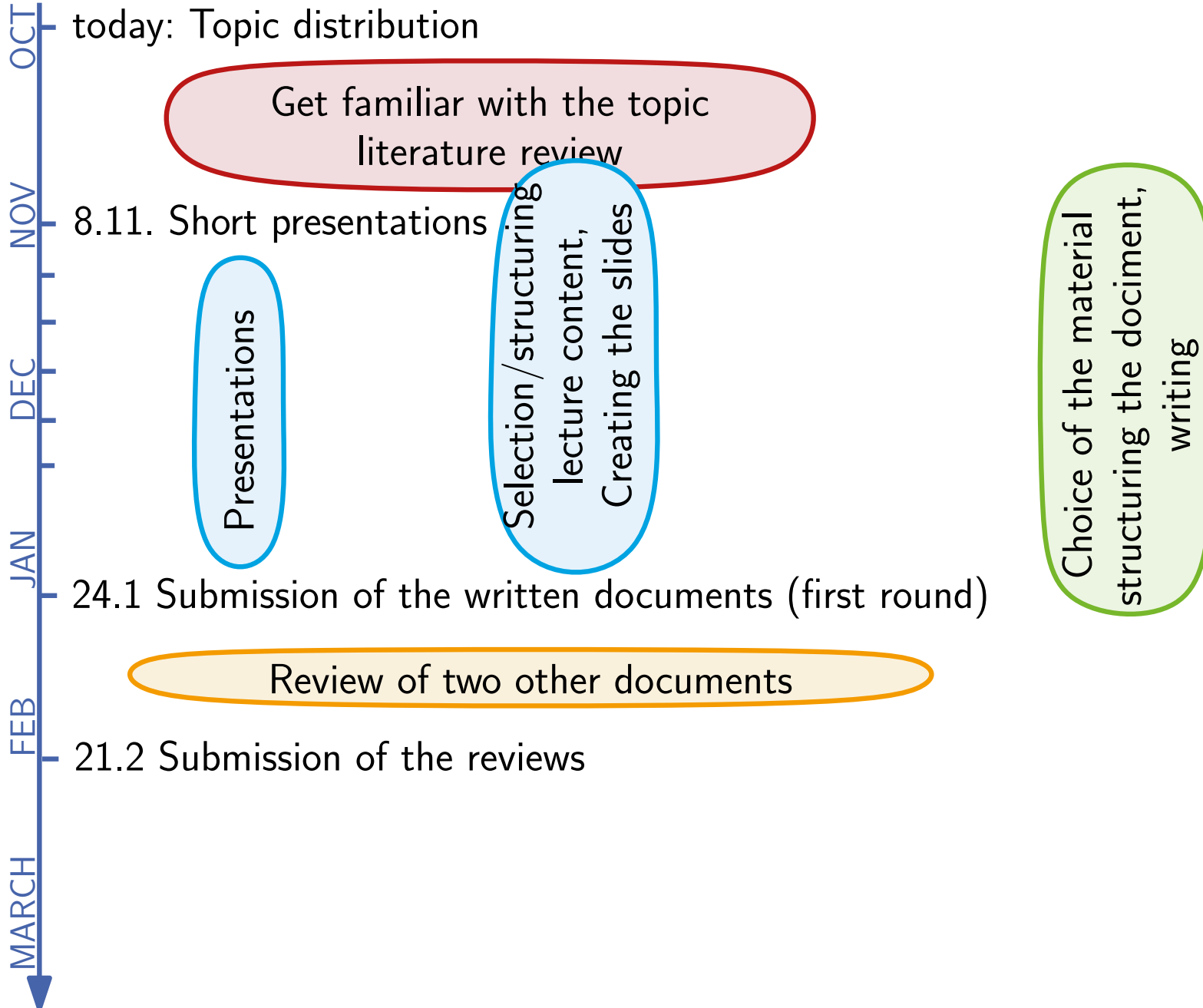
Time-line



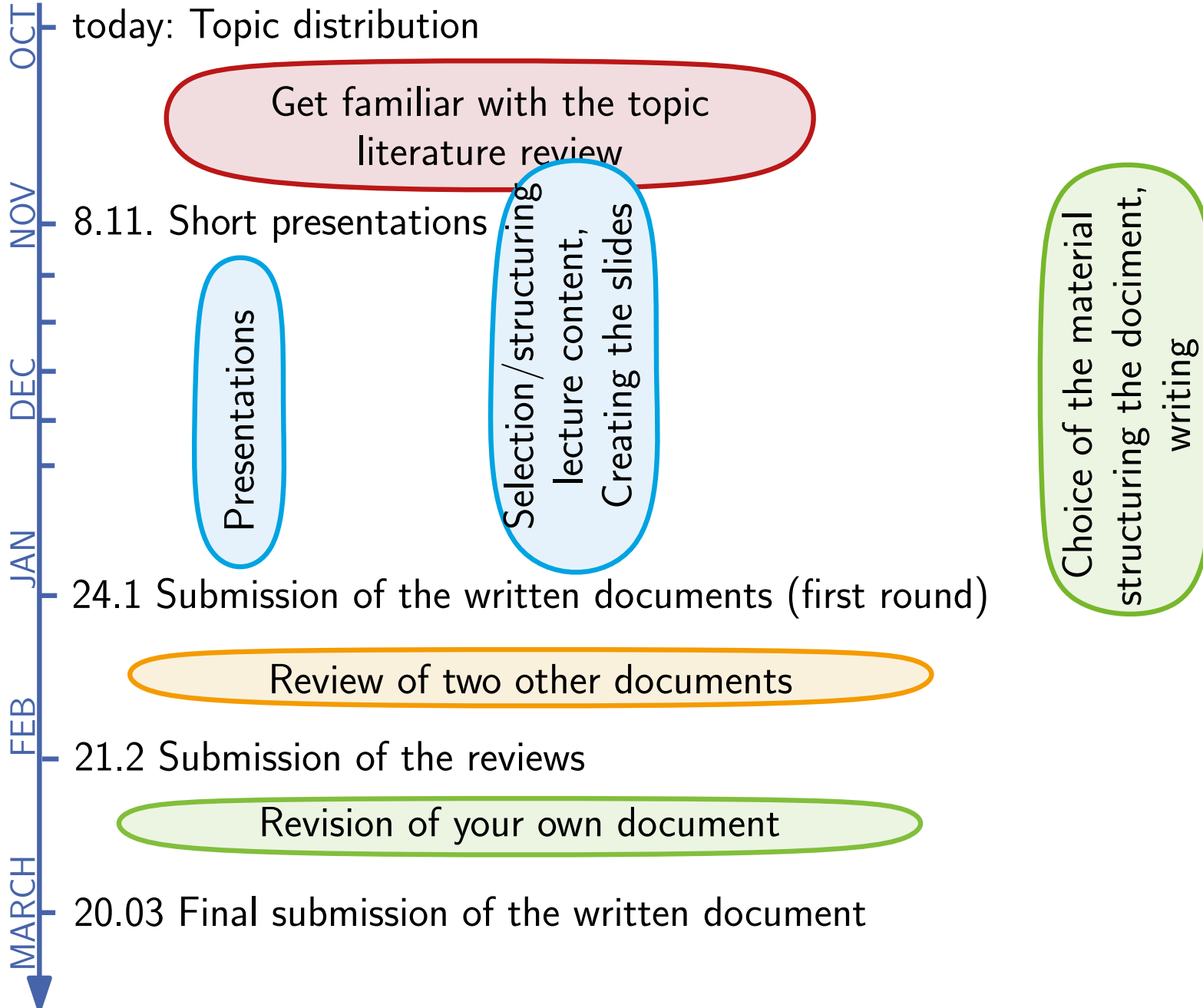
Time-line



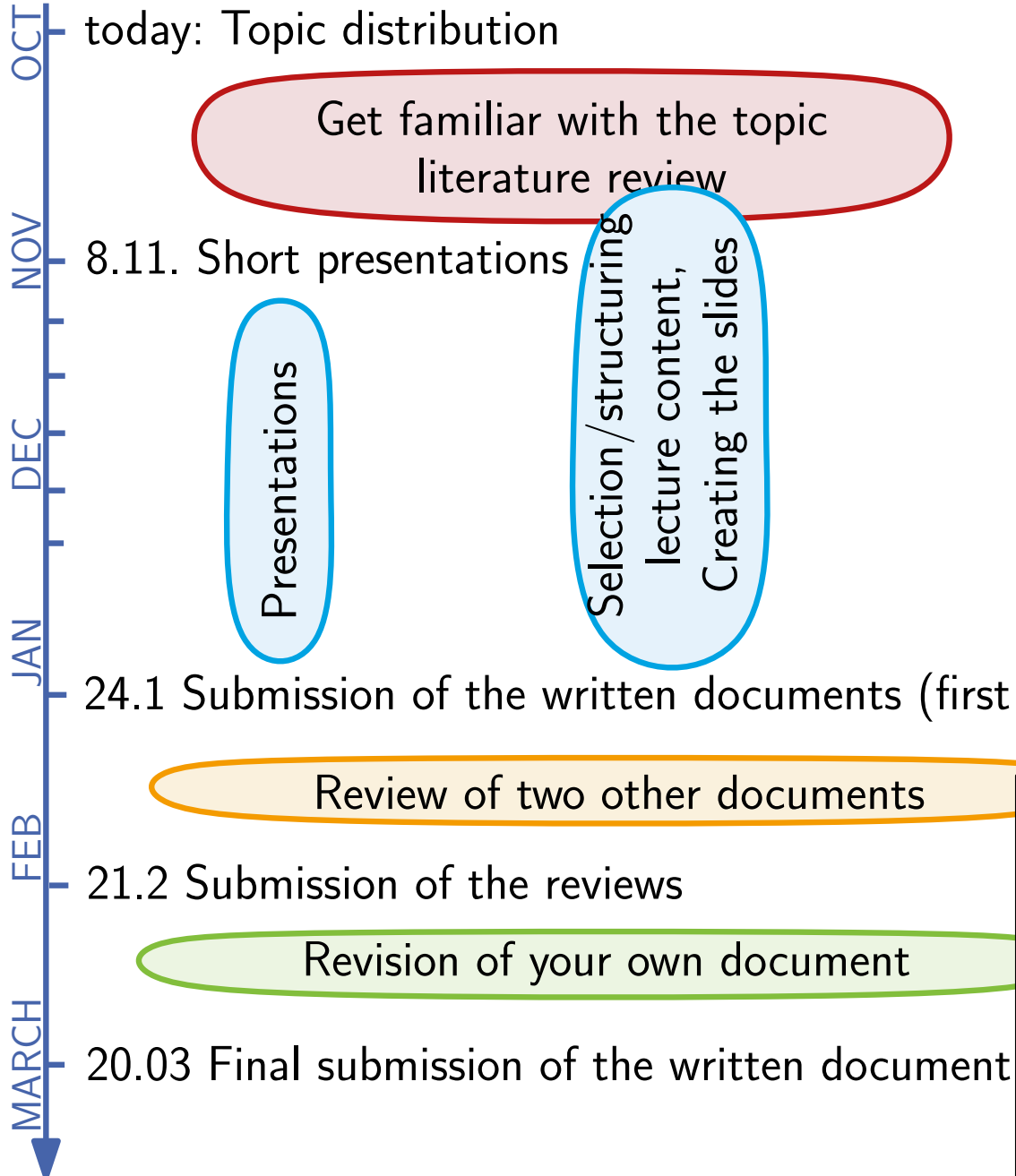
Time-line



Time-line



Time-line



Get familiar with the topic literature review

Presentations

Selection / structuring lecture content, Creating the slides

Choice of the material structuring the document, writing

Review of two other documents

Revision of your own document

Approximate time	
Read, do research, understand	40h
Making presentations and practicing	30h
Writing and structuring	30h
Read another work and evaluate	10h
Presentations	10h

Your Participation

- **Short presentation** of the highlights of the topic
- **Main presentation** of the topic
- **Presence** on the presentations and **participation** in the discussions
- **Written document** of the topic, formulated in your own words with concentration on your own questions
- **Review/correction** of two documents of other participants
- Following the deadlines (help to keep the flow of the seminar)

- **Short presentation** of the highlights of the topic
- **Main presentation** of the topic
- **Presence** on the presentations and **participation** in the discussions
- **Written document** of the topic, formulated in your own words with concentration on your own questions
- **Review/correction** of two documents of other participants
- Following the deadlines (help to keep the flow of the seminar)

Grade

- Quality of the **main presentation** (content, structure, presentation skills)
- Quality of the *final* **written document**

Your Participation

- **Short presentation** of the highlights of the topic
- **Main presentation** of the topic
- **Presence** on the presentations and **participation** in the discussions
- **Written document** of the topic, formulated in your own words with concentration on your own questions
- **Review/correction** of two documents of other participants
- Following the deadlines (help to keep the flow of the seminar)

short presentation and the first version of the document are not graded

Grade

- Quality of the **main presentation** (content, structure, presentation skills)
- Quality of the *final* **written document**

Familiarization phase

1) first look through the paper, and then read thoroughly

Familiarization phase

- 1) first look through the paper, and then read thoroughly
 - 2) Make overview of the related work
 - Which works and results are cited? → Related Work
 - Which of these are fundamental?
 - What is the state of the art of the research area of the paper?
- Article search Google Scholar or DBLP; Access from the university network

Familiarization phase

1) first look through the paper, and then read thoroughly

2) Make overview of the related work

- Which works and results are cited? → Related Work
- Which of these are fundamental?
- What is the state of the art of the research area of the paper?

→ Article search Google Scholar or DBLP; Access from the university network

3) Assess the significance of the paper

- Who cites this paper?

→ in Google Scholar use the function "cited by"

Familiarization phase

1) first look through the paper, and then read thoroughly

2) Make overview of the related work

- Which works and results are cited? → Related Work
- Which of these are fundamental?
- What is the state of the art of the research area of the paper?

→ Article search Google Scholar or DBLP; Access from the university network

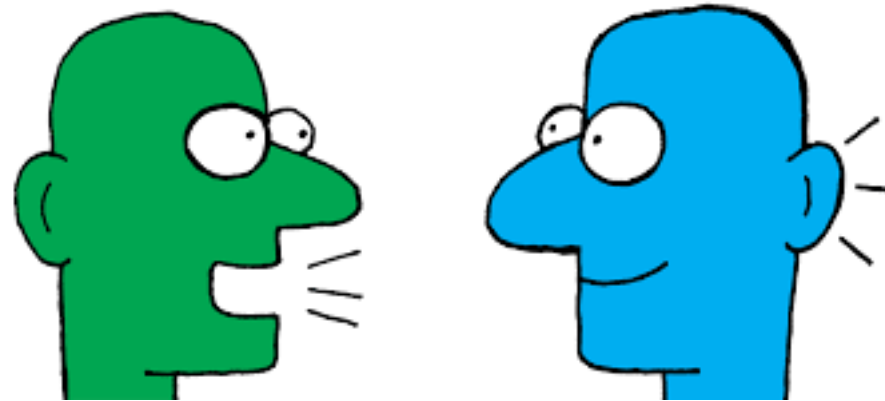
3) Assess the significance of the paper

- Who cites this paper?

→ in Google Scholar use the function "cited by"

4) What should you read in the literature?

- Title and Abstract – Is the content relevant?
- if yes – Introduction, Conclusion, Main results
- Only if details are relevant – read all
- Keep notes!



Idea: Communicate early what you have understood...

Learning Effects:

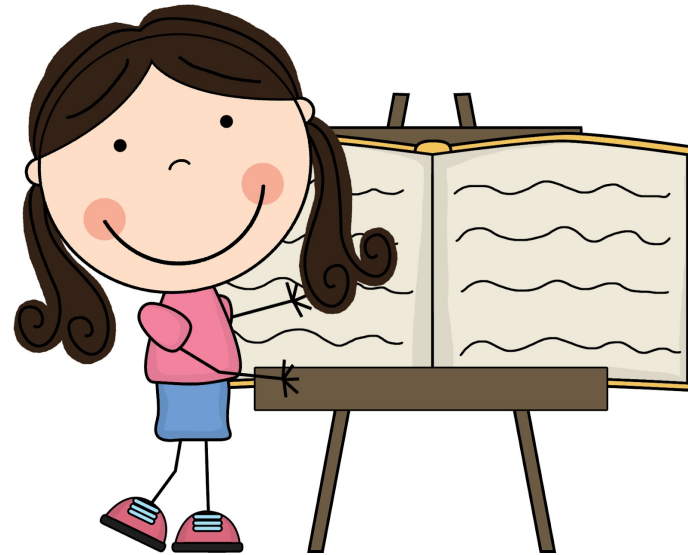
- Better understanding of the topic
- Early feedback and ideas for possible directions
- Train for the main presentation - feedback from the advisor

Content

- „Advertisement“ of the main presentation
- **Motivation:** why the particular problem is studied? (fills the holes in the knowledge, applications?)
- **What results you will concentrate on:**
Model, Algorithms and used techniques, main theorems?
...

Form

- 5 Minutes
- structured and clear slides:
examples instead of a lot of text, intuition instead of formal definitions
- Use any software you prefer (**Ipe**, PowerPoint, Keynote)
* ipe7.sourceforge.net



Learning Effects:

- Deepen the understanding by communicating the details of the topic
- Develop presentation slides - multiple feedbacks from the advisors
- Develop your presentation skills
- Get feedback from the audience and improve in the future

Main Presentation

Timing: 30 minutes + 15 minutes discussion

Content:

- Motivation of the topic
- Details of your topic

Main Presentation

Timing: 30 minutes + 15 minutes discussion

Content:

- Motivation of the topic
- Details of your topic

Struct.:

- What can be explained clearly in 30 minutes? Make a selection of the essential issues. **Talk to your class-mate**
- What is your target group?
- Clear, logical, concise structure, illustrative examples

Main Presentation

Timing: 30 minutes + 15 minutes discussion

Content:

- Motivation of the topic
- Details of your topic

Struct.:

- What can be explained clearly in 30 minutes? Make a selection of the essential issues. **Talk to your class-mate**
- What is your target group?
- Clear, logical, concise structure, illustrative examples

Slides:

- bullet points, no complete sentences
- graphics use
- not too many and not too overloaded slides (about 2 min / slide)
- clear design (suitable colors, uniform font, ...)

Main Presentation

Timing: 30 minutes + 15 minutes discussion

Content:

- Motivation of the topic
- Details of your topic

Struct.:

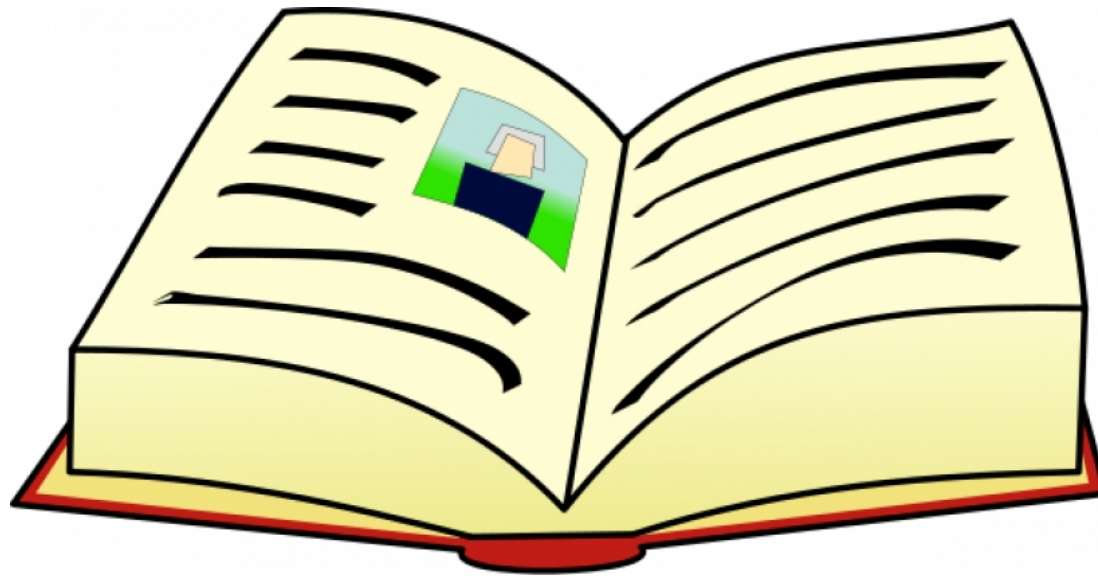
- What can be explained clearly in 30 minutes? Make a selection of the essential issues. **Talk to your class-mate**
- What is your target group?
- Clear, logical, concise structure, illustrative examples

Slides:

- bullet points, no complete sentences
- graphics use
- not too many and not too overloaded slides (about 2 min / slide)
- clear design (suitable colors, uniform font, ...)

Present.:

- practice, measure time
- eye contact with the audience
- keep the listeners “awakened”, arouse their curiosity
- speak freely, slowly and clearly
- remain calm, control nervousness



Learning Effects:

- Structure and write scientific text
- How to produce formal enough but still readable text: balance between formal definitions and intuition

Written Document

Size: 12–15 in a given \LaTeX -format

Written Document

Size: 12–15 in a given \LaTeX -format

- Structure:**
- short and clear Abstract
 - Introduction, state of art, applications
 - Selected topics in detail
 - Summary / Conclusion
 - complete references (BibTeX)

Written Document

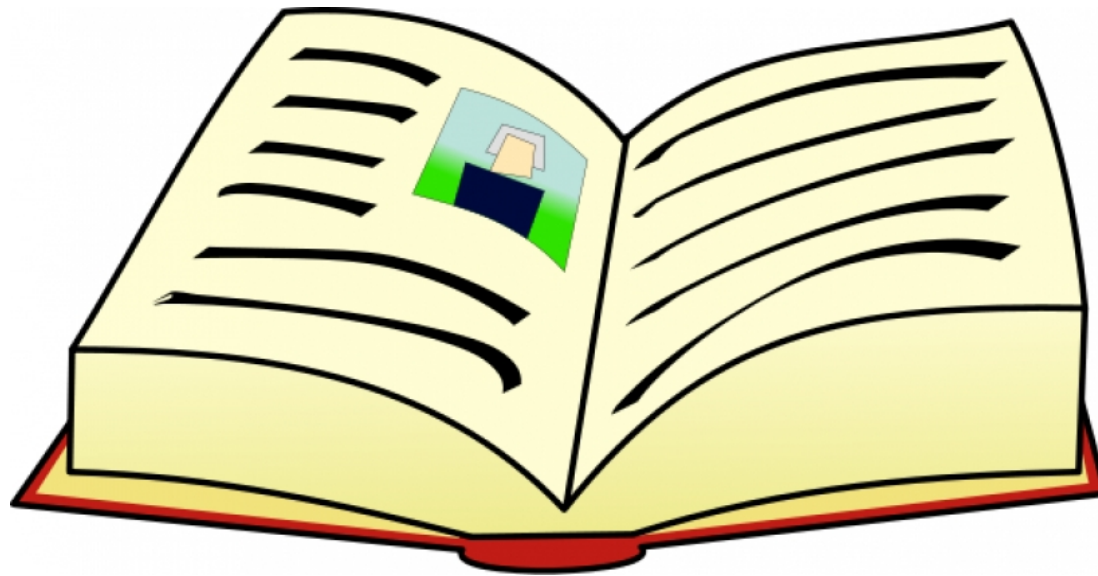
Size: 12–15 in a given \LaTeX -format

Structure:

- short and clear Abstract
- Introduction, state of art, applications
- Selected topics in detail
- Summary / Conclusion
- complete references (BibTeX)

Writing:

- Do not copy text: express in your own words
- Logical structure, keep the red line
- Avoid very long sentences
- clear and consistent formulation
- avoid too long paragraphs
- Use pictures
- Cite and specify all sources correctly
- Check grammar and spelling



Learning Effects:

- critical reading of scientific texts, constructive critiques
- deeper understanding of two(?) other seminar topics
- you and your class-mates get meaningful feedback and suggestions for improvement

Mutual Reviews

- Form:**
- written statement (form provided)
 - short summary of the content
 - strengths and weaknesses of the work
 - review of the text (comprehensibility, structure, accuracy, language, topic coverage, ambiguities, ...)
 - be constructive: detailed comments and correction instructions
 - as detailed as you would like to get review for your work
 - anonymous, objective and fair

Supervision

Your supervisor is your **contact** in all matters, both regarding the content, topics and the preparation presentation.

It is **your** responsibility to approach him / her.

Your supervisor is your **contact** in all matters, both regarding the content, topics and the preparation presentation.

It is **your** responsibility to approach him / her.

Informal meeting with the supervisor:

- ≥ 2 Weeks before the main presentation:
discussion of the concepts to present
- ≥ 1 Week before the main presentation:
discussion of the slides
- The latest till 24.12 (a month before the write-up submission):
to discuss the content of the written document
- The latest till 6.3 (two weeks before the final submission):
Discussion of the corrected version of the document

1. Organizational issues

- Structure
- Your Participation

2. Topics

- Presentation of the topics (note down the number of the topic you like, you will vote for three of them)
- Distribution
- Meeting your advisor

Next Meetings

now:

personal communication with your supervisor

8. November 9:45 am:

Short Presentations

Check web page and e-mail for the following meetings

Next Meetings

now:

personal communication with your supervisor

8. November 9:45 am:
Short Presentations

Check web page and e-mail for the following meetings

always in this room