582519 Scientific Writing for MSc in Computer Science: Seminars and MSc thesis

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Last week’s task: How did it go?

-- fill comments here --

What is the situation of your paper?
- finished
- almost finished
- still under writing
- missing several pages
- only half-written
- just started
- not yet started

Practise steps towards MSc thesis

Step 1: Scientific writing
writing with support of small team and TA
Steps 2 & 3: seminars
Using and improving writing
Oral presentation
Final step: MSc thesis
Individual work about unique topic
Discussion support from supervisor
One (or two) draft feedback

Seminars

-Learning objectives of a seminar:
- Two themes:
  - Written scientific communication
  - Oral scientific communication

Seminar format

Duration: 2 periods, one whole term
Number of participants: 12 students

Application period for seminars:
- For Spring term seminars: early November
- For Fall term seminars: early May

- Teachers select students based on the applications
  - suitability of background, progress of studies, …
What happens in a seminar

Step 1: Written report
- similar to the one in Scientific Writing course
- submission deadline given by the leader

Step 2: Oral presentation
- presenting the paper content to participants
- duration given by the leader (1/2 – 2 hours)

Step 3: Opponent for the presentation
- task to make questions about the presentation
- can be before own presentation also

Seminar Grading

Active participation during the meetings
comments, questions, etc
Presentation (obligatory)
Grading based on
Written presentation
Oral presentation
Participation in the discussions
Study diary

Teaching goals of a seminar

The development of communication skills
The development of intellectual and professional competence
The personal growth of students (and the tutor)

Goals (continue)

Improving the presentation skills
practice written and oral presentations
Study new subject
get an overview of the current trends
learn some part in more details
Learn the research methods used in that specific field

Some types of thinking

Analysing
Logical reasoning
Evaluating evidence or data
Appraising and judging perceptively
Thinking critically
Synthesizing
Speculating creatively
Designing
Arguing rationally
Transferring skills to new contexts

What skills should the MSc thesis show?

Ability to manage a large theme systematically, with a defined goal and valuation scheme in mind
Independent work
Research steps
Learning of the topic (search of information, critical reading)
Formation of a research question (single line focus)
Solution construction and evaluation
Coherent and complete written report (precise scientific argumentation and ease of understanding)
What types of MSc theses there are?

Surveys
Collection and critical evaluation of related works

Explorations
Empirical approach, evaluation, construction of recommendations

Designs
Small survey of related domains, combination of the findings to a design of a system, potentially construction, evaluation of the design

Always base your knowledge on articles published on scientific forums

Scientific publications after graduation

• Journal articles
• Conference or workshop papers

• PhD studies require some number of scientific publication to be done during the studies
• These will form the core of the thesis

Publication process

• Different publishing schedules
  • Journal articles: several years from a manuscript to a published version
  • Conference or workshop articles: from few months to a year

• Different peer-reviewing processes
  • Level of refereeing (confidence on evaluation)
    • Journal, conference and workshop articles: reviewed by several objective referees
    • Technical reports and manuscripts: no peer review
  • At best, valuable feedback for authors

Publication forum

• Intended publication forum may influence the contents and form of the text
  • Length of the text
  • Layout and structure of the text
  • Approach/perspective to be taken: theoretical or practical

• Authors should also take into account
  • the readers of the forum and their background knowledge
  • relevant work published on the same forum

Questions and feedback session

• Now is your last chance to get answers to any unclear issues!

• Feedback: How to improve the course

• Remember to fill the feedback form for this course and all other courses as well – For every course during your studies!

Course exams and separate exams

Examination sessions:
- start sharp at the hour
- no bags near your
- turn of your mobile phone and put it in bag

You may have with you:
- pencils and rubber (and/or pens)
- small amount of snacks
- ID card (student ID is not official, but might be accepted)
Course exams and separate exams

- Normally answers written to a 'concept paper' (folded A3-paper with grid)
- Write name, student number, date, course name and your signature on every paper
- Starting filling the folded paper as if it was a course book. (So first the cover, then turn open to left and fill left side, right side and finally the back cover)
- You can use multiple papers if necessary
- (On some courses, you might be asked to give answers to each question on separate sheet)

Answering

- Not just overview, but justifications and reasoning also
- Other questions require applying the knowledge, not just repeating
- Most courses: exercises give hints on the key points on the course
- A single right answer might not give you full points, if you have not explained how you reached the answer

Preparing for exam

- Do the weekly exercises and relate them to the study goals of the course
- Understand the course content, both details and the 'big picture' -- memorising is not enough for a master's
- Study the slides and the exercise questions
- Read and learn the book (but not just memorizing!)
- When available look at the older exams

Finnish Winter is coming

- October: A lot of rain, first snowstorms, no snow cover, but can be icy
- November: Very short days and cloud cover, a lot of rain or snow, or wet snow, or... usually in Helsinki no snow cover
- December: Very, very short days, snow or wet snow, snow cover in Finland, might be also in Helsinki/Espoo
- January: Days slightly longer, snow cover in Helsinki also. Gulf of Finland ice covered
- February: Nice winter days, sun shine and blue sky, maybe skating above sea
- March: Nice winter days. The snow starts melting
- April: Days longer than night. Snow melts, still some snowstorms
- May: Long days, no snow, green trees and grass

Length of day:
http://en.ilmatieteenlaitos.fi/length-of-day

Oral presentation

- Prepare
- Clear goal and message
- Not everything in the paper to the presentation
- Focus on key points
- Make transparencies or some other visual support
Oral presentation: Transparencies

- **key words**, no sentences, mistakes
- Figures, pictures
- Tables, lists
- Numbers (used in the presentation)
- **Examples**
- Do not overfill one page

*Avoiding small font size: this is 10, this is 18, this is 24, this is 32*

Font size

- 32 points: automatically offered by PowerPoint
- 28 points
- 24 points: smallest usable in Auditorium
- 20 points
- 18 points: smallest usable in any presentation (occasionally too small)
- 16 points
- 14 points
- 12 points: Normal size in written papers
- 10 points: A bit small even for printed reports

Slide layout

Please, try to avoid full written sentences. They make the work for the audience very difficult. There is no time to follow the speech, because all the time and concentration goes to reading the slide. This becomes even worse, if the presentation is directly read from the transparencies. There is no point in listening anymore. Also, the presenter eagerly uses very complex sentences that try to cover in one extremely long sentence most of the material without loosing any details and facts.

Example: Portable and handheld devices in a distributed system

- **How to clarify?**

![Diagram of portable and handheld devices in a distributed system](image.png)

**Figure:** Portable and handheld devices in a distributed system

- Devices
  - Mobile phone
  - Laptop
  - Camera
- Connection points
  - WAP
  - WLAN
  - USB
  - Intranet, Internet

Oral presentation: speech

- Based on the transparencies
- Each item on the transparencies covered
- Nothing else is handled (except shortly)
- Other notes
  - to remember facts, extensions
  - presentation hints
  - Use short sentences
Oral presentation: voice

Clarity and strength
avoid sitting
speak to the farthest person
Voice makes the structure
Stressing
  – importance
  – new theme
Pauses
  – new theme

Oral presentation: Other things

Computer, transparencies, blackboard
Notice the audience
Movements
Hands

Practice, practice,
NEVER write down the whole oral presentation
If uncertain, speak (and time) the whole presentation on your own or for a small audience

Examples of probing questions

Does that always apply?
How is that relevant?
Can you give me an example?
Is there an alternative viewpoint?
How reliable is the evidence?
How accurate is your description?
You say it is x, which particular kind of x?
What’s the underlying principle then?
In what situation would this rule break down?
What distinguishes the two cases?