



Student Conference in Computing Science

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<http://www.cs.umu.se/kurser/TDBD18>

A Non-Traditional Course in Technical Writing



- ◆ Complete life-cycle coverage
 - Topic selection
 - Research
 - Technical Writing
 - Presenting
- ◆ Peer reviews
- ◆ Simulates a conference
 - Program committee
 - Submission procedures and deadlines
 - A "real" conference
- ◆ Papers and presentations in English
- ◆ Accepted papers appear in conference proceedings

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Theory and Practice



Theory

- ◆ How to do research
- ◆ How to write a scientific report
- ◆ How to make a presentation
- ◆ Language issues

Practice

- ◆ Research a topic
- ◆ Peer reviews
- ◆ Technical writing
 - Outline
 - Annotated bibliography
 - Full/ final paper
- ◆ Presenting results
 - Talk
 - Poster
- ◆ Language issues

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Student Feed-Back



- ☺ Interesting hands-on experience
- ☺ Good preparation for thesis work
- ☺ Important for professional career
- ☺ Fits a gap in the curriculum
- ☺ Peer reviews useful
- ☺ Workload is moderate

- ☹ Not enough time for "research"
- ☹ Inhomogeneous peer groups
- ☹ No group feeling
- ☹ Reviewer comments vary widely

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Typical Student Problems



- ◆ Topic selection
- ◆ Finding the “right” sources
- ◆ Missing context and/or related work
- ◆ Wrong focus in peer review meetings
- ◆ Time (planning)
- ◆ Plagiarism/ copyright
- ◆ Language and style
- ◆ Formatting

Course Organisation



Week	Deliverables, etc.	Activities/Lectures
4		Lecture (intro)
6	Topic selection Notification of acceptance + feedback	Writing lectures Group meetings Individual supervision
10	Outline & annotated bibliography Notification of acceptance + feedback	
19	Full paper Notification of acceptance + feedback	Discussion
21	Final Paper (or resubmission)	
22	Conference	

Questions



- ◆ What are appropriate topics
- ◆ How to do research
- ◆ How to write a research paper
- ◆ What are peer reviews
- ◆ What are the differences between the various types of deliverables
- ◆ How to prepare a presentation
- ◆ Grading

Appropriate Topics



- ◆ You can choose any CS/IT related topic
- ◆ You should already have some knowledge on the topic
- ◆ The topic must not be too general/ generic

- ◆ All topics must be approved by the program committee
 - There is something of interest to say about the subject
 - There are sufficient resources available about the subject
 - You have the “background” required to cope with the subject
 - There is sufficient time to gain some insight into the subject
- We make sure that there is a chance to succeed
- You might need to narrow down your subject

How to Do Research



- ◆ Define a specific research question
- ◆ Identify body of prior work
- ◆ Find research literature
- ◆ Make a research plan
 - Concrete (sub-) goals
 - Suitable research approaches
 - ...
- ◆ Execute the plan
- ◆ Publish results
- ◆ Discuss and exchange ideas

Reading



- ◆ OOPS! You cannot read everything
- ◆ Identify and read key references
- ◆ Make notes
 - Write summaries using your own words
 - Add critical comments and explanations
 - Relate to other information
- ◆ Keep track of your own ideas and thoughts
- ➔ Archive and structure your material

Searching for literature



- ◆ Places to search
 - Physical/ virtual libraries
 - Catalogues
 - Literature databases
 - Reference sections in publications
 - The web (societies, research-, working-, interest groups, ...)
 - [Course home pages](#)
- ◆ Topics to search for
 - Actual research question
 - Context/ background
 - Applications

How To Write a Research Paper



"The first and most fundamental rule of writing is to know who you are writing for and to write with a suitable style."

Fintan Culwin @ SIGCSE'01 doctoral consortium

- ◆ Types of research papers
- ◆ Scientific character
- ◆ Integrity
- ◆ Organisation of contents
- ◆ References
- ◆ Review process

Types of Research Papers



- ◆ Survey
- ◆ Case study
- ◆ Experiment
- ◆ Evaluation/ comparison
- ◆ Experience report
- ◆ Formal proof
- ◆ ...

Scientific Character



“For an idea to survive, other scientists must be persuaded of its relevance and correctness—not with rhetoric, but in the established framework of scientific publication.”

(Zobel, 2004, p 4)

- ◆ All claims are supported
 - References
 - Reasoning or proof
- ◆ Scepticism
 - Provisional acceptance of ideas, given reasonable evidence
 - Critical evaluation of source materials
- ◆ Objectivity
 - Accurate facts
 - Critical evaluation of assumptions, approaches and results

Avoid “Blind” Trust



- ◆ Critically evaluate your sources
- ◆ Check the original sources if possible
 - No second hand references
 - Facts vs. interpretation of facts
- ◆ Even the “gurus” make errors (sometimes)
- ➔ Do not take anything for granted

Integrity



- ◆ Be VERY careful about plagiarism and copyright
- ◆ Carefully distinguish between
 - Facts and interpretations of facts
 - Your own original ideas and those of others
 - What you have done and others have done
- ◆ Do not exaggerate
- ◆ No “commercials”
- ◆ Critically discuss your own work and assumptions
- ➔ Be honest and serious

Plagiarism



"... re-use in one paper of material that has appeared in another, without appropriate acknowledgement."

Can be anything; book, journal, web page, etc.

Can be anything; ideas, phrases, illustrations, etc.

(Zobel, 2004, p 217)

- ◆ Misjudgement (by an inexperienced researcher)
- ◆ Carelessness
- ◆ Deliberate theft
- We don't care about the reason
- Ask supervisor(s) and check web info for [examples](#)

Getting Started (1)



- ◆ Review and rework your archive
- ◆ Analyse your topic(s)
 - What are the key problems?
 - Why are these problems important?
 - For whom are these problems important?
- ◆ Get to know your target audience
- ◆ Draft an outline of your paper

Getting Started (2)



- ◆ Writing supports understanding
 - Write down your thoughts
 - Edit and reedit
 - Do not hesitate to redo even big parts completely
- ◆ Peer reviewing
- ◆ Overall productivity is lower as you might expect (about 1-2 pages per week)

References



References are used to make your reasoning trustworthy and to direct the reader to information stated elsewhere.

- ◆ The example text below cites another piece of work
- ◆ Special tags (citation marks) are used as indications

Research in cognitive science shows the importance of detailed and situated narratives (Carroll *et al.*, 1994).

Text citing (referring to) other work

The citation mark

Reasons for References



- ◆ To give evidence for something
- ◆ To present your sources of information
- ◆ To distinguish between the original ideas of other's and your own ones
- ◆ To show that you know the area of research
- ◆ To link to further information
- ◆ To honour someone

The Reference Section



- ◆ All citation marks must be "explained" in the reference section of your work
- ◆ The reference section must contain an ordered list of all references that are cited in your text
- ◆ All references listed in the reference section must be cited in your text
- ◆ Using the information given in the reference section readers must be able to check the original sources
- ◆ There are strict rules about the format of references and citation marks

To Quote or Not to Quote



- ◆ In our domain (Computer Science) you usually use your own words when citing other work

Research in cognitive science shows the importance of detailed and situated narratives (Carroll *et al.*, 1994).

According to Carroll *et al.* (1994), research in cognitive science shows the importance of detailed and situated narratives.

- ◆ In quotations the original piece of text must be repeated exactly as presented in the original source

"Recent theory and methodology in cognitive science clearly reflects a growing and broadening awareness of the importance of detailed and situated narratives" (Carroll *et al.*, 1994, p 245).

What to Cite?



- ◆ Trustworthy and objective sources
 - Peer reviewed publications
 - Books
 - Technical reports
 - **No** sales/ marketing brochures
 - **No** personal opinions
- ◆ Original sources
 - Be careful with second hand references
 - Be precise about who said what
- ◆ Accessible sources
 - Public material
 - "Stable" material

Journals
Magazines
Conferences
Workshops

Be Careful with Electronic References



- ◆ Trustworthiness
- ◆ Objectivity
- ◆ Stability
- ◆ Credibility

→ See [Resources](#) on course web pages

Placing and Formatting Citation Marks



- ◆ Citation marks should be placed as close as possible to the actual citation
- ◆ There are many common formats for citation marks
 - Number systems:
 - [1], [2-4], ...
 - (1), (2-4), ...
 - ¹, ²⁻⁴, ...
 - Harvard style:
 - (Björk, Knight & Wikborg 1988), (Carroll *et al.* 1994; Holtom & Fischer, 1999; Zobel 1997), ...
 - "Abbreviation" style:
 - [BKW 88], [Car+ 94, HoFi 99, Zob 97], ...
 - APA style, MLA style, ...

Formatting References



- ◆ Depends on
 - Style in general
 - Specific submission guidelines
 - Kind of reference

- ◆ Usually you need at least the following

- All authors
- Year of publication
- Title
- Publisher
- Place of publication
- Page number(s)

Björk, L., Knight, M. & Wikborg, E. 1992, *The Writing Process*, Studentlitteratur, Lund.

Carroll, J. M., Mack, R. L., Robertson, P. & Rosson M. B. 1994, 'Binding Objects to Scenarios of Use', *Journal of Human-Computer Studies*, vol. 41, pp. 243-276.

Writing Style 1



- ◆ Be aware of your target audience
- ◆ Be objective, accurate, and serious
- ◆ Have a simple, logical organisation
- ◆ Have one idea per sentence/ paragraph
- ◆ Have one topic per section
- ◆ Use short sentences with a simple structure
- ◆ Motivate and explain (why, what, how)
- ◆ Omit unnecessary information/ details
- ◆ Explain all acronyms and use them consistently
- ◆ Briefly define or explain all technical terms and use them consistently

Writing Style 2



- ◆ Use common and basic vocabulary
- ◆ Avoid "insider" comments (or explain them)
- ◆ Avoid buzzwords and clichés
- ◆ Avoid colloquial language ("talspråk") and jargon ("fikonspråk")
- ◆ Do not try to be funny
- ◆ Be careful with culturally localised concepts, such as times, dates, and currencies
- ◆ Do not use conversational opening phrases, like Well, You see, ...
- ◆ Do not use short verb forms, like I'm, can't, they're, ...

Writing Style 3



- ◆ Avoid excessive use of first person (I ...)
- ◆ Do not write have/has got (har fått)
- ◆ Be careful with singular and plural
 - ❑ He/she/it is/was/has/does/wants/...
 - ❑ You/they/we are/were/have/do/want/...
 - ❑ One student, many students
- ◆ It's vs its
 - ❑ It's = contraction for "it is" (det är)
 - ❑ Its = indication of possession (sin)

Important Dates



- Feb 8 Topic selection
- Mar 8 Outline & annotated bibliography
- May 9 Full paper
- May 13 Notification of acceptance
- May 25 Final paper/ resubmission
- Jun 3 The conference

The Topic Selection



- ◆ Convince us that you will manage to produce something meaningful in a certain area
- ◆ Content
 - ❑ A not too general/generic title
 - ❑ Brief description of the area
 - ❑ Statement of goals with this paper (except that you want to know more about the subject)
 - ❑ Brief description of your background in this area
 - ❑ A few relevant references

OOPS! The title might be changed (narrowed) later

Preparing an Outline



- ◆ Introduction
 - Explain the background
 - Describe the key problems on appropriate levels
- ◆ Contents organisation
 - List section- and subsection headers
 - Write at least one paragraph for each section and subsection
 - Select key references
 - Make outlines of figures and examples
 - Introduce "hooks" for "more to come"
- ◆ You need not write "straight forward"
- ◆ Maintain a list of open questions/ to-do list
- ➔ Use our template

Typical Structure



- ◆ Title and author
 - ◆ Abstract
 - ◆ Introduction
 - ◆ ...
 - ◆ ...
 - ◆ Summary and Conclusion
 - ◆ (Future Work)
 - ◆ References
 - ◆ (Appendices)
- } MAIN PARTS
headings and subheadings according to
YOUR TOPIC

What is an Annotated Bibliography?



Bibliography:

A list of writings relating to a given subject.

To annotate:

To furnish with critical commentary or explanatory notes.

- ➔ Commented reference section
- ➔ Very useful to keep track of your readings
- ➔ Basis for archive

An Example of an Annotated Bibliography



Brown, J., Andreae, P., Biddle, R. & Tempero, E. 1996, 'Women in Introductory Computer Science: Experience at Victoria University of Wellington', Technical Report CS-TR-96/18, Wellington, New Zealand, Victoria University of Wellington, Dept. of Computer Science.

The authors report on their efforts to reduce the high withdrawal rate of women. Their data suggests that providing a gender neutral course content is not sufficient to ensure similar retention rates. The study targets 1991-1996. All changes were applied to the whole course/ class, i.e. women were not targeted particularly.

Bernstein, D. R. 1992, 'A New Introduction to Computer Science' (Martin & Murchie-Beyma 1992).

The author proposes an introduction to CS by means of software packages. This will go away from the technical details on programming and demonstrate practical and useful applications and exercises instead of "artificial" ones. This approach highlights the tool aspect of computers, which is more appealing to women.

Clarke, V. A. 1992, 'Strategies for Involving Girls in Computer Science' (Martin & Murchie-Beyma 1992).

The author points out that existing studies in this subject are often not representative, over-generalised, or exaggerate differences. Most actual differences are a result of attitudes, which are affected (in a negative sense) by those studies. The paper contains some advice on teaching styles to balance the needs of women and men (e.g. that women often need to know the usefulness of something, whereas men simply accept facts, etc.



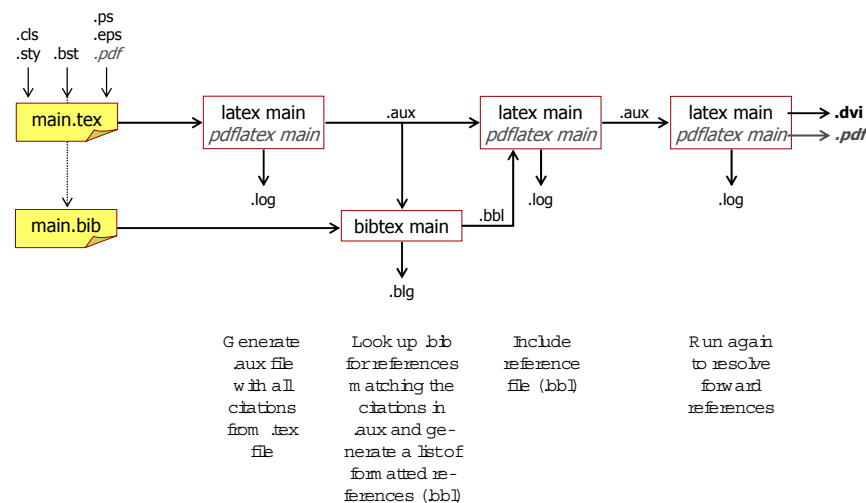
- ◆ Typesetting system for high quality and device-independent output
- ◆ Based on mark-up á la HTML, but much more advanced
 - `\commandname[options]{argument}`
 - ❑ Content independent from layout
 - ❑ Easy to change layout
 - ❑ NOT WYSIWYG
- ◆ Powerful support
 - ❑ Layout
 - ❑ Formulae
 - ❑ Bibliographies



```

\documentclass[a4paper,11p]{article}
\usepackage{graphicx} % needed for including graphics

\begin{document}
\title{The title}
\author{John Doe}
\maketitle
...
The text of the paper
...
\bibliographystyle{plain}
\bibliography{demo} % refers to external file demo.bib
\end{document}
    
```



Local

- ◆ Supervisors
- ◆ Peers
- ◆ Libraries
- ◆ Example documents
- ◆ Templates
- ◆ [Course home page](#)

Global

- ◆ Textbooks
- ◆ Papers/ reports
- ◆ On-line Writing Labs
- ◆ Writing guides
 - ❑ APA
 - ❑ Columbia Guide
 - ❑ MLA
- ◆ Submission guidelines
 - ❑ Conferences
 - ❑ Journal publishers

Peer Review Groups



- ◆ Overall Goal: Improve writing
- ◆ One group for each research area
 - One moderator (supervisor)
 - 3-5 students (the peers)
- ◆ Fortnightly meetings to discuss work in progress (obligatory)
- ◆ Two simple rules
 - Positive feedback first
 - Constructive feedback

What to Look For



- ◆ Overall structure
 - ◆ Readability
 - ◆ Comprehensibility
 - ◆ Scientific character
 - ◆ Integrity
 - ◆ Technical terms introduced without explanation
 - ◆ Changes in voice, style, tense, etc.
 - ◆ Unsupported claims
 - ◆ Jumps in argument
 - ◆ Fog (blaha)
 - ◆ ...
- The "big picture"
- NOT spelling or punctuation

An Example Peer Review Meeting Process



- ◆ Preparation
 - Inform your peers about your work-in-progress
 - Be informed about your peers' work-in-progress
 - ◆ The review (30 min each)
 - Presentation of "problem"
 - Questions for clarification
 - Presenter leaves room
 - Open criticism and comments/ suggestions
 - Presenter enters room
 - Moderator summarizes
 - Discussion continues
- Do not forget**
- ☑ Positive feedback first
 - ☑ Constructive feedback

Contacting your Supervisor

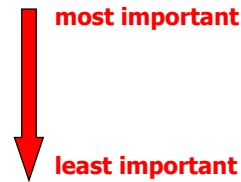


- ◆ Be prepared and take initiative
 - Prepare specific questions
 - Bring along a current version of your paper
- ◆ Take notes
- ◆ Reflect on results
- ◆ Use your and your supervisor's time effectively

Grading



- ◆ Quality of the full paper
- ◆ Quality of the presentation
- ◆ Participation in group meetings
- ◆ Participation at the conference



Accepted

- Submit final paper
- Appears in proceedings
- Prepare presentation
- Give presentation
- Grade: U, 3, 4, or 5

Not accepted

- Resubmit revised full paper
- Does not appear in proceedings
- No presentation
- Grade: U or 3

Paper Evaluation Criteria



- ◆ Choice of topic
- ◆ General structure/ layout
- ◆ Readability/ comprehensibility
- ◆ Presentation form
 - Size
 - Organisation into sections
 - Usage of
 - References/ citations
 - Definitions/ terminology
 - Examples
 - Figures and tables
 - Conclusions/ summaries
 - Appendices
 - Consistency
- ◆ Language and style
- ◆ Adherence to guidelines
- ◆ Content
 - Motivation
 - Clear/ sound reasoning
 - Completeness/ coverage
 - Coherence
 - Depth
 - Correct/ appropriate facts
 - Fog vs. flesh
 - Support of claims
 - Appropriate references
- ◆ Contribution
- ◆ Ethics/ integrity

Preparing your Presentation



- ◆ Design your overheads carefully
 - Use big fonts
 - Avoid cluttered overheads
 - Use colour carefully
 - **Less is more**
- ◆ Use examples
- ◆ Make a script for your talk
- ◆ Prepare for questions
- ◆ About 15 overheads for 25 minutes
- ◆ Test the readability of your overheads
- ◆ Test the presentation equipment

Overhead Design



- ◆ Do not use a lot of background graphics
- ◆ Use dark text on transparent overheads
- ◆ Use landscape format
- ◆ Use big fonts
- ◆ Do not copy from books, papers, etc.
- ◆ Highlight your main points only
- ◆ Use only few different figures, graphics, icons, fonts, and colours together
- ◆ Do not use red and green together, nor either of these together with brown or grey
- ◆ Use sans-serif fonts (?)

Overhead Design (Times New Roman)

- Do not use a lot of background graphics
- Use dark text on transparent overheads
- Use landscape format
- Use big fonts
- Do not copy from books, papers, etc.
- Highlight your main points only
- Use only few different figures, graphics, icons, fonts, and colours together
- Do not use red and green together, nor either of these together with brown or grey
- Use sans-serif fonts (?)

The Presentation



- ◆ **Do not read your overheads!**
- ◆ Do not hide parts of your overheads
- ◆ Use animations sparingly
- ◆ Do not try to prove that you know more than the audience
- ◆ Keep the time
 - Be prepared to omit some slides
 - Prepare some extra slides
- ◆ Test your talk at least once

Poster Design



- ◆ Posters will be mounted on self-standing boards or the wall
- ◆ Do not use more than 10-12 A4 sheets
- ◆ Prepare additional information
- ◆ Be prepared for questions
- ◆ Remember:
 - Posters should be self-explanatory.**
 - You might not be around for explanations.**

Literature



- Mittelbach, F., Gossens, M., Braams, J., Carlisle, B. & Rowley, C. 2004, *The LaTeX Companion*, 2nd edition, Addison-Wesley, Reading, MA.
- Zobel, J. 2004, *Writing for Computer Science*, 2nd edition Springer, London.

+ Links to [on-line resources](#) on the course web pages.

For More Information



- ◆ Read the textbook
- ◆ Use resources on course web pages
- ◆ Attend lectures on technical writing
- ◆ Attend the group meetings (obligatory)
- ◆ The university library has (still?) a special rack for resources on technical writing/ term papers
- ◆ Ask your supervisor(s)