



COMP9993 Research Project C

School of Computer Science and Engineering

Course outline

1 Requisites

Have completed COMP9991 Research Project A with agreement from the supervisor to enrol in COMP9993.

2 Learning outcomes

On successful completion of this course, graduates will be able to demonstrate the following learning outcomes.

1. Be able to carry out a literature survey on a specified research problem.
2. Be able to present the results of research work both orally and in written form.
3. Be able to conduct research (under supervision).

3 Course aims

This course aims for students to

- study a research topic,

- generate some results,
- present a seminar, and
- write a research report on the work.

4 Assessment

A seminar should be held in week 11, between Monday 9am and Friday 6pm, at a day and time that is suitable to all. The student should organise it, either online or physically depending on the circumstances and what is possible or best for everyone at the time. The seminar will be attended by at least the supervisor and the assessor. It is strongly advisable to advertise the seminar to the research students in the School (via email sent to research-students@cse.unsw.edu.au) to

- give a chance to every PhD and Master by research student who is interested in the topic to find out more,
- make sure that maximal feedback is received,
- practice giving presentations to a larger audience.

A research report should be uploaded to the Thesis Management System (TMS) in week 11, between Monday 9am and Friday 6pm.

Supervisor and assessor will assess independently both seminar and final report. The final mark will be the arithmetic mean of the 4 marks, weighted as follows:

(Second term) Seminar 25%

Research report 75%

TMS will invite supervisor and assessor to assess the seminar, by awarding marks and providing comments using the following marking scheme, distributed over 2 criteria.

- **Project outcomes (70%)**
 - **FL (0-49%)**: Most of the work that was planned for COMP9993 as presented during the COMP9991 seminar failed to be completed.
 - **PS (50-64%)**: Most of the work that was planned for COMP9993 as presented during the COMP9991 seminar has indeed been successfully completed, though some significant goals have not been reached.

- **CR (65-74%)**: Almost all of the work that was planned for COMP9993 as presented during the COMP9991 seminar has indeed been successfully completed, except for a few minor goals.
- **DN (75-84%)**: All the work that was planned for COMP9993 as presented during the COMP9991 seminar has indeed been fully completed, the project is successful.
- **HD (85-100%)**: All of the work and beyond that was planned for COMP9993 as presented during the COMP9991 seminar has indeed been fully completed, the results of the project are, be it modestly, beyond expectations.

- **Quality of presentation (30%)**

- **FL (0-49%)**: Sloppy presentation.
- **PS (50-64%)**: Presentation has been well prepared and is reasonably clear and well structured.
- **CR (65-74%)**: Presentation has been very well prepared; provided that it has the assumed background, the audience follows it easily.
- **DN (75-84%)**: Presentation has been polished, it is very well structured, with good and insightful examples and illustrations.
- **HD (85-100%)**: Remarkable presentation, the student demonstrates that he or she was determined to be as pedagogical as possible, with a sense of perfectionism, and he or she fully succeeded.

TMS will also invite supervisor and assessor to assess the research report, by awarding marks and providing comments using the following marking scheme, distributed over 3 criteria.

- **Literature review (15%)**

- **FL (0-49%)**: Fails to review part of the literature that is directly relevant, or what is being reviewed is not always relevant.
- **PS (50-64%)**: A decent literature review though it might have a few gaps or it might not always be fully relevant.
- **CR (65-74%)**: A good literature review with no significant gap and that is always relevant.
- **DN (75-84%)**: A comprehensive literature review that identifies very well its limitation and where the problem fits.
- **HD (85-100%)**: A comprehensive literature review that demonstrates that the student has mastered the field and has an in-depth understanding of the state of art and where the research fits.

- **The work that has been conducted and the results that have been obtained (60%)**
 - **FL (0-49%)**: What has been achieved is below expectations, not only has the project not delivered on its promises; there is nothing significant to learn from what has been attempted.
 - **PS (50-64%)**: The project can be considered to have successful outcomes, though with more dedication, more could and should have been achieved.
 - **CR (65-74%)**: Thanks to good work, the project is fully successful, it has delivered on its promises, or when it has not, there are good reasons why and lessons to be learnt from it.
 - **DN (75-84%)**: The project required to meet significant challenges, genuine difficulties have been overcome, thanks to creative thinking or by running complex experiments.
 - **HD (85-100%)**: The project improved on the state of the art, the work is publishable.
- **Quality of presentation (25%)**
 - **FL (0-49%)**: Report is sloppy, poorly structured, almost always lacks clarity.
 - **PS (50-64%)**: An acceptable report, that has been prepared carefully enough, reasonably well structured, reasonably clear.
 - **CR (65-74%)**: A good report, carefully written, always clear with good illustrations, that reads easily.
 - **DN (75-84%)**: A very good report, carefully designed and very well structured, with attention brought to details, always very clear in its explanations.
 - **HD (85-100%)**: An excellent report, that provides true insights, professionally presented, thanks to a writing style that is always very effective.

The mark will be awarded to COMP9993 and retrospectively to COMP9991 as well.

5 Details on the seminar

Plan for a one hour seminar, with between half an hour and 45 mins devoted to your presentation or software demonstration, and the rest of time left to answer questions. For a practical project, the seminar is absolutely essential for demonstration purposes. Prepare carefully how you will present the features of your system, and be ready for using it as requested by the supervisor and assessor. For a theoretical project, you will want to explain the key ideas, without going over all the details that have been included in the report; whereas the report should demonstrate your ability to work at a low level of detail, the seminar should demonstrate that you can show “the big picture”. For all kinds of projects, the seminar gives the supervisor and assessor a chance to ask questions on the report.

6 Details on the research report

The report should represent the results of around 300 hours work. Lots of efforts and time have to be put into writing the report. Do not wait till you get to the end of session to start writing it; instead, keep writing as you make progress in your research. First, writing considerably helps in clarifying one's ideas, detecting mistakes in some arguments or flaws in some approaches, suggesting extensions or further developments, etc. Second, you are most likely not to express your ideas or results clearly and precisely enough the first time you write them down, and you will have to produce many versions before you can be satisfied with the outcome. As indicated below, the quality of your report weighs a lot in the final mark. You might have produced excellent results; if they are not presented in a very clear, accurate, rigorous and precise manner, then you will lose many marks. Actually, if you do not have good writing skills then you should not consider a research project and rather do courses that require different kinds of skills, as you will otherwise most likely be considerably disappointed with the final mark. Keep in mind that conveying one's results properly is as important as getting good results; your work, be it theoretical or practical, will not be valued as you might hope it will if it is not described properly because your writing skills are too poor or your writing style is imprecise or lacks rigour. Here are the key points about the report.

- You are strongly encouraged to use Latex and not Word. If you have to write some mathematical formulas, even only very few of them, consider that Word is not an option. There is no specific requirement on fonts, layout, structure, etc.
- The length of the report is not relevant. What is expected from the report is evidence that you can address a scientific or technological matter clearly and precisely, from describing the problem to explaining the proposed solution and evaluating the benefits and limitations of your approach.
- If your research is theoretical, then the report will include all the results you have obtained, described with complete details and aiming at maximum clarity. Besides reporting on your results, you should include some background, but no complete literature review is expected. You will not provide an overview or describe the state of the art of a whole field, but only refer to the literature and explain the fundamental concepts and results that are strictly necessary to describe the problem you have tackled, explain where your work fits with what was known about the problem, and explain the concepts and results that you have used to conduct your research. This should not necessitate to refer to more than a few papers, definitely less than a dozen.
- If your research is practical, then the questions of “what to write” and “how much to write” are more meaningful. The report is not meant to include every implementation detail, and certainly not include appendices of program code. You should describe the needs that your implementation is meant to address, the main features and weaknesses of existing software designed for that same purpose, and what your approach provides that was not available so far.

The report should include a clear and precise description of the main challenges that had to be solved, and of the solutions you came up with. So besides explaining what your work is about, what has been achieved and how your implementation compares with known alternatives, the report should focus exclusively on that part of your work where the true research really is. Reference to the literature is expected to be more limited than for a theoretical piece of work. It is understood that your main aim is to impress supervisor and assessor with a clever implementation, and not with a thick report.

7 Information of interest to students undertaking a research project

The School of Computer Science and Engineering (CSE) at the University of New South Wales will be offering up to 8 Top-Up scholarships of \$12k per annum for domestic students commencing their PhD/MPhil programs at CSE in 2022. The top-up will supplement the main RTP award worth \$28,854 p.a. More information can be find at <https://www.unsw.edu.au/engineering/news-events/news/cse-top-scholarships-domestic-phdmphil-students>.