

COSC460: Research Project

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As an Honours student, you need to choose, carry out and document a research project, largely without assistance, but under the supervision of a CSSE staff member. Sometimes projects are suggested from industry or other UC departments, and if you are interested in one of these you need to find a CSSE staff member willing to support it and act as the primary supervisor, in conjunction with an industry supervisor or a non-CSSE academic.

The project requires the solution of a substantial problem. Typically this involves the following stages.

1. Formulate a detailed problem statement and derive a set of objectives.
2. Search the literature for background material and methods of solution.
3. Choose a method of solution and justify your choice.
4. Implement the solution.
5. Evaluate the solution and compare it to alternative solutions when appropriate.
6. Document the results in a final report, including a critical discussion of alternatives, and justify your choice of method.

Some projects may be strongly biased towards one of these stages. Before you embark on such a project, think carefully about possible consequences. For example, a project might focus on conducting a comprehensive literature search of a large research area, or it might focus on implementing a large software system. Such projects can be risky because it can be hard to attain a high grade when the project only allows you to demonstrate mastery of one set of skills.

There are a number of ways to choose a topic. The best option is to talk to a staff member who has expertise in your area of interest. Your third-year experiences may be very helpful in this respect, if you have previously studied at UC. You can also view the department's research groups at <http://www.csse.canterbury.ac.nz/research/> and make contact with an appropriate staff member.

It is strongly suggested that you have some idea of what you might wish to do before approaching a staff member. In the past some of the staff's project proposals have attracted several students. In such cases a supervisor may prefer a student whose background is particularly suited to a project. If it is necessary to choose between competing applicants for a project, this is expected to be done by 28/02/2016.

The following pages give details about deadlines and assessment.

Important dates

The project deadlines (time is 5pm) are as follows. You must strictly observe them and failure to do so may result in penalties for your COSC460 grading. Submitted items will be assessed and contribute to the final grade as indicated below.

- * throughout 2016 – Survival course
You have to attend this series of lectures that will help you develop basic research and writing skills.
- * 29/02/2016 – Project selection
Email the tentative project title, your name and your supervisor's name to admin@cosc.canterbury.ac.nz with cc: andy@cosc.canterbury.ac.nz and cc: your supervisor.
- * 18/03/2016 – Draft research proposal
Email a draft of your research proposal (PDF with 1–3 pages) to andy@cosc.canterbury.ac.nz. Andy will check the proposal for writing style. Note that the feedback you receive should help you improve your writing and that your supervisor is not expected to help you produce this document, nor edit it for you.
- * 24/03/2016 – Research proposal
Email your research proposal (PDF with 1–3 pages) to your supervisor with cc: andy@cosc.canterbury.ac.nz.
- * We will populate your examination committees with your supervisor and two additional examiners. They will assess your reports and presentations as regards both contents and style.
- * 20/05/2016 – Evaluation report on a past Honours Report. You must select a past Honours Report (available at <http://www.csse.canterbury.ac.nz/research/reports/> and write a short examiner's report on it, assigning a mark and commenting on its strengths and weaknesses. Your report should justify your mark and comments with respect to the COSC460 evaluation criteria (see below), excluding criterion directed at oral presentation and questions. The report must be at most 2 pages. Email a PDF copy of the report to andy@cosc.canterbury.ac.nz.
- * 27/05/2016 – Draft progress report
Email a draft of your progress report and plan (PDF with 3–5 pages) to andy@cosc.canterbury.ac.nz. You will receive comments from Andy. Revise your report accordingly.
- * 03/06/2016 – Progress report
Email the revised progress report and plan (PDF with 3–5 pages) to your examination committee with cc: admin@cosc.canterbury.ac.nz and cc: andy@cosc.canterbury.ac.nz.
- * 25–28/07/2016 – Project demonstration
Demonstrate to your examination committee what you have achieved so far.
- * 01–02/09/2016 (TBC) – Oral presentation
Present your project and its progress at the CSSE Postgraduate Conference.
- * 14/10/2016 – Final report
Email your final report (PDF with 30–50 pages excluding appendices) to your examination committee with cc: admin@cosc.canterbury.ac.nz and cc: andy@cosc.canterbury.ac.nz.

* TBA – Oral examination (details to come)

The examination committee reads your report and will have questions about it and your project's outcomes. This is an opportunity for you to give additional explanation and to clarify issues; you will not have to learn new material for the exam.

The dates for project demonstration, oral presentation and oral examination are tentative and will be announced in due time.

Assessment

deadline	assessment item	marks
throughout	Survival course	(includes items below)
18/03/2016	Draft research proposal	-5% if not on time
24/03/2016	Research proposal	-5% if not on time
20/05/2016	Honours report evaluation	5%
27/05/2016	Draft progress report	-5% if not on time
03/06/2015	Progress report	10%
25–28/07/2016	Project demonstration	15%
01–02/09/2016	Oral presentation	10%
14/10/2016	Final report	60% (with oral examination)
TBA	Oral examination	

Planning

You will need to do all project work along with your other courses. Make sure that you plan your schedule accordingly and steadily carry out your research. Do not leave things to the last day to avoid conflict with assessment in other courses.

Remember that the 460 project accounts for half of a full time workload, and that the project is equivalent to four other 400-level courses. In order to produce a good project report (which we expect!), you have to start working on the project right away, devote regular time and effort to it, and see your supervisor regularly to report progress. This calls for self-discipline – do not fool yourself into believing that your workload will decrease later in the year.

To help with your project there is a 'survival course', which consists of a series of lectures about basic research and writing skills that you need to produce a good project report. Participating in this course gives 5% of your final grade, but will also contribute indirectly by improving the quality of your presentations and reports on which other assessment is based. Details about the survival course are given elsewhere.

Remember that the quality of your reports is very important, since they form the major way in which we assess your year's work. In the past some students have started their write-up too late and have therefore earned disappointingly low marks, despite having done good work. You should set aside at least six weeks for report writing. Plan the contents and structure of the report carefully in consultation with your supervisor.

Your final report must have a cover page that contains the following information: what the report is (a COSC460 Research Project Report), title, author, supervisor, year.

Publication

After successful completion of COSC460, the final version of your report will be published in the CSSE report archive at <http://www.csse.canterbury.ac.nz/research/reports/> for the benefit of future Honours students and to document the research carried out in the department. By enrolling in COSC460, you grant the University of Canterbury the non-exclusive right to publish the final report of your COSC460 research project for scholarly purposes in electronic and in print form. Publication of the report may be delayed or otherwise restricted in justified cases; clarify in due time if this is an issue for your project.

Evaluation criteria

The following criteria will be used to evaluate your project:

- * objectives clearly stated (for example, well motivated)
- * related work comprehensively reviewed and evaluated
- * good justification for research approach (for example, quality of research design)
- * reported work is significant (for example, level of originality, quality of solution)
- * extent of work is satisfactory (for example, complexity of topic, level of programming)
- * own contributions made clear
- * sound conclusions drawn
- * report is well written (for example, clarity of presentation, organisation of report)
- * questions are adequately addressed
- * content and style of progress report, demonstration and presentation

How should the report be structured?

A typical report might have six main parts:

1. An abstract that illuminates key objectives and achievements.
2. An introduction that explains the background of the project, analyses the literature to date, and clearly describes the aims and objectives of the project.
3. An account of the work – design, implementation, experiments, etc – that has been done. This part forms the bulk of the report.
4. Conclusions: a summary of the major findings and results, as well as an indication of what further work would be desirable.
5. A list of all references you have ‘actively used’.
6. Appendices containing program listings, etc. If your project required program development, you should offer some documentation of usage as well.

How long should the report be?

This depends on how much is needed to make your work intelligible to a reasonably informed reader, who is not a specialist in the topic. An adequate report might have about 40 pages (excluding appendices). Your supervisor can advise you further. The report (excluding appendices) must have no less than 30 and no more than 50 pages unless your supervisor approves in advance.