



THE UNIVERSITY OF
NEW SOUTH WALES
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**SURVEYING & GEOSPATIAL ENGINEERING
SCHOOL OF CIVIL & ENVIRONMENTAL ENGINEERING**

GMAT 4015

Thesis Part B

Course Outline – Session 2, 2013

Version: 1-July-2013

Page	Table of Contents
2	Staff involved in the course and their contact details
2	Educational aspects of the course
3	Course schedule
4	Assessment in the course
6	Course resources
6	Administrative matters & rules

1. Staff involved in the Course and their Contact Details

1.1 Course Coordinator: Prof. Chris Rizos (CR)

Office: CE415 (Whenever present, you may just drop in, or send email)

Email: c.rizos@unsw.edu.au

Phone: 938 54205

1.2 Thesis Supervisors:

The selection of the thesis topic was made in Session 1, as part of course GMAT4010. It is the responsibility of the student to organise their own schedule of meetings with their supervisor.

1.3 Staff absences during session:

C. Rizos's absence in weeks 6, 7, 9 & 12 will not affect the course.

2. Educational Aspects of the Course

2.1 How this course relates to others in the program

This fourth year undergraduate 6UOC course in the B.E. programs follows the GMAT4010 course of Session 1. The aim of both courses is to provide the student with an opportunity to carry out a substantial project-type study program on a topic they select, under the direct supervision of a SAGE staff member. The primary objective of GMAT4015 is to continue the work commenced in GMAT4010 and to finish the appropriate background research that is needed to produce a **Thesis**. GMAT4010 is a prerequisite for GMAT4015.

2.2 Aims of the Course

Students are expected to demonstrate managerial, technical and scientific, and professional skills in researching, planning, executing and analysing an approved research or engineering project and to comprehensively report on the work orally and in writing, all within a stipulated time limit. Since the thesis topics are typically beyond the material taught in the degree program, the students have to show further that they are able to acquire, on their own, the additional knowledge and skills required for the successful completion of the work related to their theses.

2.3 Learning Outcomes

By the end of this session you should be able to:

- (a) Demonstrate the managerial, technical and professional skills in researching and executing an approved research or engineering project.
- (b) Report, in writing and orally, the outcomes of their research.
- (c) Appreciate and demonstrate the acquisition of new knowledge and skills, as required for their selected research or engineering project.

2.4 Teaching Strategies

Students have selected thesis topics early in Session 1, as part of their GMAT4010 course. Students have met regularly with their allocated thesis supervisor to discuss details of the selected project and have submitted a Thesis or Research Proposal to the course coordinator at the end of Session 1. Each Thesis/Research Proposal has been evaluated and a grade has been given to the student. Work should already have commenced on the Thesis work proper. The student is now expected to continue to carry out the research tasks as outlined in their Research Proposal, under the supervision of their allocated supervisor.

2.5 Suggested Learning Methods

This course is unlike any other previously undertaken by the student. The course coordinator will mentor the students, guiding them as they come to grips with the expectations of the research or engineering project. However, the most important aspect of the students' learning will be influenced by their one-on-one relationship with their supervisor. (He or she will be a staff member, but may also be supported by people from industry with an interest in the topic.) The supervisor(s) will assist the student in meeting the project objectives outlined in their Thesis/Research Proposal

(GMAT4010), and ensuring the research task is carried out according the time frame agreed to.

Since the thesis is likely to include aspects that are new to the student, it is imperative that student and supervisor meet for, on average, at least the equivalent of one hour per fortnight. It is suggested that each supervisor arranges a fixed weekly time for meetings with each thesis student, either individually or as a group (if appropriate). As a minimum, at each meeting, students should report progress of their thesis work over the preceding weeks and compare the actual with the planned progress. The work plan should be adjusted, if necessary. Students need to keep a log of the meetings, using the log form to be provided. The log should be signed by the supervisor each time a meeting is held.

The critical outcomes of this course are the Thesis Report, the Web Page Summary and the (oral) Thesis Presentation.

2.6 UNSW Graduate Attributes

This course provides an environment that fosters in our students the following attributes:

the skills involved in scholarly enquiry	Significant
an in-depth engagement with relevant disciplinary knowledge in its interdisciplinary context	Significant
the capacity for analytical and critical thinking and for creative problem solving	Significant
the ability to engage in independent and reflective learning	Significant
the skills to locate, evaluate and use relevant information (Information Literacy)	Significant
the capacity for enterprise, initiative and creativity	Some
an appreciation of and respect for, diversity	
a capacity to contribute to, and work within, the international community	
the skills required for collaborative and multidisciplinary work	Some
an appreciation of, and a responsiveness to, change	Minimal
a respect for ethical practice and social responsibility	

3. Proposed Course Schedule

Note, these times are only for the formal lecture component of GMAT4015. The student will meet with their supervisor according to their own schedule.

Week No. (Start Date)	Wednesday 1-2pm EE401A
1 (29/7)	Organisation of Course
2 (5/8)	
3 (12/8)	
4 (19/8)	
5 (26/8)	
6 (2/9)	

7 (9/9)	
8 (16/9)	Revising and Editing a Thesis
9 (23/9)	
	<i>Mid-Session Break</i>
10 (7/10)	
11 (14/10)	Organisation and Preparation for Thesis Conference
12 (21/10)	
13 (28/10)	<i>Submit Thesis by Friday 1/11, 16.00 hr to School Office</i>
14 (4/11)	<i>Thesis Conference Monday 4/11</i> <i>Submit Web Page Summary (by email) Friday 8/11, 16.00 hr</i>

4. Assessment in the Course

Assessment for the course includes:

- Thesis: 70%
- Thesis Presentation: 20%
- Web Page Summary: 10%

4.1 Web Page of Summary

Each student is to prepare a two to four page (when printed) summary of the work carried out in the context of the thesis. This summary web page is to be submitted separately, on disk or by email. Only one copy is required.

The summary should give a good overview on the topic and contain the key results. It should provide maximum exposure and 'hits' for you, your supervisor and the School on the School's web page. Sample web pages: <http://www.gmat.unsw.edu.au/currentstudents/ug/projects/projects.htm>. Please use them as a guide for layout, content, fonts. Figures and photos should be provided in .jpg format and with 72 dpi resolution. They should not be wider than 480 pixels (169 mm). Do **not** scale figures and photos when embedding them in the web page. In other words, the dimensions and resolutions of figures and diagrams in the .htm document must be those of the picture (.jpg) file. If in doubt about features to be embedded within the web pages, contact the course coordinator.

The **web page summary** of the thesis should be emailed to the course coordinator (zipped), or handed in person to him via a memory stick or CD. All files should be in the same directory/folder.

4.2 Lecture at Thesis Conference

Each student has to present a public lecture of 15-20 minutes duration on her/his thesis. The presentation of each student will be assessed by the course coordinator and her/his peers. The lecture should describe the topic and should summarise the work carried out and the results achieved. It should demonstrate that the student has achieved the aims of the work. ***Details of the Thesis Conference will be provided at the appropriate time, but preliminary date is Week 14, on Monday 4 November.***

The following aspects are part of the evaluation of the presentations: Style of Presentation (volume of voice, eye contact, use of visual aids, quality of such, explanation of diagrams, proficiency in English, talking to the point), Technical Content (aims explained, background provided, logical development, discussion of experimental design, summary of results, comparison with other studies, selection of material).

4.3 Nature of the Thesis

The thesis should demonstrate that the student can work through a set thesis project, essentially on his/her own, from the initial definition and gathering of background information to the final written thesis and other results. In our school two basic types of thesis may be distinguished, namely a pure Research Thesis and a Project Thesis. (It is likely that most topics will fall somewhere between these two extremes.)

A *Research Thesis* may be seen as, in essence, a long essay in which the student is required to demonstrate her/his skills as both researcher and critic. Writing a thesis is not merely an information-gathering exercise, a simple accumulation of information on a given topic. It is a case of defining a suitable, and manageable, subject for debate or analysis, of clearly formulating a problem about that subject, and of addressing the problem in a lucid and coherent argument, supported by appropriate illustrative evidence. The student needs to demonstrate a grasp of the relevant critical literature, and the relationship of the thesis topic to that literature. Furthermore, the student must demonstrate an ability to subject all sources to critical scrutiny and be able to make clear the methodology she/he is employing in doing this.

A *Project Thesis* will normally have two components, a written component and a practical, field, programming, experimental or laboratory component. The subject of these two components must be carefully linked. For example, the written component may analyse an experimental component, or the written component may describe the background, preparation, execution, analysis and outcome of a field work component. The critical investigation and analysis of any practical, field, programming or laboratory component is essential.

Research and background reading, a clear theoretical framework and the use of analytical skills are essential components, for both, the project component and the written component. The student must have undertaken a literature survey and, in writing the paper, she/he must show that she/he can use the conventional referencing mechanism of notes, references and bibliographies.

Recommended Length of the Thesis

The length of a **thesis** is recommended to be of the order of 7000-10000 words. **But this is NOT a rule**, and the length of the thesis will vary considerably. This applies to the text only, and does not include abstract, list of contents, list of figures, list of tables, footnotes, references, bibliography and appendices.

The Thesis should be submitted with a signed Assessment Cover Sheet:

<p>I declare that this Thesis is my own work, except where acknowledged, and has not been submitted for academic credit elsewhere, and acknowledge that the assessor of this item may, for the purpose of assessing this item:</p> <p>Reproduce this Thesis and provide a copy to another member of the University; and/or,</p> <p>Communicate a copy of this Thesis to a plagiarism checking service (which may then retain a copy of the Research Proposal on its database for the purpose of future plagiarism checking).</p> <p>I certify that I have read and understood the University Rules in respect of Student Academic Misconduct.</p> <p>Signed:date: <input type="checkbox"/><input type="checkbox"/> <input type="checkbox"/><input type="checkbox"/> <input type="checkbox"/><input type="checkbox"/></p>
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Number of Copies and Binding of the Thesis

Two copies of the thesis must be submitted. Where a thesis requires illustration (e.g. photographs, sketches, charts, plans, etc.), both must contain the necessary illustrations. The 'top' copy, i.e. one of the two retained by the School, should contain the best possible reproductions of this material. It is sufficient that the second copy contain photocopies of the original material. Since the two submitted theses are not being returned, it is suggested that students prepare a third copy for them to keep.

The School does not insist that the thesis be bound in boards. However, the thesis must be held securely together. Use (white) spiral binding with a transparent front cover and a back cover of thicker (non transparent) material. This provides a wide spine, upon which the student should indicate her/his name, the title of the thesis and the year of submission.

5. Course Resources

5.1 Lecture Material:

There will be no formal lecture material.

5.2 Reference Books

There is no text book for this course. The following general reference books will assist the student:

Anderson, J. and M. Poole (1994). *Thesis and Assignment Writing*. 2nd ed. Jacaranda Wiley, Brisbane.

Day, R. A. (1989). *How to Write & Publish a Scientific Paper*. 3rd ed., Cambridge University Press, Cambridge.

Hicks, C.R. and K.V. Turner (1999). *Fundamental Concepts in the Design of Experiments*. 5th ed. Oxford University Press.

Howard, K. and J. A. Sharp (1983). *The Management of a Student Research Project*. Gower Publishing Company Ltd., Aldershot, U.K. (P378.176/1A)

Montgomery, D.C. (1991). *Design and Analysis of Experiments*. 3rd ed. John Wiley & Sons, New York. (P519.9/242E)

Pitson, J. (rev.) (1978). *Style Manual for Authors, Editors and Printers of Australian Government Publications*. 3rd ed. Australian Government Publishing Service, Canberra.

Reynolds, L. and D. Simmons (1982). *Presentation of Data in Science*. 2nd print. Martinus Nijhoff Publishers, The Hague. (P507.8/15B)

5.3 Past Theses:

Past Theses will be available for study from the School Library. Arrangements can be made with the student's supervisor to borrow any of them.

6. Administrative Matters

6.1 Expected work load

At UNSW, the normal workload expectations of a student are about 25-30 hours per session for each Unit Of Credit (UOC), including class contact hours, preparation and time spent on all assessable work.

To assist students with the organisation of their studies, the expected workloads of the various components of this 6UOC course are listed below. It is strongly suggested that students use the listed hours to plan their work during session.

Lectures (3 x 1hr)	3hr
Attendance at Thesis Conference	6hr
Meetings with supervisors (6 x 1hr)	6hr
Preparation of Web Page Summary	10hr
Preparation of Lecture	25hr
Preparation of Thesis Proposal (further background reading, literature search, work on thesis, preparation of draft, revision, word processing, printing & binding)	100-130hr
Total	150-180hr

6.2 Rules

Students should read the University Calendar (or go to <http://www.handbook.unsw.edu.au/general/2013/SSAPO/GeneralRules.html>) for University Rules and special considerations.

Students are reminded that the University regards academic misconduct as a very serious matter. Any work submitted for assessment must be entirely the student's own work. The penalty for any suspected academic misconduct ranges from zero mark, through to failure of the course, to expulsion from the University.

The Thesis Report, Web Page Summary and Oral Presentation are compulsory parts of the course and must be handed in or executed by the due dates. A mark of zero will be given for any submission which violates this rule. (The lecturer has the discretion to vary this penalty, depending upon circumstances.)

If a student is unable to submit on time due to illness or other legitimate reason, then a brief written explanation must be given to the supervisor or the course coordinator (or sent as an email) for consideration as soon as is feasible. In some cases the supervisor/course coordinator may grant an extension to the submission date provided he has been contacted before the due date.

Plagiarism is a form of academic misconduct. **Plagiarism** is the presentation of the thoughts or work of another as one's own.*

(See <https://my.unsw.edu.au/student/atoz/Plagiarism.html>.)

Examples include:

- direct duplication of the thoughts or work of another, including by copying work, or knowingly permitting it to be copied. This includes copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork,

design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement

- paraphrasing another person's work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and,
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.†

Submitting an assessment item that has already been submitted for academic credit elsewhere may also be considered plagiarism.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does *not* amount to plagiarism.

Students are reminded of their Rights and Responsibilities in respect of plagiarism, as set out in the University Undergraduate and Postgraduate Handbooks, and are encouraged to seek advice from academic staff whenever necessary to ensure they avoid plagiarism in all its forms.

The Learning Centre website is the central University online resource for staff and student information on plagiarism and academic honesty. It can be located at:

www.lc.unsw.edu.au/plagiarism

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

* Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle.

† Adapted with kind permission from the University of Melbourne.

6.3 Grievances

In the first instance all grievances should be discussed with the Course Coordinator. The student is expected to meet regularly with his/her Supervisor. As this is a critical factor in the education process, if there are any problems in the student-supervisor relationship these must be drawn to the Coordinator's attention as soon as possible. The Coordinator may assign a new Supervisor.