

# GMAT3150

Surveying Field Projects

Term 1, 2022



## Course Overview

### Staff Contact Details

#### Convenors

Name	Email	Availability	Location	Phone
Craig Roberts	<a href="mailto:c.roberts@unsw.edu.au">c.roberts@unsw.edu.au</a>	by email	CE412	9385 4464

#### Lecturers

Name	Email	Availability	Location	Phone
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#### Lab Staff

Name	Email	Availability	Location	Phone
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Peter Mumford	<a href="mailto:p.mumford@unsw.edu.au">p.mumford@unsw.edu.au</a>	by email	CE406	

### School Contact Information

[Engineering Student Support Services](#) – The Nucleus - enrolment, progression checks, clash requests, course issues or program-related queries

[Engineering Industrial Training](#) – Industrial training questions

[UNSW Study Abroad](#) – study abroad student enquiries (for inbound students)

[UNSW Exchange](#) – student exchange enquiries (for inbound students)

[UNSW Future Students](#) – potential student enquiries e.g. admissions, fees, programs, credit transfer

#### Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

## **Course Details**

### **Units of Credit 6**

### **Summary of the Course**

An off-campus survey camp, where survey projects of substantial extent are carried out involving control survey design and implementation, detail surveys, contour surveys, the design and setting-out of a rural road, and other selected projects. The processing of the field data and the preparation of plans and reports is done during session. Students are required to attend a one-week residential survey camp at the start of Term 1 equivalent to three contact hours per week, followed by two hours per week project data processing during session.

### **Course Aims**

To broaden and deepen the knowledge of surveying instrumentation, field methods, and surveying software, by students conducting their own field survey over a one week intensive period at a site remote from UNSW campus. The aim is to involve students in measurement, survey design, and analysis, and to give them confidence in their ability to carry out field surveys.

### **Course Learning Outcomes**

1. Gain experience with hand held and RTK-GPS, road surveys, detail surveys, engineering surveys, and close range photogrammetry
2. Gain considerable experience at managing a small group

### **Teaching Strategies**

The field surveys will be conducted as group work. It is not possible for one person to do most of the work and "carry" the others in the group. Subsequent to the one week intensive camp is on campus processing of the field data, including plan production and reports, as individuals. There are no lectures in this course. However, there are briefing and debriefing sessions at the field/camp site and training sessions. This course has been very successfully conducted at another site (Morpeth) since 1976, obviously with continual modifications to the exercises as instrument and software have developed. The Berry site was used for the first time in 2008 with some similar exercises to those at Morpeth, but some previous exercises have been replaced with new exercises. Each year we make improvements to the survey exercises and requirements.

There are a set of back-up exercises that can be carried out at the Berry camp site if there is heavy rain and flooding that prevents students from conducting the planned fieldwork.

A new set of exercises have been developed for Cataract with some on-campus exercises at UNSW.

### **Additional Course Information**

Students are expected to have completed GMAT1110, GMAT2500 and GMAT2550 as pre-requisite to this course. GMAT2700 and GMAT2120 are highly recommended to have been completed as well. Please discuss with the course coordinator prior to enrolling if unsure.

## Assessment

Technical Instructions will provide specific requirements for submissions. Lecturers will keep students informed of changes due to circumstances and are welcome to request clarification during camp or later during scheduled lab sessions or via email.

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Control Survey Report	21%	18/03/2022 04:00 PM	1, 2
2. Detail Survey Project	28%	08/04/2022 04:00 PM	1, 2
3. Road Survey Project	36%	22/04/2022 04:00 PM	1, 2
4. Other survey	15%	22/04/2022 04:00 PM	1, 2

### Assessment 1: Control Survey Report

**Start date:** 28/02/2022 10:00 AM

**Submission notes:** Technical Instructions given

**Due date:** 18/03/2022 04:00 PM

**Marks returned:** Within two weeks

Students do a control survey as a group of 3. This includes testing of hand held GPS and its use for finding survey marks; control survey fieldwork and recovery sketches and analysis and report of the control survey. Design and measure as a group, then analysis and report as individuals. Students are given feedback in the field after they design their network and before measurements. More feedback is given during the off campus data analysis. After marking of their reports students are invited to individual feedback from the lecturer.

#### Assessment criteria

See Technical Instructions

#### Additional details

Some minor assessment given at camp.

### Assessment 2: Detail Survey Project

**Start date:** 28/02/2022 10:00 AM

**Submission notes:** Technical Instructions given

**Due date:** 08/04/2022 04:00 PM

**Marks returned:** Within two weeks

Students do a detail topographic and contour survey of part of the site as a group of 3. This project builds on the output of the control survey project. Design and measure as a group, then analysis, plans and report as individuals. Students are given feedback in the field after they design their network and before measurements. More feedback is given during the off campus data analysis. After marking of their reports students are invited to receive individual feedback from the lecturer.

### **Assessment criteria**

See Technical Instructions

### **Assessment 3: Road Survey Project**

**Start date:** 21/02/2022 10:00 AM

**Submission notes:** Technical Instructions given

**Due date:** 22/04/2022 04:00 PM

**Marks returned:** Within two weeks

Surveying students do a rural road design and set-out survey as a group of 3. Design and measure as a group. Group submission of plans, individual report submission. Students are given feedback in the field after they design their network and before measurements. More feedback is given during the off campus data analysis. After marking of their reports students are invited to individual feedback from the lecturer.

### **Assessment criteria**

See Technical Instructions

### **Assessment 4: Other survey**

**Start date:** 21/02/2022 10:00 AM

**Submission notes:** Technical Instructions given

**Due date:** 22/04/2022 04:00 PM

**Marks returned:** Within two weeks

Several smaller assessment tasks are included in this category. Survey students do a curved tunnel survey; a close range photogrammetry survey; and a survey of the Roundhouse and subsequent least squares curve fit analysis. Individual reports are submitted.

### **Assessment criteria**

See Technical Instructions

### **Additional details**

The various exercises will have different due dates depending on circumstances. The lecturer will keep students informed during term. Some assessment prior to Census date.

## Attendance Requirements

The first online briefing lecture in week 1 is compulsory. Many questions will be raised and the lecturer may require direct answers live to aid planning for the camp in week 3. A recording of this session will be available for revision. The 4-day camp is compulsory.

## Course Schedule

The lab sessions are allocated so that groups can work together on projects and ask questions of their lecturers. The time is scheduled to avoid clashes with other classes for students and staff. Students are encouraged to attend these sessions.

[View class timetable](#)

## Timetable

Date	Type	Content
Week 1: 14 February - 18 February	Tut-Lab	<p>Class scheduled in CE201 - lab or online. This is a compulsory briefing class giving information about the Survey camp which will be held this year at the Cataract Scout Park in week 3.</p> <p>Administrative issues such as payments and forms will need to be finalised by the end of this session.</p> <p>This class will also be presented live online using BBCU.</p> <p>After the briefing and questions, students will then practice upload/download of Sokkia/FOIF instruments in preparation for the camp.</p> <p>Road calculations can also be performed at this time.</p>
Week 2: 21 February - 25 February	Tut-Lab	<p>Practice use of equipment in preparation for field camp.</p> <p>Complete preparatory road calculations.</p> <p>Prepare logistics and travel plans for week 3 camp.</p>
Week 3: 28 February - 4 March	Fieldwork	<p>Field camp at Cataract Scout Park from Monday 28 February - Thursday 3 March.</p>
Week 4: 7 March - 11 March	Tut-Lab	<p>Work on activities completed at field camp in groups. Student groups are encouraged to go to the CE201 lab (or online) where they will receive</p>

		<p>supervision and guidance from their supervisors.</p> <p>Work on Control Survey report and Detail plan</p>
Week 5: 14 March - 18 March	Tut-Lab	<p>Work on activities completed at field camp in groups. Student groups are encouraged to go to the CE201 lab where they will receive supervision and guidance from their supervisors.</p> <p>Deadline for Control Survey report. Continue working on Detail project.</p>
Week 6: 21 March - 25 March	Tut-Lab	<p>Tunnel survey at local park or on-campus TBD.</p> <p>Close range photogrammetry (if not completed at Survey camp).</p> <p>Roundhouse fit project.</p> <p>Deadline for Tunnel Survey.</p>
Week 7: 28 March - 1 April	Fieldwork	<p>Deadline for detail survey plan. Continue to work on combined survey plan.</p>
Week 8: 4 April - 8 April	Tut-Lab	<p>Deadline for combined area detail survey. Continue to work on Close range photogrammetry report and the road design.</p>
Week 9: 11 April - 15 April	Tut-Lab	<p>Close range photogrammetry report due. Continue to work on road design.</p>
Week 10: 18 April - 22 April	Tut-Lab	<p>Deadline for Road Design report. Continue to work on Roundhouse fit project (deadline week 11).</p>
Study Week: 25 April - 28 April	Assessment	<p>Deadline for Roundhouse fit project.</p>

## **Resources**

### **Prescribed Resources**

Students should refer to the documents made available on the Moodle site. Students should also refer to lecture notes from previous courses especially GMAT2500 and GMAT2550.

### **Course Evaluation and Development**

This course has evolved over many years. It is an intensive field camp experience and has been previously conducted in Morpeth and Berry. This is the second time it will take place at Cataract Scout Park. Week 1 will provide a compulsory student briefing. This will also be recorded. Students will be expected to practice using equipment (eg uploading and downloading from total station, using RTK etc) in week 1 & 2 in preparation for the survey camp.

During the survey camp there will be an initial WHS briefing and orientation before commencing survey tasks. There will be briefing sessions before each task and/or each night. This is a valuable time where students can ask questions in a relaxed environment and learn from each other as well as receiving guidance from the lecturers.

After camp, a series of tasks with staggered deadlines will be conducted in the lab with assistance from the lecturers.

### **Laboratory Workshop Information**

Lab and workshop information will be provided on Moodle. Lecturers will be available during the timetabled lab sessions to answer questions and provide assistance.

## **Submission of Assessment Tasks**

Please refer to the Moodle page of the course for further guidance on assessment submission.

### **UNSW has a standard late submission penalty of:**

- 5% per day, for all assessments where a penalty applies, capped at five days (120 hours), after which a student cannot submit an assessment, and no permitted variation.

## Academic Honesty and Plagiarism

Beware! An assignment that includes plagiarised material will receive a 0% Fail, and students who plagiarise may fail the course. Students who plagiarise are also liable to disciplinary action, including exclusion from enrolment.

Plagiarism is the use of another person's work or ideas as if they were your own. When it is necessary or desirable to use other people's material you should adequately acknowledge whose words or ideas they are and where you found them (giving the complete reference details, including page number(s)). The Learning Centre provides further information on what constitutes Plagiarism at:

<https://student.unsw.edu.au/plagiarism>

## Academic Information

### Final Examinations:

Final exams in T1 2022 will be held online between 29th April - 12th May inclusive, and supplementary exams between 23rd - 27th May inclusive. You are required to be available on these dates. Please do not to make any personal or travel arrangements during this period.

### ACADEMIC ADVICE

- Key Staff to Contact for Academic Advice (log in with your zID and password): <https://intranet.civeng.unsw.edu.au/key-staff-to-contact-during-your-studies-at-unsw>
- [Key UNSW Dates](#) - eg. Census Date, exam dates, last day to drop a course without academic/financial liability etc.
- CVEN Student Intranet (log in with your zID and password): <https://intranet.civeng.unsw.edu.au/student-intranet>
- Student Life at CVEN, including Student Societies: <https://www.unsw.edu.au/engineering/civil-and-environmental-engineering/student-life>
- Special Consideration: <https://student.unsw.edu.au/special-consideration>
- General and Program-Specific Questions: [The Nucleus: Student Hub](#)
- Refer to Academic Advice on the School website available at: <https://www.engineering.unsw.edu.au/civil-engineering/student-resources/policies-procedures-and-forms/academic-advice>

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### CRICOS

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### Acknowledgement of Country

We acknowledge the Bedegal people who are the traditional custodians of the lands on which UNSW Kensington campus is located.