UNSW Course Outline

GMAT3150 Surveying Field Projects - 2024

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General Course Information

Course Code : GMAT3150
Year : 2024
Term : Term 1
Teaching Period : T1
Is a multi-term course? : No
Faculty : Faculty of Engineering
Academic Unit : School of Civil and Environmental Engineering
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

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

Course Learning Outcomes
CLO1 : Gain experience with hand held and RTK-GPS, road surveys, detail surveys, engineering surveys, and close range photogrammetry
CLO2 : Gain considerable experience at managing a small group

Course Learning Outcomes	Assessment Item
CLO1 : Gain experience with hand held and RTK-GPS, road surveys, detail surveys, engineering surveys, and close range photogrammetry	• Control Survey Report • Detail Survey Project • Road Survey Project • Other survey
CLO2 : Gain considerable experience at managing a small group	• Control Survey Report • Detail Survey Project • Road Survey Project • Other survey

Learning and Teaching Technologies

Moodle - Learning Management System

Additional Course Information

This is a core course for students in the BE Surveying program 3707 and the Bachelor of Civil Engineering (Honours)/Bachelor of Surveying 3776. This course includes a Survey Camp in week 5 from Tuesday 12 Mar to Friday 15 Mar 2024 at the Cataract Scout Park. The course builds on previous surveying courses specifically GMAT 1110, 2120, 2500, and 2550. You should have already passed or been exempt from those courses. If you have attempted but failed any of the

above courses, then you should contact the course convenor. The Magnet Office CAD experience in GMAT2500 is essential for the Detail Survey and Road exercises. The FIXIT experience in GMAT2550 and knowledge of Least Squares is used in the design and analysis of the control traverse and calculations for the EDM calibration exercise. This course provides experience that is invaluable for some of the projects in GMAT4150. Feedback from previous year's students will be available on the class Moodle site.

Please ensure you are enrolled in the course well before the start of term 1 and have visited the class Moodle site. In week 1, there will be an important and compulsory class in the computer lab CE201 and there will be a BBCU recording of the class. All students in GMAT3150 should attend, if absent for legitimate reason then contact the course coordinator. The class will cover WHS matters for the field trip and the preparations needed. Groups will be formed at the meeting. There will be weekly computer lab classes, on Wednesdays at 11am in CE computer lab and two on-campus pracs in week 3 and 4 which will commence at 9am. There are no lectures in this course.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Control Survey Report	21%	
Detail Survey Project	28%	
Road Survey Project	36%	
Other survey	15%	

Assessment Details

Control Survey Report

Assessment Overview

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.

Course Learning Outcomes

- CLO1 : Gain experience with hand held and RTK-GPS, road surveys, detail surveys, engineering surveys, and close range photogrammetry
- CLO2 : Gain considerable experience at managing a small group

Submission notes

Technical Instructions given

Assessment information

Some minor assessment given at camp.

Detail Survey Project

Assessment Overview

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 individual feedback from the lecturer.

Course Learning Outcomes

- CLO1 : Gain experience with hand held and RTK-GPS, road surveys, detail surveys, engineering surveys, and close range photogrammetry
- CLO2 : Gain considerable experience at managing a small group

Submission notes

Technical Instructions given

Road Survey Project

Assessment Overview

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.

Course Learning Outcomes

- CLO1 : Gain experience with hand held and RTK-GPS, road surveys, detail surveys, engineering surveys, and close range photogrammetry

- CLO2 : Gain considerable experience at managing a small group

Submission notes

Technical Instructions given on Moodle

Other survey

Assessment Overview

Several smaller assessment tasks are included in this category. Survey students do a 500m tunnel survey; a close range photogrammetry survey; and a survey of a 300m catenary cable and subsequent least squares curve fit analysis. Individual reports are submitted.

Course Learning Outcomes

- CLO1 : Gain experience with hand held and RTK-GPS, road surveys, detail surveys, engineering surveys, and close range photogrammetry
- CLO2 : Gain considerable experience at managing a small group

Submission notes

Technical Instructions given on Moodle

Assessment information

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.

General Assessment Information

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.

Group work assessment:

At survey camps much of the field work has to be done in groups and at all times equal contributions from each student in the group should be strived for, with tasks rotated in the field and the lab and with all students contributing to decision making. Some of the reports and plans will be done and submitted by individual students – each sharing the data obtained by their group in the field. Make sure you have a copy of all data before you leave Cataract. Group work submissions should ensure all students contribute significantly.

With group work assessment is more difficult to give an equitable assessment of each individual group member. So supervisors will monitor students doing group work in the field and office.

When students submit a group report not all students in that group will necessarily get the same mark. Sometimes they will all get the same mark, sometimes not. The allocation of marks within a group will depend on a number of attributes such as:

- The quality (and sometimes quantity) of the project work and its report or plans,
- Participation – the role of each person in the group,
- What level of leadership was taken on for the various aspects of the project, (or were you just a field hand?)
- How many hours were logged or spent by each student?
- Discussions with students,
- Attendance,
- Communication within the group and with the supervisor
- The supervisor's discretion based on experience with other groups and previous year's students.

Therefore, when you see your mark, please note that we have given some serious consideration to your individual circumstances and to reward you accordingly.

Grading Basis

Standard

Course Schedule

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 in week 5 and three half day pracs in week 2, 3 and 4 are compulsory.

General Schedule Information

The lab sessions in CE201 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. Week Activity 1 = Wed 14 Feb Important start to course and its logistics. Explanation of field projects. Work Health and Safety. Form Groups. Submit forms, payments. Practice detail survey with Robotic Topcon. Complete and submit any Medical Clearance online forms (Cataract), on or before 14 Feb 2024 and the UNSW Fieldwork form to the course coordinator on or before 14 Feb 2024. The fee for accommodation and meals that each student is required to pay is $270 in 2024. The fee must be paid to UNSW using the online system which will be described separately. The School has

contributed to the costs of the camp to reduce the fee payable by students. NO STUDENT WILL BE ADMITTED TO THE CAMP WITHOUT PRIOR EVIDENCE OF PAYMENT.

We aim to follow the timetable below:

Wk 1 Admin/ intro, arrange payment, logistics.

Wk 2 Calculate road centreline coordinates, with horizontal and transition curves. Submit file. Upload road coordinates into Topcon. Undertake a mock detail survey on campus to learn workflow. Organise Equipment for transport. Check instrument settings and test for errors.

Wk 3 EDM Calibration exercise on campus. Start at 9am.

Wk 4 Tunnel Survey on campus. Start at 9am.

Wk 5 At Cataract for survey camp. Tues 12 Mar – Fri 15 Mar 2024. Details on moodle

Wk 6 Flexibility week

Wk 7 Lab: Control Survey Report

Wk 8 Lab: Detail survey plans – your group's area - Individual

Wk 9 Lab: Detail survey plans – combined area with other groups- Individual/ Lab: Road Plans

Wk 10 Lab: Road Plans – Group. Roads Report individual

Course Resources

Prescribed Resources

Students should refer to the documents made available on the Moodle site. Students should also refer to lecture notes and text books from previous courses especially GMAT2120, 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. 2024 is the fourth time GMAT3150 will take place at Cataract Scout Park. Week 1 will provide a compulsory student briefing. Students will be expected to practice using equipment (eg uploading and downloading from total station, using

RTK etc) in week 2, 3 & 4 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.

Feedback from previous GMAT3150 students will be discussed in class.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Lab staff	Yincai Zhou		CE410	9385 5252	by email	No	No
	Peter Mumford		CE406		by email	No	No
Convenor	Craig Roberts		CE412	9385 4464	by email	Yes	Yes

Other Useful Information

Academic Information

I. Special consideration and supplementary assessment

If you have experienced an illness or misadventure beyond your control that will interfere with your assessment performance, you are eligible to apply for Special Consideration prior to, or within 3 working days of, submitting an assessment or sitting an exam.

Please note that UNSW has a Fit to Sit rule, which means that if you sit an exam, you are declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's Special Consideration page.

II. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and polices. In particular,

students should be familiar with the following:

- Attendance
- UNSW Email Address
- Special Consideration
- Exams
- Approved Calculators
- Academic Honesty and Plagiarism
- Equitable Learning Services

III. Equity and diversity

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equitable Learning Services. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

IV. Professional Outcomes and Program Design

Students are able to review the relevant professional outcomes and program designs for their streams by going to the following link: https://www.unsw.edu.au/engineering/student-life/student-resources/program-design.

Note: This course outline sets out the description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle or your primary learning management system (LMS) should be consulted for the up-to-date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline/Moodle/LMS, the description in the Course Outline/Moodle/LMS applies.

Academic Honesty and Plagarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.*

Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to

accidentally copying from a source without acknowledgement. UNSW has produced a website with a wealth of resources to support students to understand and avoid plagiarism, visit: student.unsw.edu.au/plagiarism. The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one.

You 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 tasks.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in an honours thesis or contract cheating) even suspension from the university. The Student Misconduct Procedures are available here:

www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Submission of Assessment Tasks

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of five percent (5%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way through a day. This is for all assessments where a penalty applies.

Work submitted after five days (120 hours) will not be accepted and a mark of zero will be awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These will be clearly indicated in the course outline, and such assessments will receive a mark of zero if not completed by the specified date. Examples include:

- Weekly online tests or laboratory work worth a small proportion of the subject mark;
- Exams, peer feedback and team evaluation surveys;
- Online quizzes where answers are released to students on completion;

- Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date; and,
- Pass/Fail assessment tasks.

Faculty-specific 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)

School-specific Information

Final Examinations

Final Exams in T1 2024 will be held on campus between the 26th April and 9th May, and Supplementary Exams between the 20th - 24th May 2024. You are required to be available on these dates. Please do not to make any personal or travel arrangements during this period.

School Contact Information

For assistance with enrolment, class registration, progression checks and other administrative matters, please see the Nucleus: Student Hub. They are located inside the Library – first right as you enter the main library entrance. You can also contact them via http://unsw.to/webforms or reserve a place in the face-to-face queue using the UniVerse app.

For course administration matters, please contact the Course Coordinator.

Questions about the this course should normally be asked during the scheduled class so that everyone can benefit from the answer and discussion.