



THE UNIVERSITY OF
NEW SOUTH WALES
SYDNEY · 2052 · AUSTRALIA

SCHOOL OF SURVEYING & SPATIAL INFORMATION SYSTEMS

GMAT 3150

FIELD PROJECTS

(Survey Camp at Berry)

Course Outline – Session 2, 2008

Version: 14/05/2008

This document, and other material, is available at the Course Website:

<http://www.gmat.unsw.edu.au/gmat3150>

(User name and password supplied in class)

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1. Staff involved in the Course and their Contact Details

1.1 Course Convenor & Supervisor: Dr. Bruce Harvey

Office: EE424 (Whenever present, you may just drop in)
Email: B.Harvey@unsw.edu.au Phone: 9385 4178

1.2 Supervisors:

Dr. Craig Roberts: Wed – Fri at camp and Roads exercise post camp
Office: EE408 Email: c.roberts@unsw.edu.au Phone: 9385 4464

Dr. Samsung Lim: GIS exercise post camp
Office: EE4 Email: s.lim@unsw.edu.au Phone: 9385 4505

Dr Yincai Zhou: Storeman and computer support at Field Camp (Mon – Wed) and post camp processing support.

2. Proposed Course Schedule

There will be an important class on Wednesday 14 May 2008, 3:30pm in CE G1 (Week 9). All students must attend. It will cover OHS matters for the field trip and all the preparations needed. Please ensure you are enrolled in the course by this date.

The field trip will be from MONDAY, 21st JULY to FRIDAY, 25th JULY, 2008. At Berry Sport & Rec Centre. There will be subsequent computer lab classes, but no lectures in Session 2. Further details later.

There are nominally two strands to this course; students may elect to choose the ‘Surveying’ or the ‘GIS’ strand. Some exercises are common to both strands. However in 2008 due to small class numbers and a new site a Spatial Information / GIS strand may not be available. We aim to follow the timetable below, however it may change if severe weather conditions are encountered.

When	Surveying Strand	Spatial & GIS Strand
Precamp	Calculate road centreline coordinates, horizontal and transition curves	Consult re Photo Control Mark selection. Collect historical and tourism data for Berry
Mon AM	10:30am Site tour + OH&S, then move into accommodation Briefing: Control survey for detail Check NIKON instrument settings Find existing survey marks, measure MGA coords by HH GPS	Same as survey
Mon PM	Check Nikon instruments for errors Design control survey. Make recovery sketches with MGA coords by HH GPS. Observe control survey, book manually	Same as survey
Mon night	Training session on Nikon data recording. Adjust control survey	Same as survey
Tue AM	Observe control survey if not complete. Electronic detail survey, use feature codes.	Same as survey
Tue PM	Electronic detail survey, use feature codes.	Same as survey
Tue night	Download, check files. Adjust control survey	Same as survey
Wed am	Electronic detail survey, use feature codes. Survey infrastructure: In 2008 coordinate sewer vent on main building for future RO use. Find SSM79545.,	Electronic detail survey, use feature codes. Setout Briefing + Upload coords. Photo control briefing
Wed pm	Road Survey Briefing. Upload coords Road Survey on MGA: Setout marks on road centreline	Photo control by RTK GPS or by total station survey or using HH GPS.
Wed night	Briefing: Road levelling / RTK Download, check files.	Briefing: GIS data collection Download, check files.
Thu AM	Finish setout marks for full length road Check setout by RTK GPS or by radiation from hill mark	Upload & Setout a north point near office. Recon for GIS of Berry town. Collect some digital photos.
Thu PM	Digital level or RTK of centreline & X sections *Profile of flying fox cable and ground under it.	GIS data collection in Berry. MGA coordinates of roads, visible utilities, front fence corners, etc.
Thu night	Briefing: Tunnel Survey.	Download GIS data, check files.
Fri	Tunnel Survey. * Find Cadastral marks surrounding site, coordinate with HH GPS on MGA. Depart 3:30pm	Photographic fly through of site and surrounding area. Collect photos, download and produce pps in the field.
Post camp	Civilcad road design, long sections etc Civilcad detail survey plan. Profile and curve fitting for flying fox	GIS "map" of history of development, tourism sites and surveys around Berry, with photos, aerial photography, other collected attributes, includes detail survey and contours. Civilcad detail survey plan.

* The survey infrastructure, cadastral marks exercise and the flying fox exercise can be done at any convenient time earlier in the week, if students have completed that day's tasks.

3. Assessment in the Course

There is no final exam in this course. Assessment details will be discussed in class and on the class web site, and in Technical Instructions documents distributed at the field camp and available on the class web site. Proposed marking schedule:

	'Surveying stream' %	'GIS stream' %
HH GPS on site and Cadastral marks	3	3
Control Survey fieldwork & adjustment	20	20
Detail survey fieldwork and plans	27	27
Road Survey fieldwork, report and plans	40	--
Flying Fox Profile	4	--
Tunnel Survey	6	--
Photo Control Survey and North arrow setout	--	5
GIS field data collection, submission and demonstration of GIS or spatial product		45

Submission	Due date
Road calculations	Pre camp
Road check survey	Thu evening at camp
Hand held GPS – site & Cadastral marks	End of Fri at camp
Road Levelling	8am Fri at camp
Control Net adjustment	8am Wed at camp
Tunnel Survey results	End of Fri at camp
Flying Fox profile	End of week 2 session 2
Detail survey plans	Week 5 session 2
GIS Files	End of week 9 session 2
Road Plans	End of week 9 session 2
All else	End of week 9 session 2

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 all students contributing to decision making. However, the contribution within a group is not always equal. There is an opportunity to have some self and peer assessment in this course. Post camp submissions can be done as individuals or as groups. If one particular member of the group is lazy in the past those groups have decided to submit individually instead of carrying the lazy person. Whether a submission is done individually, by a group of two or a group of 3 is considered by the marker when assessing quantity and quality expected. If a group submission is made, each person in a group is given the same mark unless students submit written documents to the course coordinator giving reasons for variations etc. The final decision about redistribution of marks is made by the course coordinator. For example, say a group of 2 submits a project (e.g. the detail survey) and it is given a mark of 70%. If the students say they each contributed equally (or they say nothing) then they each get 70%. If the students submit written statements saying that one person should get say 80 and the other 60, as long as the mean = 70, then that will be used. Similar, can be done in groups of 3.

4. Educational Aspects of the Course

4.1 How this course relates to others in the program

This course builds on previous surveying courses in years 1, 2 and 3, specifically GMAT 1110, 2120, 2210, 2500, 3100, 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 road calculation component of 2500 is essential for those students who choose the 'surveying' strand of this course – but is not needed for the 'GIS' strand. The FIXIT3 experience in 2550 and CivilCAD experience in 2500 are essential for all students in this course for the Detail Survey exercise. Experience with GIS software, as in GMAT2210, is essential for students who choose the 'GIS' strand.

4.2 Aim of the Course

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

To make GMAT 3150 suitable and educationally beneficial for both Engineering / Cadastral Survey stream and GIS / Spatial / Computing stream students. The camp is also attended, some years, by postgraduate students without 'local' surveying knowledge to familiarise with surveying measurement techniques and NSW cadastral marks.

4.3 Learning Outcomes

Depending on the strand chosen, by the end of this course you will have some experience with hand held GPS, road surveys, detail surveys, engineering surveys, GIS data collection and some aspects of cadastral surveys (point recovery and finding existing marks).

4.4 Teaching Strategies

The surveys will be conducted as group work. Subsequent to the one week in the field there is on campus processing of your 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 site and training sessions. This course has been very successfully conducted at another site (Morpeth) since 1976, obviously with continual modifications as instrument and software has developed. The Berry site is 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.

4.5 Suggested Learning Methods

Will be discussed at our session 1 meeting and at camp.

4.6 UNSW Graduate Attributes

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

the skills involved in scholarly enquiry	
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)	Some
the capacity for enterprise, initiative and creativity	Significant
an appreciation of and respect for, diversity	Significant
a capacity to contribute to, and work within, the international community	Some
the skills required for collaborative and multidisciplinary work	Significant
an appreciation of, and a responsiveness to, change	
a respect for ethical practice and social responsibility	Some

5. Course Resources

Messages and files for this course can be downloaded from the website www.gmat.unsw.edu.au/gmat3150 . Monitor the site during both sessions and in the gap between session 1 and 2 because it will be updated regularly. Username and password will be supplied in class. The website material is only for use by students enrolled in this course.

Detailed Technical Instructions for the survey camp will be supplied. You are advised to bring class notes and text books from the prerequisite courses with you to Berry.

5.1 Computational Aids

Pocket calculators are required at survey camp. It is also desirable for each group to bring a laptop computer. If no laptop is available advise the Course Convenor. A limited number of computers and printers will be supplied by UNSW at Berry as well as software.

6. Administrative Matters

Special Rules for the Berry site component of the course are listed below.

6.1 Expected work load

At UNSW, the normal workload expectations of a student are approximately 25 hours per semester for each unit of credit, including class contact hours, other learning activities, preparation, and time spent on all assessable work. This equates to 150 hours total for GMAT3150.

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

Pre camp: 1.5 hr (Lec) + 1.5hr (road calculations or aerial photo analysis)	3hr
Travel To and From Berry	6hr
At Camp: Field exercises & office work	70hr
Post camp, S2 processing	70hr
Total	149hr

6.2 Rules

Students should read the University Calendar or Student Guide for details of University Rules and special considerations. Take note of new university policy on Plagiarism.

Students are reminded that the University regards academic misconduct as a very serious matter. Unauthorised material must not be taken into a test or examination. Any work submitted for assessment must be entirely the student's own work. The penalty for any suspected academic misconduct ranges from zero mark for the assignment or exam involved, through failure of the subject, to expulsion from the University. If absent from an examination, class test or practical, students must submit written documentation to the University, via the Student Centre in the Chancellery.

All assignments or practical reports are compulsory parts of the course and must be handed in by the due date. At the discretion of the course convenor, a mark of zero may be given for any submission which violates this rule. 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 lecturer for consideration as soon as is feasible. In some cases the lecturer may grant an extension to the submission date provided he has been contacted before the due

date.

Further assessment may be granted in this course at the lecturer's discretion.

6.3 Grievances

In the first instance all grievances should be discussed with the lecturer involved. If the problem cannot be resolved, students should contact the School's Grievance Officer in writing.

6.4 Rules for practical / field classes

OHS and weather aspects of the practical exercises at Berry will be discussed in class and on site. Contact a supervisor if in doubt. At Berry a special survey store will be in operation, under the control of Dr Yincai Zhou. Please aim for no loss or damage to any equipment. If there is a loss or damage report it to Dr Zhou.

7. ADMINISTRATION INSTRUCTIONS FOR THE SURVEY CAMP

Please Examine All this Material Carefully

1. Registration & Payment of Fees

The fee for accommodation and meals that each student is required to pay is \$280 (it is GST exempt). The fee must be paid to the UNIVERSITY CASHIER, using the deposit form (L20R), which has been issued in class. Submit L20R with payment at University Cashier. The deposit form will be stamped on payment, and the stamped receipt must be shown to the School Office (Room EE420) as evidence of payment. Complete and submit the Dept of Sport and Rec.'s Medical Clearance form and the UNSW Fieldwork form before **1 July 2008** and make payment and submit L20R before **1 July 2008**. **NO STUDENT WILL BE ADMITTED TO THE CAMP WITHOUT PRIOR EVIDENCE OF PAYMENT.** Students whose camp fees will be paid by their employers should pay the fee themselves and make arrangements to be reimbursed by their employers later.

2. Travel Arrangements

Students are required to organise their own transport to and from Berry campsite. Most students usually travel by car with 2 or 3 students sharing expenses. Students who wish to travel by train should contact SRA on 131500 or www.cityrail.nsw.gov.au/timetables and confirm train times and fares a week before travel. The nearest rail station is Berry. Students will be picked up at Berry railway station and driven to the camp site provided they arrange details with the Camp Director before 1 July. Students travelling in their own cars will need to ascertain the exact location of the camp site, maps and GPS coordinates are available from the course coordinator.

3. Procedures for Checking In

- (a) Contact the Camp Director in the car park at the Conference Centre at **10.30 am on Monday, 21st July**.
- (b) On arrival, each student is required to sign the register before moving into the accommodation provided. At this time, the registration numbers of cars and motor cycles parked at camp must be provided.
- (c) Students who do not sign in by the specified time may lose marks.

4. First Briefing

There will be a briefing on OH&S matters at the start of the camp. **ALL STUDENTS MUST ATTEND.**

5. What to Bring

- (a) While bed, mattress, pillow, blankets, cutlery, crockery etc. are provided in camp, it will be necessary to bring a sleeping bag or sheets, pillowcases and towels.
- (b) Each student should bring their textbooks and lecture notes on: survey computations, EDM, detail surveys, road calculations etc; calculator, writing paper etc, and a USB memory stick.
- (c) Students should ensure that they wear appropriate footwear. Mid year in Berry often produces very wet grass in the mornings. Thongs or sandals are highly undesirable as they do not provide adequate protection. Bring clothing that protects against windburn, sunburn, cold and rain.

6. Daily Routine

Breakfast 7.30 am, Lunch 12.00 to 12.30, Dinner 6.00 pm
Working Periods start: 8 am, Evening briefings: 6.45 pm

7. Procedure for Checking Out

- (a) Instruments to be handed in not later than 2 pm on the last day. However to ensure students obtain sufficient quantity and quality of observations, students will not be allowed to leave camp before 2:00 pm on the last day.
- (b) Check out before approximately 3:30 pm. An evening meal will not be served on the last day.

Students who do not sign out are considered not to have completed the Field Project and will be required to repeat.

8. Site Rules

The following rules are designed to provide a set of conditions that are conducive to the satisfactory completion of all work and the maximum safety and privacy for occupants of the camp under the prevailing circumstances.

This site is frequently used by school children at the same time as our survey camp. It is recommended that your cars and accommodation be kept locked and the valuable equipment not be left unattended.

Surveying Equipment: The instruments and equipment issued for the practical exercises are expensive and delicate and, if not handled with care and commonsense, can be damaged easily. The need for careful handling, especially in storing away instruments, cannot be overstressed. If an instrument case cannot be closed, do not force the lid down, but leave it open and bring the instrument into the store like that. After the completion of each day's work, equipment must be returned to the STORE. This must be done before sunset. No major survey equipment is to be kept overnight in the sleeping quarters.

Noise: The evenings are generally reserved for the reduction of observations, computations and the down loading of field data into computers. It is essential that irritant noise be refrained from at all times.

Liquor: Any student found in an intoxicated state during camp will not be permitted to complete the camp and must return the following year. Drugs are not permitted in camp.

Fire: Students should take precautions against fire in the camp and in the field, in particular in extinguishing matches and cigarettes. Smoking is not permitted in buildings.

Cleanliness: The co-operation of camp residents is requested in keeping both the interior and the area around their cabins clean and tidy. Rubbish bins are provided.

Illness and Injury: Should be reported to a member of staff; first-aid supplies are available at the survey store.

Damages: As the cost of any damage to camp buildings and furniture will have to be met by the University, any damages should be reported to the Director. The cost of any damage, which results from negligence, will be recovered from the students concerned.

Miscellaneous: Unauthorised persons are not permitted to enter the camp. Firearms may not be brought into camp.

Berry Town: Occasional visits to Berry for shopping are permitted after consulting the course coordinator so that he knows where all students are at all times. For safety reasons, it is recommended that students do not drink alcohol off site. Any student who leaves the site without approval from the course coordinator may be dismissed from the camp and may fail the course.