



School of Civil and Environmental Engineering

Term 2, 2020

# GMAT3700 GEODETIC POSITIONING AND APPLICATIONS

## COURSE DETAILS

|  |   |  |
|--|---|--|
| <b>Units of Credit</b>                   | 6   |  |
| <b>Contact hours</b>                     | 5 hours per week (average)  |  |
| <b>Class</b>                             | Monday, 15:00 - 17:00<br>Tuesday, 2:00 - 4:00<br><br>Tuesday, 4:00 - 6:00 | Online via Moodle, BB<br>Collaborate<br>Online |
| <b>Course Coordinator &amp; Lecturer</b> | Craig Roberts   |  |



## TEACHING STRATEGIES

A variety of teaching activities will be included to achieve the optimal teaching and learning outcomes. Major teaching activities in this course are:

- 1) Weekly lectures - Online
- 2) Field exercise In 2020 will use data from 2019 students and process.
- 3) Quizzes, hands-on workshops & discussions - Online
- 4) Class presentation
- 5) Final examination

The lectures will provide the foundation to the course. Students are encouraged to come to lectures live and interact and ask questions. The workshops, computational exercises, field exercise/ processing and quizzes/exam are intended to address the basic objectives of the course. The critical review and class presentation encourage the student to indulge in one specialist area of the course.

The most important factors in learning **Participation is everything**. In addition, relevant resources on the web are of great help in understanding the basic concepts of GPS/GNSS positioning discussed in the lectures. An important component of this course will be based on the actual design of a static GPS field exercise, and the processing of the data collected in 2019.

## ASSESSMENT

Assessment for the course consists of:

- |  |                              |
|--|------------------------------|
| < Workshops and mini-quizzes:  | 22% (2 +2 +2 +2 +4 +2 +2 +4) |
| (Wkp 1, 2, 3, prac planning, 5, Quiz 1, 2, 3 and GDA tech manual exercise) |                              |
| < Class presentation submission:   | 20%                          |
| < Group Field exercise report:   | 25%                          |
| < Final examination:   | 33%                          |

### **Workshops and Mini-Quizzes**

There will be 5 workshops during this course. Workshop 1, 2, 3 and the prac planning exercise in week 6 will require attendance and participation to score a maximum of 2 marks each. Workshop 4 will be to ensure all students have access to the Leica Infinity sw and can process. Workshop 5 will entail computation and submission of results and be worth 4 marks. To reinforce the learning experience, three short mini-quizzes based on material presented in previous lectures will be given during the lecture/ workshop period worth 2 marks each and a GDA assignment in week 1 will be worth 4 marks.

### **Critical Review & Class Presentation**

Students choose a topic, critically review this topic and prepare a concise presentation to be delivered live or pre-recorded. Instructions for assessment are given and in short comprise a) presentation; b) clarity; and c) in-depth discussion and full referencing. **Due Thursday 30 July 5pm**. The 5 min presentation in class will also be required in Week 10. Attendance from all students will be compulsory for all presentations (online).

### **GPS Practical & Computations Report**

A GPS static prac will be designed by the student cohort. Two blocks of students comprising 4 groups each will design the field logistics. Due to restrictions from Covid-19, data from 2019 will be used without the students observing data in 2020. Each student will be a member of a group of 3 students. Groups will be finalised during the first weeks of the course. **Group** practical reports will be assessed with respect to: a) presentation; b) field notes & computations; and c) in-depth discussions on GPS baseline processing, network adjustment and any other relevant issues. Further information about the practicals will be distributed during the lectures and will be made available on the class web site. **Due Friday 24 July**.





