



ENVG390

GIS for Urban and Regional Management

S2 Day 2014

Dept of Environment & Geography

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Disclaimer

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General Information

Unit convenor and teaching staff

Unit Convenor

Alana Grech

alana.grech@mq.edu.au

Contact via alana.grech@mq.edu.au

Credit points

3

Prerequisites

39cp including (ENV264(P) or GEOS264(P))

Corequisites

3cp from ENVE or ENVG or ENV units at 300-level

Co-badged status

Unit description

Geographic information systems (GIS) are used for data storage, visualisation (mapping), and the provision of information to support decision making. This unit expands on ENV264 by applying advanced GIS concepts and techniques within the context of urban and regional management. This unit is a participation unit and is designed to provide students with skills that enhance their educational experience and work-readiness in the field of urban and regional management.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

On successful completion of this unit, you will be able to:

Analyse and interpret spatial information from urban and regional management agencies.

Design and execute advanced spatial analysis in GIS.

Effectively communicate the outputs of spatial analysis in both map and written formats.

Apply advanced GIS concepts and techniques to real-world urban and regional management problems.

General Assessment Information

Submission of assignments

All students are required to keep a backup of the submitted version of their assessments.

Assignments should be in a MS Word or PDF file format. All maps and tables associated with the assignment must be incorporated in the MS Word document or PDF.

Students are not permitted to email their assignments or submit them in a softcopy format. Assignments are to be submitted via the link provided in iLearn by 10:00AM on the date specified.

Maps and tables must be incorporated in the assessment's Word document or pdf.

How do I request an extension?

Extensions must be requested by email from the unit convenor, Alana Grech (alana.grech@mq.edu.au), prior to the assignment's due date (except in exceptional circumstances), and supported by appropriate documentation (e.g. a medical certificate).

Extensions will only be granted in writing (by email) at the discretion of the unit convenor. Otherwise, automatic penalties will apply. **Assignments that are handed in late without an extension or exceptional circumstances will not be marked if they are submitted more than 7 days after the due date. If submitted within 7 days, marks will be deducted for lateness at the rate of 5% of the possible mark per day.**

Return of marked assignments

Your assignments will be returned via iLearn within two teaching weeks of the submission, and will include written feedback.

Requirements to complete this unit satisfactory

1. Attend lecture and practical classes;
2. Complete all assignments and the final exam; and
3. Acquire a **pass grade** or above.

Assessment Tasks

Name	Weighting	Due
Assignment 1	15%	Week 6
Assignment 2	20%	Week 9
Assignment 3	15%	Week 13
Assignment 4	10%	Weeks 7 and 12

Name	Weighting	Due
<u>Final Exam</u>	40%	TBC

Assignment 1

Due: **Week 6**

Weighting: **15%**

A report on the week 2 – 5 practical exercises.

On successful completion you will be able to:

- Analyse and interpret spatial information from urban and regional management agencies.
- Design and execute advanced spatial analysis in GIS.
- Effectively communicate the outputs of spatial analysis in both map and written formats.
- Apply advanced GIS concepts and techniques to real-world urban and regional management problems.

Assignment 2

Due: **Week 9**

Weighting: **20%**

A report on the land use and floor space field study and 3D visualisation.

On successful completion you will be able to:

- Analyse and interpret spatial information from urban and regional management agencies.
- Effectively communicate the outputs of spatial analysis in both map and written formats.
- Apply advanced GIS concepts and techniques to real-world urban and regional management problems.

Assignment 3

Due: **Week 13**

Weighting: **15%**

A report on the network analysis and public transport accessibility level model.

On successful completion you will be able to:

- Analyse and interpret spatial information from urban and regional management agencies.

- Design and execute advanced spatial analysis in GIS.
- Effectively communicate the outputs of spatial analysis in both map and written formats.
- Apply advanced GIS concepts and techniques to real-world urban and regional management problems.

Assignment 4

Due: **Weeks 7 and 12**

Weighting: **10%**

Two short quizzes on lecture and practical topics.

On successful completion you will be able to:

- Analyse and interpret spatial information from urban and regional management agencies.
- Design and execute advanced spatial analysis in GIS.
- Effectively communicate the outputs of spatial analysis in both map and written formats.
- Apply advanced GIS concepts and techniques to real-world urban and regional management problems.

Final Exam

Due: **TBC**

Weighting: **40%**

Final exam covering all aspects of the unit.

On successful completion you will be able to:

- Analyse and interpret spatial information from urban and regional management agencies.
- Design and execute advanced spatial analysis in GIS.
- Effectively communicate the outputs of spatial analysis in both map and written formats.
- Apply advanced GIS concepts and techniques to real-world urban and regional management problems.

Delivery and Resources

Planning and management agencies use geographic information systems (GIS) for data storage, visualization (mapping), and the provision of information to support decision making. Having completed the unit ENV264 (Introduction to Geographic Information Systems), you have acquired the basic skills to drive a GIS and to perform some of these tasks. In ENVG390, you build on this foundational knowledge by learning to apply advanced GIS concepts and techniques within the context of urban and regional management.

ENVG390 is a PACE and CAPSTONE unit, and is designed to integrate student's knowledge and experiences from their whole program in preparation for the next stage of their careers. ENVG390's lectures cover a range of topics to assist you in advancing from the basic skills required to drive a GIS (i.e. ENV264) to working with a GIS in urban and regional management, including: where to find spatial data and how to create your own spatial data, advanced editing, spatial and pattern analysis with vector data, 3D analysis and visualization, network analysis and web GIS. This unit provides you with advanced GIS skills that are applicable to a wide range of agencies tasked with urban and regional management.

Delivery

Lecture program and location

This unit is only offered internally. Please check lecture times and rooms at the Macquarie University timetables website (www.timetables.mq.edu.au). Lectures are recorded and posted to iLearn via Echo360.

Practical program and location

There is one 3 hour practical class per week. Please check practical times and rooms at the Macquarie University timetables (www.timetables.mq.edu.au). Practical class sizes are limited by the number of available computers. You must use the online enrolment system to change the time/day of your practical class. Practicals begin in Week 2.

Field work

There is one **compulsory** field work activity in this unit during which students record property land use and built form data within the City of Ryde. Assignment 2 is based on this field work. **The field work activity is conducted by students during Week 7 and the session 2 break at their leisure** (i.e. students have the freedom to decide when they, as an individual or group, conduct the field work activity). Students will need to arrange their own transport and personal field equipment. Further details on the field work activity and the field work induction will be provided during the Week 6 lecture. **You must attend the Week 6 lecture and conduct the field work induction before proceeding with the field work activity.**

Workload

ENVG390 earns 3 credit points towards your degree. You are expected to invest at least 9 hours of study per week on average over the semester. This includes your lectures and practical exercises (4 hours per week), assignments and the final exam.

Resources

Technology used

This unit will use Echo360 and iLearn, and ArcGIS, Google Earth, MapInfo and MS Excel software for the practical exercises.

You will require access to a computer and broadband internet to complete this unit. The library computers and computer labs are available for casual use outside scheduled practical classes.

Students who have a home computer with a Windows 7 or 8, Vista or XP operating system may

obtain a copy of the ArcGIS software from the unit convenor. The ArcGIS software is NOT supported by Mac or Linux operating systems. It is not essential for students to have ArcGIS installed on their home computer as the computers in the computer labs are available for casual use outside scheduled practical classes.

Unit web page

This unit's webpage will be available on iLearn.

Information about how students can access iLearn can be found at: http://www.mq.edu.au/iLearn/student_info/index.htm

The iLearn page uses Macquarie University's standard interface and has links, access to lectures (as audio files through Echo360, and as downloadable PDF presentations) and practical instructions. Important announcements will be made through iLearn, so check the ENVG390 page regularly.

Information about how to access lecture recordings through the Echo360 EchoCenter page in iLearn can be found at: http://mq.edu.au/iLearn/student_info/lecture_recordings.htm

Required and recommended texts/materials

There are no prescribed texts for this unit. However, there will be recommended reading associated with some lectures.

Health and safety during field work

Assignment 2 includes a field activity that takes place in premises other than the University. **Any student who has a disability that may limit their participation in field work or that could result in a medical emergency in the field should notify the Unit Convenor immediately.** As a general guide to the level of physical fitness required, you should be able to walk 5 km over footpaths in a few hours.

A PACE Activity is an experiential activity allocated to, and undertaken by, a student within a PACE unit which may take place in premises other than the University (usually the Partner Organisation's premises). When working or studying in non-University premises, the primary responsibility for the health and safety of our students becomes that of the Partner Organisation hosting the student. However, as a student, you also have a legal responsibility under the Workplace Health & Safety Act 2011 and the Macquarie University Health & Safety Policy to ensure the health and safety of yourself and of others in the workplace.

Each student has a moral and legal responsibility for ensuring that his or her work environment is conducive to good health and safety, by:

- ensuring that their work and work area is without risk to the health and safety of themselves and others
- complying with the University's and Partner Organisation's Work Health & Safety Policy and Procedures
- reporting hazards and incidents as they occur in accordance with University and Partner

Organisation's policy

- actively participating in all health and safety activities and briefing sessions (eg emergency evacuation procedures, site inspections etc)

Each student is also required to advise their Unit Convenor or Faculty PACE Manager as soon as possible when:

- he/she feels unsafe at any stage during the PACE activity
- he/she did not receive a safety induction prior to the commencement of the activity covering: First aid, Fire and emergency evacuation; and Injury/incident reporting
- he/she did not receive any specialised instructions/training necessary to carry out the role
- an incident/accident happens (even when reported to the Partner Organisation/ supervisor and managed by them)

Non-compliance with the above may result in withdrawal of the student from the PACE Activity.

Students in the Faculty of Science should also be familiar with Faculty-specific practices as appropriate: <http://web.science.mq.edu.au/intranet/ohs/>

Students should note the information below in case they find themselves in any emergency situations.

1. Remove yourself from any danger.
2. Call 000, if necessary.
3. Speak to your partner-based supervisor, if possible. The Organisation may have emergency procedures to follow.

THEN - if the emergency occurs in office hours (i.e. Monday - Friday 9am-5pm)

4. Contact your Unit Convenor by phone/email as soon as you can.
5. If you cannot reach your Unit Convenor, contact your Faculty PACE Manager by phone/email.

OR - if the emergency occurs outside of office hours (i.e. outside of Monday - Friday 9am-5pm)

6. Phone Campus Security Office on (02) 9850-9999 as soon as you can. This is a 24 hour, 7 days a week service and it does not matter where in Australia you are when you call. Please identify yourself as a PACE student when you call.

N.B. For any minor issues with your participation activity, please speak to your partner-based Supervisor. If the problem is more serious, please contact your Unit Convenor or your Faculty PACE Manager.

If you are experiencing difficulties and need to speak to a counsellor:

Contact the MQ Counselling Service at Campus Wellbeing on 9850-7497 (Monday - Friday, 8am-6pm)

1800 MQ CARELINE (1800-227-367) - information and referral service (24 hours, 7 days a week)

If you would like to speak to a counsellor outside of office hours, you can also contact Lifeline on 13 11 14 (24 hours, 7 days a week).

Unit Schedule

Week	Lecture	Practical
1	Introduction to ENVG390	No practical
2	A review of the basics	Back to basics
3	Advanced editing	Creating and editing digital data
4	Vector spatial analysis and patterns	Vector analysis and model builder
5	3D analysis and visualisation	3D GIS
6	GIS and land use	GIS and land use 1
7	No lecture	No practical
Session 2 break		
8	Public holiday	GIS and land use 2
9	Other GIS software	Introduction to MapInfo
10	Network analysis	Network analysis in GIS
11	GIS and transport	PTAL 1
12	Web GIS, PIS and GIS in the workplace	PTAL 2
13	Overview	No practical

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy <http://mq.edu.au/policy/docs/grading/policy.html>

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit <http://informatics.mq.edu.au/help/>.

When using the University's IT, you must adhere to the [Acceptable Use Policy](#). The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcomes

- Analyse and interpret spatial information from urban and regional management agencies.
- Effectively communicate the outputs of spatial analysis in both map and written formats.
- Apply advanced GIS concepts and techniques to real-world urban and regional management problems.

Assessment task

- Assignment 2

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- Analyse and interpret spatial information from urban and regional management agencies.
- Design and execute advanced spatial analysis in GIS.
- Effectively communicate the outputs of spatial analysis in both map and written formats.
- Apply advanced GIS concepts and techniques to real-world urban and regional management problems.

Assessment tasks

- Assignment 1
- Assignment 2
- Assignment 3
- Assignment 4
- Final Exam

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- Analyse and interpret spatial information from urban and regional management agencies.
- Design and execute advanced spatial analysis in GIS.
- Effectively communicate the outputs of spatial analysis in both map and written formats.
- Apply advanced GIS concepts and techniques to real-world urban and regional management problems.

Assessment tasks

- Assignment 1
- Assignment 2
- Assignment 3
- Assignment 4
- Final Exam

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- Analyse and interpret spatial information from urban and regional management agencies.
- Design and execute advanced spatial analysis in GIS.
- Apply advanced GIS concepts and techniques to real-world urban and regional management problems.

Assessment tasks

- Assignment 1
- Assignment 2
- Assignment 3
- Assignment 4
- Final Exam

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcomes

- Effectively communicate the outputs of spatial analysis in both map and written formats.
- Apply advanced GIS concepts and techniques to real-world urban and regional management problems.

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcomes

- Effectively communicate the outputs of spatial analysis in both map and written formats.
- Apply advanced GIS concepts and techniques to real-world urban and regional management problems.

Assessment tasks

- Assignment 2
- Assignment 3
- Final Exam

Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

Learning outcomes

- Analyse and interpret spatial information from urban and regional management agencies.
- Effectively communicate the outputs of spatial analysis in both map and written formats.
- Apply advanced GIS concepts and techniques to real-world urban and regional management problems.

Assessment task

- Assignment 3

Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

Learning outcomes

- Analyse and interpret spatial information from urban and regional management agencies.
- Effectively communicate the outputs of spatial analysis in both map and written formats.
- Apply advanced GIS concepts and techniques to real-world urban and regional management problems.

Assessment task

- Assignment 2

Changes from Previous Offering

Assignment 4 is different from previous years, and the final exam is now under formal examination conditions.

PACE in ENVG390

PACE stands for Professional and Community Engagement. By connecting students with partner organisations, PACE gives Macquarie students the chance to contribute their academic learning, enthusiasm and fresh perspective to the professional workplace.

ENVG390 has been accredited as a Participation unit from 2012 and will be running according to the participation criteria and with support from the PACE team in Science.

PACE is Macquarie's way of integrating practical experience into your degree so it counts for credit, gives you the chance to work with different communities, and ultimately gives you the edge in your career.

PACE is a key component of the University's strategic direction, emphasising the University's commitment to excellence in research, learning and teaching and community engagement. It is the third pillar of the undergraduate curriculum; People, Planet and Participation.

ENVG390 is a PACE unit. PACE units provide an academic framework through which students can engage with the community, learn through participation, develop their capabilities and build on the skills that employers value. By completing a PACE unit, students develop all these skills and capabilities, and also gain academic credit towards their degree.

In this unit you will undertake participation activities with the ENVG390 PACE partner, City of Ryde. You will be required to complete assignments on: (1) land use, floor space and 3d visualization; and (2) public transport accessibility levels. The study on land use, floor space and 3D visualization involves a field activity.

In conjunction with the implementation of the PACE Initiative at Macquarie University, a number of PACE-specific procedures and policies have been developed. These procedures and policies can be reviewed online (<http://www.mq.edu.au/policy>).

Changes since First Published

Date	Description
28/03/2014	The Description was updated.
16/01/2014	The Corequisites was updated.