ENVS7353

Environmental Applications of GIS and Remote Sensing

Session 2, Special circumstance 2020

Department of Earth and Environmental Sciences

Contents

General Information 2

Learning Outcomes 2

General Assessment Information 3

Assessment Tasks 4

Delivery and Resources 6

Policies and Procedures 8

Disclaimer

Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.

Notice

As part of Phase 3 of our return to campus plan, most units will now run tutorials, seminars and ot her small group learning activities on campus for the second half-year, while keeping an online ver sion available for those students unable to return or those who choose to continue their studies onli ne.

To check the availability of face-to-face and onlin e activities for your unit, please go to timetable vi ewer. To check detailed information on unit asses sments visit your unit's iLearn space or consult yo ur unit convenor.

General Information

Unit convenor and teaching staff Michael Chang michael.chang@mq.edu.au
Credit points 10
Prerequisites Admission to MRes and (ENVS708 or ENVS7308)
Corequisites
Co-badged status ENVS8353
Unit description This unit builds on basic GIS skills and includes advanced GIS concepts and principles of remote sensing. Topics include: analysis of landscape and environmental variables, GIS modelling, geostatistics, remote sensing techniques and a range of case studies. Practical sessions include techniques for spatial data collection, data management, modelling, terrain products generation, and image processing. This unit is designed to provide students with skills that enhance their educational experience and work-readiness in the field of spatial information science. The GIS software used is ArcGIS. Students enrolling in this unit must have access to a computer with the Windows operating system. Mac or Linux system will not be supported.

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:

ULO1: Apply appropriate GIS raster analyses to derive useful information for making informed decisions

ULO2: Design and implement a suitable model for environmental applications using remotely sensed data

ULO3: Communicate geographic information effectively using maps, reports and presentations

ULO4: Demonstrate an understanding of the advantages and limitations of spatial analyses and remote sensing systems

General Assessment Information

Assessment Criteria

Assessment at Macquarie University is standards-based, as outlined in the Assessment Policy. This means that your work will be assessed against clear criteria, and these criteria (e.g. in a rubric) will be made available when the assessment tasks are released to you on iLearn.

This unit does not have a Hurdle Requirement

Submission of Assessments

All assessments must be submitted online through Turnitin unless otherwise indicated. Links for the submission of each assessment will be available on iLearn.

You should always check that you have uploaded the correct file. If you have a problem, please email the Unit Convenor with your correct file. You must also keep a copy of your assessments until the end of semester in case there is a problem with your submission. It is your responsibility to ensure that you can provide a copy of your assessment if requested.

Marking of Assessments

Assignments will usually be marked through Turnitin with grades provided through Gradebook on iLearn. Please do not submit your assessments via email or in hard copy unless requested (e.g. a sketch or drawing).

We aim to return your assessment grades and feedback within two to three weeks of the date that you submitted it. We appreciate your patience and will advise you through iLearn when your marked assessments and feedback are available for viewing.

Penalties for Late Assessments

The penalty for late submission of assessments in this unit is ***ten percent (10 %) of the assessment value per day***, calculated from the due time and date. This means that if the assignment is worth a total of 30 marks (or 30 % of the unit) you will lose 3 marks for each day it is late. This is a hefty penalty designed to make you aware of the importance of organising yourself around assessment due dates. The penalty will be applied over weekdays and weekends unless you have been granted an extension **prior to the due date**.

Extensions for Assessments

To obtain an extension for an assessment task, you will need to follow the formal process as outlined in the Special Consideration Policy, and you must provide appropriate supporting evidence (e.g. medical certificate - see advice for Special Consideration requests). The final decision regarding the granting of an extension lies with the unit convenor. Permission for extensions must be sought ***before the due date*** unless there are exceptional circumstances. Please let us know of problems in advance or as soon as possible, not after the event. We are likely to be much more sympathetic and able to accommodate your circumstance

if you follow this advice.

Exams

Details of exam conditions and timetables can be found on the Exams and Results portal. The draft exam timetable will be released approximately eight weeks before the commencement of the exams. The final exam timetable will be published 4 weeks before commencement. All students (including exchange students) are expected to present themselves for the exam at the time and place designated in the exam timetable. Note this may include weekends.

For unavoidable disruptions during exams, you should apply for Special Consideration as soon as possible. If a Supplementary Examination is granted as a result of the Special Consideration process, the exam time will be scheduled after the conclusion of the official examination period and you will receive an individual notification prior to the exam with the exact date and time of the Supplementary Examination. You will only be allowed one opportunity to sit the Supplementary Exam as outlined in the Special Consideration Policy

Assessment Tasks

Name	Weighting	Hurdle	Due
Literature Review Report	10%	No	Week 3
Project for Remote Sensing and Image Interpretation	30%	No	Week 7
GIS Modelling using Raster Data	20%	No	Week 12
Final Exam	40%	No	Check exam timetable

Literature Review Report

Assessment Type [1]: Literature review
Indicative Time on Task [2]: 10 hours
Due: **Week 3**
Weighting: **10%**

Students are asked to conduct a literature review on a specific application of remote sensing.

On successful completion you will be able to:

- Demonstrate an understanding of the advantages and limitations of spatial analyses and remote sensing systems

Project for Remote Sensing and Image Interpretation

Assessment Type [1]: Project
Indicative Time on Task [2]: 26 hours
Due: **Week 7**
Weighting: **30%**

This project brings together what students learned through lectures and practicals and applies remote sensing and its methods to an application nominated by students. Students will present their findings using both oral presentation and report.

On successful completion you will be able to:

- Design and implement a suitable model for environmental applications using remotely sensed data
- Communicate geographic information effectively using maps, reports and presentations
- Demonstrate an understanding of the advantages and limitations of spatial analyses and remote sensing systems

GIS Modelling using Raster Data

Assessment Type [1]: Report
Indicative Time on Task [2]: 15 hours
Due: **Week 12**
Weighting: **20%**

Students will undertake a multi-criteria analysis using GIS and gain experience with a range of GIS techniques on raster analyses and modelling for site selections.

On successful completion you will be able to:

- Apply appropriate GIS raster analyses to derive useful information for making informed decisions
- Communicate geographic information effectively using maps, reports and presentations

Final Exam

Assessment Type [1]: Examination
Indicative Time on Task [2]: 30 hours
Due: **Check exam timetable**

Weighting: **40%**

Final exam covering the unit content.

On successful completion you will be able to:

- Apply appropriate GIS raster analyses to derive useful information for making informed decisions
- Design and implement a suitable model for environmental applications using remotely sensed data
- Demonstrate an understanding of the advantages and limitations of spatial analyses and remote sensing systems

---

[1] If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the Writing Centre for academic skills support.

[2] Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

Unit iLearn

This unit has an iLearn page that can be accessed through ilearn.mq.edu.au . It contains important information and other materials relating to the unit, including details and links for assessments.

Communication

The unit iLearn is the primary way that we communicate with you. Please check it regularly for announcements and posts. You are encouraged to use the Discussion Board on iLearn to post questions and generate discussion with other students. Please only email the convenor with private matters – all other questions should be posted on iLearn.

Unit Organisation

This unit is delivered in **weekly topics.** The organisation of these is outlined in a detailed unit schedule which is available on iLearn.

Students enrolled in the Weekday attendance/Infrequence attendance/Fully online attendance offering should **have the same access to all the learning materials on iLearn and software is available either from the unit convenor upon request or accessible from AppStream (http**

s://mq.okta.com)

Classes

The class timetable (both face-to-face and online) for this unit can be found through the Timetable portal. Video recordings will be made available after the each class.

Workload

The expected workload for this 10-credit point unit is 150 hours of activity, comprising Scheduled Learning Activities (i.e. lectures and practicals) of 49 hours and None-scheduled activities (i.e. class preparation and assessments) of 101 hours.

Requirements to complete this unit satisfactorily

To complete this unit satisfactorily, you must:

1. Participate in all scheduled classes;

2. Complete all assessments and the final exam; and

3. Achieve a pass grade or higher.

The descriptions for grades common to all coursework units offered by Macquarie University are outlined in Schedule 1 of the Assessment Policy.

Technology Used and Required

This unit will use iLearn, Zoom and Echo360. See the Instructions on how to log in to iLearn and the iLearn quick guides for students which will help you:

- Getting started - Find out how to navigate and familiarise yourself with the iLearn environment
- Activities - Learn how to effectively complete the activities required of you in iLearn
- Assignments and Gradebook - Find out how to submit assessments and view your grades using iLearn
- Online study tips - Studying online is a unique experience, learn how to navigate it here
- Discussion forums - Explore the different types, and features of discussion forums in iLearn
- Lecture recordings - Find out how to access lectures online, as well as the features available to you

GIS and Remote Sensing Software

This unit will use ArcGIS Desktop and ENVI software for the practical exercises. You will require access to a computer and broadband internet to complete this unit. The computer labs may be available for casual use outside scheduled practical classes. Students who have a home computer with a Windows (7 or 10) 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. The software are also available on AppStream.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Grade Appeal Policy
- Complaint Management Procedure for Students and Members of the Public
- Special Consideration Policy *(**Note:** The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)*

Students seeking more policy resources can visit the Student Policy Gateway (https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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/study/getting-started/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

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 help you improve your marks and take control of your study.

- Getting help with your assignment
- Workshops
- StudyWise
- Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian

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

If you are a Global MBA student contact globalmba.support@mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.