COURSE OUTLINE

# ENS353 Applied Geospatial Analysis

**School:** School of Science, Technology and Engineering

2023 | Semester 2

UniSC Sunshine Coast
UniSC Moreton Bay

BLENDED LEARNING

Most of your course is on campus but you may be able to do some components of this course online.

*Please go to usc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.*

## 1. What is this course about?

### 1.1. Description

In this advanced GIS course, you will build-on GIS skills acquired in the introductory GIS course to have deeper understanding of spatial data sets and analysis. For spatial data sets, you will have deeper understanding of coordinate systems, data models, data formats, digitisation tools, and data search. The GIS analysis will include operations such as network analysis, suitability analysis, hydrological analysis, and GIS project planning. Finally, you will learn to perform cartographical modelling by integrating and documenting a series of geoprocessing steps to address real-world issues.

### 1.2. How will this course be delivered?

| ACTIVITY | HOURS | BEGINNING WEEK | FREQUENCY |
|---|---|---|---|
| **BLENDED LEARNING** | | | |
| **Learning materials** – Asynchronous Learning Material | 1hr | Week 1 | 13 times |
| **Tutorial/Workshop 1** – Online workshop | 1hr | Week 1 | 13 times |
| **Laboratory 1** – On campus lab | 2hrs | Week 1 | 13 times |

### 1.3. Course Topics

Understanding spatial data sets, their models, formats, and coordinate systems

Creating spatial data sets, and locating the existing ones

Analysing spatial data sets

Preparing cartographical models and performing geoprocessing

Performing hydrological analysis using a cartographical model

Understanding network analysis

Representing spatial information: media and cartographic principles

Planning and management of GIS project

Conducting a geo-processing task in a real-world context

## 2. What level is this course?

300 Level (Graduate)

Demonstrating coherence and breadth or depth of knowledge and skills. Independent application of knowledge and skills in unfamiliar contexts. Meeting professional requirements and AQF descriptors for the degree. May require pre-requisites where discipline specific introductory or developing knowledge or skills is necessary. Normally undertaken in the third or fourth full-time study year of an undergraduate program.

## 3. What is the unit value of this course?

12 units

## 4. How does this course contribute to my learning?

| COURSE LEARNING OUTCOMES | GRADUATE QUALITIES MAPPING | PROFESSIONAL STANDARD MAPPING * |
|---|---|---|
| On successful completion of this course, you should be able to... | Completing these tasks successfully will contribute to you becoming... | Australian Learning & Teaching Council |
| 1 Communicate geographic information clearly and coherently using various technologies | Empowered | 1, 3 |
| 2 Critically use spatial thinking to solve complex geospatial issues. | Creative and critical thinker | 2, 3 |
| 3 Apply GIS tools and techniques to address complex real-world issues. | Empowered | 5, 6 |
| 4 Plan and design a proposal and its subsequent execution in a discipline area incorporating GIS analysis. | Engaged | 5 |

* Competencies by Professional Body

| CODE | COMPETENCY |
|---|---|
| AUSTRALIAN LEARNING & TEACHING COUNCIL | |
| 1 | Knowing: Demonstrate a coherent geographical understanding of trends, processes and impacts that shape Australian and other environments and/or societies at different spatial and temporal scales. |
| 2 | Knowing: Demonstrate an understanding of Geography as an academic discipline, including awareness of its concepts, history and principal subfields, whilst acknowledging the contested, provisional and situated nature of geographical understanding. |
| 3 | Thinking: Apply geographical thought creatively, critically and appropriately to specific spaces, places and/or environments. |
| 5 | Investigating and problem solving: Resolve geographical questions by ethical means, applying evidence-based knowledge and appropriate research techniques, including those associated with field work. |
| 6 | Communicating: Communicate geographical perspectives and knowledge effectively to specialist and non-specialist audiences using appropriately selected written, oral and visual means. |

## 5. Am I eligible to enrol in this course?

Refer to the UniSC Glossary of terms for definitions of “pre-requisites, co-requisites and anti-requisites”.

### 5.1. Pre-requisites

ENS253

### 5.2. Co-requisites

Not applicable

### 5.3. Anti-requisites

Not applicable

### 5.4. Specific assumed prior knowledge and skills (where applicable)

Basic knowledge of computer operation.

## 6. How am I going to be assessed?

### 6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

### 6.2. Details of early feedback on progress

Task 1 of this course is due in week5 where students will have to do a group presentation. Before this presentation, as a part of the assessment task, students are required to get involved in group discussions which include online discussions in Canvas. Feedback is constantly provided during this process.

### 6.3. Assessment tasks

| DELIVERY MODE | TASK NO. | ASSESSMENT PRODUCT | INDIVIDUAL OR GROUP | WEIGHTING % | WHAT IS THE DURATION / LENGTH? | WHEN SHOULD I SUBMIT? | WHERE SHOULD I SUBMIT IT? |
|---|---|---|---|---|---|---|---|
| All | 1 | Oral | Group | 20% | 20-25-minute group presentation on GIS data sets (week5) | Week 5 | In Class |
| All | 2 | Oral and Written Piece | Individual | 30% | 1200 words report and a 10 minutes presentation in week 11 | Refer to Format | Online Assignment Submission with plagiarism check |
| All | 3 | Report | Individual | 50% | 2500 words | Week 13 | Online Assignment Submission with plagiarism check |

**All - Assessment Task 1:** Presentations about GIS data set

| | |
|---|---|
| **GOAL:** | Gaining a deeper understanding of GIS data sets and their suitability for subsequent analysis to gain the confidence to communicate this knowledge with the class. |
| **PRODUCT:** | Oral |
| **FORMAT:** | 20-25-minute group presentation.Detailed criteria along with an assessment matrix for this task will be provided on Canvas |
| **CRITERIA:** | |

| No. | | Learning Outcome assessed |
|---|---|---|
| 1 | Communicate your individual understanding of GIS data sets | 1 |
| 2 | Communicate your understanding of GIS data sets as a group | 1 2 |
| 3 | Understand the appropriateness of GIS data sets for spatial analysis | 2 3 4 |

| | |
|---|---|
| **GENERIC SKILLS:** | Communication, Collaboration, Applying technologies |

**All - Assessment Task 2:** Preparing a GIS project plan to address the identified real-world issue of your study area and making a presentation about your progress with the plan

| | |
|---|---|
| **GOAL:** | Preparing a project plan for the execution of the task 3 project, and creating a geo-processing flow diagram showing different geoprocessing steps and presentation about the progress with GIS analysis |
| **PRODUCT:** | Oral and Written Piece |
| **FORMAT:** | Submit: Week 7 (Plan) and 11 (Presentation).<br><br>MS word file with 1500 words and a map of the study area. Detailed criteria along with an assessment matrix for this task will be provided on Canvas. 10-15 minute presentation. |

**CRITERIA:**

| No. | | Learning Outcome assessed |
|---|---|---|
| 1 | For the first part, you will be assessed for your ability to: Formulate a GIS project, Workout the timeline for the completion of the project, Assess requirements of GIS data sets for the project, Identifying possible constraint for the project | 1 2 4 |
| 2 | The second part will be assessed on your ability to: Communicate the proposed project plan, Communicate initial findings of your GIS project | 1 2 4 |

| | |
|---|---|
| **GENERIC SKILLS:** | Communication, Problem solving, Organisation |

**All - Assessment Task 3:** Report about the GIS project and its execution using geoprocessing tools to address the identified issue

| | |
|---|---|
| **GOAL:** | To plan and execute a series of interrelated geo-processing tasks set in a semi real-world situation |
| **PRODUCT:** | Report |
| **FORMAT:** | A report prepared in MS Word with 2500 words on GIS analysis performed to address real-world issue. Detailed information along with an assessment matrix for this task will be provided on Canvas. The report will include metadata information and maps. |

**CRITERIA:**

| No. | | Learning Outcome assessed |
|---|---|---|
| 1 | execute a GIS project to address a real-world issue | 3 |
| 2 | Using GIS data sets appropriately | 1 2 |
| 3 | Identifying the right geoprocessing tools and using them appropriately | 2 3 |
| 4 | Presenting GIS analysis results with cartographical quality maps | 1 3 |
| 5 | Preparing metadata report | 1 |
| 6 | Preparing a professional quality report | 3 4 |

| | |
|---|---|
| **GENERIC SKILLS:** | Communication, Problem solving, Applying technologies, Information literacy |

## 7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

## 8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

### 8.1. Prescribed text(s) or course reader

> There are no required/recommended resources for this course.

### 8.2. Specific requirements

Not applicable

## 9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the online induction training for students, and following the instructions of the University staff.

## 10. What administrative information is relevant to this course?

### 10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

### 10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

The final mark is in the percentage range 47% to 49.4%
The course is graded using the Standard Grading scale
You have not failed an assessment task in the course due to academic misconduct

### 10.3. Assessment: Submission penalties

Late submission of assessment tasks may be penalised at the following maximum rate:
- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task.
- 10% (of the assessment task's identified value) for the third day - 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.
- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task. Weekdays and weekends are included in the calculation of days late. To request an extension you must contact your course coordinator to negotiate an outcome.

### 10.4. SafeUniSC

UniSC is committed to a culture of respect and providing a safe and supportive environment for all members of our community. For immediate assistance on campus contact SafeUniSC by phone: 07 5430 1168 or using the SafeZone app. For general enquires contact the SafeUniSC team by phone 07 5456 3864 or email safe@usc.edu.au.

The SafeUniSC Specialist Service is a Student Wellbeing service that provides free and confidential support to students who may have experienced or observed behaviour that could cause fear, offence or trauma. To contact the service call 07 5430 1226 or email studentwellbeing@usc.edu.au.

### 10.5. Study help

For help with course-specific advice, for example what information to include in your assessment, you should first contact your tutor, then your course coordinator, if needed.

If you require additional assistance, the Learning Advisers are trained professionals who are ready to help you develop a wide range of academic skills. Visit the Learning Advisers web page for more information, or contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au.

### 10.6. Wellbeing Services

Student Wellbeing provide free and confidential counselling on a wide range of personal, academic, social and psychological matters, to foster positive mental health and wellbeing for your academic success.

To book a confidential appointment go to Student Hub, email studentwellbeing@usc.edu.au or call 07 5430 1226.

## 10.7. AccessAbility Services

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, learning disorder mental health issue, injury or illness, or you are a primary carer for someone with a disability or who is considered frail and aged, AccessAbility Services can provide access to appropriate reasonable adjustments and practical advice about the support and facilities available to you throughout the University.

To book a confidential appointment go to Student Hub, email AccessAbility@usc.edu.au or call 07 5430 2890.

## 10.8. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

## 10.9. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The Student Charter sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

## 10.10. General Enquiries

**In person:**

- **UniSC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **UniSC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **UniSC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **UniSC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **UniSC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **UniSC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

**Tel:** +61 7 5430 2890

**Email:** studentcentral@usc.edu.au