



The University of Southern Queensland

Course Specification

Description: Geographic Information Systems

| Subject | Cat-Nbr | Class | Term | Mode | Units | Campus |
|---------|---------|-------|---------|------|-------|--------|
| GIS | 1402 | 21124 | 1, 2003 | EXT | 1.00 | TWMBBA |

| | |
|------------------------|--------|
| Academic Group: | FOENS |
| Academic Org: | FOES05 |
| HECS Band: | 2 |
| ASCED Code: | 031199 |

STAFFING

Examiner: Armando Apan

Moderator: Frank Young

RATIONALE

This course is designed to provide students with a broad understanding of the capabilities and potential applications of geographic information systems. The theory of the course will be supported by the practical application of geographic information systems software.

SYNOPSIS

The course will cover the basic concepts and principles of geographic information systems including land information systems, facilities management systems and natural resource information systems. Topics to be covered include components of GIS, data structures and formats, hardware, software, spatial reference frameworks, analysis techniques, data capture and management, and applications to resource and environmental management.

OBJECTIVES

On completion of this course, students should be able to:

- understand the concepts of spatial and geographic information systems;
- be aware of the applications of GIS to a wide range of circumstances and understand the potential of GIS for information management and analysis;
- have a basic familiarity with GIS software systems;
- be capable of preparing an initial design and identifying the information requirements for a geographic information system.

TOPICS

| Description | Weighting (%) |
|--|---------------|
| 1. Concepts of information systems and information management. | 5.00 |
| 2. Management of spatial information and sources of GIS data. | 10.00 |
| 3. Hardware and software components of GIS. | 10.00 |
| 4. Capture and conversion of spatial data for a GIS. | 10.00 |
| 5. Analysis and modelling techniques using geographic information systems. | 10.00 |
| 6. Preparation of products from GIS output, cartographic elements of map. | 10.00 |
| 7. Availability of spatial data, data quality, assessment of data accuracy. | 10.00 |
| 8. Interpolation of spatial data, classification of geographical data sets. | 10.00 |
| 9. Designing and managing a geographic information system, choosing a GIS. | 10.00 |
| 10. Advances in information system technology, decision support system and expert systems. | 5.00 |
| 11. Applications of GIS to land administration, natural resource and environmental management. | 10.00 |

TEXT and MATERIALS required to be PURCHASED or ACCESSED:

Books can be ordered by fax or telephone. For costs and further details use the 'Book Search' facility at <http://bookshop.usq.edu.au> by entering the author or title of the text.

TNTLite software (in CD-ROM), needs to be purchased from the USQ Bookshop. (Purchasing TNTLite is not necessary if you have access to this software or have already purchased one for other courses).

REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

Bernhardsen, T. 1999, *Geographic Information Systems*, Viak IT/Norwegian Mapping Authority,

Burrough, P. A. & McDonnell, R. A. 1998, *Principles of Geographical Information Systems*, Oxford University Press,

Clarke, K. C. 1999, *Getting Started with Geographic Information Systems*, Prentice Hall,

DeMers, M. N. 2000, *Fundamentals of Geographic Information Systems*, John Wiley and Sons,

Juppenlatz, M. & Tian, X. 1996, *Geographic Information Systems and Remote Sensing*, McGraw Hill,

Korte, G. B. 1997, *The GIS Book*, Onword Press,

STUDENT WORKLOAD REQUIREMENTS

| ACTIVITY | HOURS |
|----------------|-------|
| Assessment | 50 |
| Directed Study | 52 |
| Examinations | 3 |
| Private Study | 50 |

ASSESSMENT DETAILS

| Description | Marks Out of | Wtg(%) | Required | Due Date |
|---------------------------|--------------|--------|----------|-----------------------|
| ASSIGNMENT 1 | 200.00 | 20.00 | Y | 11 Apr 2003 |
| ASSIGNMENT 2 | 200.00 | 20.00 | Y | 02 Jun 2003 |
| 3 HOUR CLOSED EXAMINATION | 600.00 | 60.00 | Y | END S1 (see note) |

NOTES:

- . Student Administration will advise students of the dates of their examinations during the semester.

IMPORTANT ASSESSMENT INFORMATION

- 1 Attendance requirements:
There are no attendance requirements for this course. However, it is the students' responsibility to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.
- 2 Requirements for students to complete each assessment item satisfactorily:
To complete each of the assessment items satisfactorily, students must obtain at least 50% of the marks available (or at least a grade of C-) for each assessment item.
- 3 Penalties for late submission of required work:
If students submit assignments after the due date without prior approval then a penalty of 20% of the total marks available for the assignment will apply for each working day late.
- 4 Requirements for student to be awarded a passing grade in the course:
To be assured of receiving a passing grade a student must achieve at least 45% in each of the summative assessments and at least 50% of the available weighted marks for the summative assessment items.
- 5 Method used to combine assessment results to attain final grade:

The final grades for students will be assigned on the basis of the weighted aggregate of the marks (or grades) obtained for each of the summative assessment items in the course.

- 6 Examination information:
In a Closed Examination, candidates are allowed to bring only writing and drawing instruments into the examination.
- 7 Examination period when Deferred/Supplementary examinations will be held:
Any Deferred or Supplementary examinations for this course will be held during the examination period at the end of the semester of the next offering of this course.
- 8 University Regulations:
Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL: <http://www.usq.edu.au/SECARIAT/calendar/Part5/> or in the printed version of the current USQ Handbook.

ASSESSMENT NOTES

- 1 The due date for an assignment is the date by which a student must despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner.
- 2 Students must retain a copy of each item submitted for assessment. This must be produced within five days if required by the Examiner.
- 3 In accordance with University's Assignment Extension Policy (Regulation 5.6.1), the examiner of a course may grant an extension of the due date of an assignment in extenuating circumstances.
- 4 The Faculty will normally only accept assessments that have been written, typed or printed on paper-based media.
- 5 The Faculty will NOT accept submission of assignments by facsimile.
- 6 Students who do not have regular access to postal services or who are otherwise disadvantaged by these regulations may be given special consideration. They should contact the examiner of the course to negotiate such special arrangements.
- 7 In the event that a due date for an assignment falls on a local public holiday in their area, such as a Show holiday, the due date for the assignment will be the next day. Students are to note on the assignment cover the date of the public holiday for the Examiner's convenience.
- 8 Students who have undertaken all of the required assessments in a course but who have failed to meet some of the specified objectives of a course within the normally prescribed time may be awarded the temporary grade: IM (Incomplete - Make up). An IM grade will only be awarded when, in the opinion of the examiner, a student will be able to achieve the remaining objectives of the course after a period of non-directed personal study.
- 9 Students who, for medical, family/personal, or employment-related reasons, are unable to complete an assignment or to sit for an examination at the scheduled time may apply to defer an assessment in a course. Such a request must be accompanied by appropriate supporting documentation. One of the following temporary grades

may be awarded IDS (Incomplete - Deferred Examination; IDM (Incomplete Deferred Make-up); IDB (Incomplete - Both Deferred Examination and Deferred Make-up).

10 The Faculty of Engineering and Surveying does not offer supplementary examinations.