



The University of Southern Queensland

Course specification

Description: Geographic Information Systems

| Subject | Cat-nbr | Class | Term | Mode | Units | Campus |
|---------|---------|-------|---------|------|-------|--------|
| GIS | 1402 | 30964 | 1, 2004 | WEB | 1.00 | TWMBA |

| | |
|-----------------------------------|--------|
| Academic group: | FOENS |
| Academic org: | FOES05 |
| Student contribution band: | 2 |
| ASCED code: | 031199 |

STAFFING

Examiner: Sunil Bhaskaran

Moderator: Frank Young

RATIONALE

The course is designed to provide students with a broad understanding of the capabilities and potential applications of geographic information systems. The theoretical component presented in the text will be complimented by computer based exercises.

SYNOPSIS

The course will cover the basic concepts and principles of geographic 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:

- demonstrate an understanding of the concepts of spatial and geographic information systems;
- discuss the applications of GIS to a wide range of circumstances and demonstrate an understanding of its potential for information management and analysis;
- demonstrate 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. Introduction: Definition evolution and history of GIS. | 5.00 |
| 2. Referencing systems: Scales, projections and coordinate systems. | 15.00 |
| 3. GIS data structure and topology: Data structure, formats, topology. | 10.00 |
| 4. Data acquisition and input: Data conversion, sources field/image data. | 10.00 |
| 5. Data query and management: Querying interface. | 10.00 |
| 6. Data analysis: Importance of statistics in GIS, spatial analysis. | 10.00 |
| 7. Data presentation: Map components. | 10.00 |
| 8. GIS Softwares: Selection of GIS softwares. | 5.00 |
| 9. GIS Case studies: GIS a multicisciplinary tool for spatial anaysis. | 20.00 |
| 10. Future of GIS: remote sensing, web mapping, softwares. | 5.00 |

TEXT and MATERIALS required to be PURCHASED or ACCESSED:

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at <http://bookshop.usq.edu.au> click 'Semester', then enter your 'Course Code' (no spaces).

Clarke, K C 2003, *Getting Started with Geographic Information Systems*, 4th edn, Prentice Hall, New Jersey.

(CD-ROM included)

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 2002, *Geographic Information Systems*, Viak IT/Norwegian Mapping Authority,

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

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 | 50.00 |
| Directed Study | 52.00 |
| Examinations | 3.00 |
| Private Study | 50.00 |

ASSESSMENT DETAILS

| Description | Marks out of | Wtg(%) | Due date |
|---------------------------|--------------|--------|------------------------|
| ASSIGNMENT 1 | 200.00 | 20.00 | 13 Apr 2004 |
| ASSIGNMENT 2 | 200.00 | 20.00 | 31 May 2004 |
| 3 HOUR CLOSED EXAMINATION | 600.00 | 60.00 | END S1 (see note 1) |

NOTES:

1. 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/corporateservices/calendar/part5.htm> or in 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 In this course students may submit assignments electronically in the format specified in the assignment requirements.
- 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 one of the temporary grades: IM (Incomplete - Make up), IS (Incomplete - Supplementary Examination) or ISM (Incomplete -Supplementary Examination and Make up). A temporary 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).