



## The University of Southern Queensland

### Course specification

This version produced 20 Dec 2007.

The current and official versions of the course specifications are available on the web at <http://www.usq.edu.au/coursespecification/current>.

Please consult the web for updates that may occur during the year.

#### Description: Geographic Data Visualisation

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
GIS	3404	62690	1, 2007	EXT	1.00	Toowoomba

<b>Academic group:</b>	FOENS
<b>Academic org:</b>	FOES05
<b>Student contribution band:</b>	2
<b>ASCED code:</b>	031103

#### STAFFING

Examiner: Armando Apan

Moderator: Kevin McDougall

#### RATIONALE

Geographic data visualisation offers great benefits for the spatial information professionals. Using computer-based methods and the human visual system, geographic data visualisation technologies provide powerful tools for presenting, interpreting and analysing of spatial data. The identification of spatial patterns and relationships within spatial data, in either 2-D, 3-D or 4-D (temporal) representation, or by using multimedia technologies, can be enhanced tremendously by visualisation techniques. Thus, it is essential that students and professionals in the spatial sciences gain understanding of the concepts, techniques, software and hardware of this important field of study and application.

#### SYNOPSIS

The course is designed to introduce students to computer assisted geographic data (or cartographic) visualization methods and processes. Key topics include: introduction to geographic data visualization; terrain and 3-D visualization and analysis; temporal and non-temporal cartographic animation; multi-media cartography; and application and case studies.

#### OBJECTIVES

The course objectives define the student learning outcomes for a course. The assessment item(s) that may be used to assess student achievement of an objective are shown in parenthesis. On completion of this course, students should be able to:

1. Demonstrate knowledge of the concepts of geographic data (or cartographic) visualisation and communications (assignment 1, 2 and exam);
2. Evaluate the function of the procedures and tools that support the temporal and three dimensional (3D) display and animation of spatial data (assignment 1, 2 and exam);
3. Generate, edit and output simple or multimedia maps using computer assisted hardware and software (assignment 2 and exam); and

4. Demonstrate an understanding of the processes and presentation methodology of multimedia geographic data visualisation enhancements (assignment 2 and exam).

## TOPICS

	Description	Weighting (%)
1.	Geographic data visualisation and communication concepts	20.00
2.	Terrain and 3D visualisation	20.00
3.	Mapping time: temporal cartographic animation	20.00
4.	Multimedia cartography	20.00
5.	Application and case studies	20.00

## 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).

GIS3404 Geographic Data Visualisation Study Package (available from the USQ Bookshop).

## 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.

Cartwright, W & Peterson, M & Gartner, G 1999, *Multimedia Cartography*, Springer, New York.

Clarke, KC 1995, *Analytical and Computer Cartography*, 2nd edn, Prentice Hall, New Jersey.

Dent, BD 1999, *Cartography - Thematic Map Design*, 5th edn, William C Brown/McGraw-Hill,

Dykes, J, MacEachren, AM, Kraak, MJ 2005, *Exploring Geovisualisation*, Elsevier, Amsterdam.

Hearshaw, H. M. & Unwin, D. 1994, *Visualisation in Geographical Information Systems*, John Wiley & Sons, Chichester, England.

Kraak, M & Ormelling, F. 2003, *Cartography: Visualization of Geospatial Data*, 2nd edn, Pearson Education, Harlow, England.

MacEachren, A. M. & Taylor, D. R. F. 1994, *Visualization in Modern Cartography*, Pergamon, Oxford, England,

Muehrcke, P & Muehrcke, J 1998, *Map Use Reading, Analysis and Interpretation*, JP Publications, Wisconsin.

Raper, J. 2000, *Multidimensional Geographic Information Sciences*, Taylor & Francis, London & New York.

## STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assessment	40.00
Directed Study	62.00
Examinations	3.00
Private Study	50.00

## ASSESSMENT DETAILS

Description	Marks out of	Wtg(%)	Due date
ASSIGNMENT 1	200.00	20.00	23 Apr 2007
ASSIGNMENT 2	200.00	20.00	04 Jun 2007
2 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 satisfactorily complete an assessment item a student must achieve at least 50% of the marks or a grade of at least C-. Students do not have to satisfactorily complete each assessment item to be awarded a passing grade in this course. Refer to Statement 4 below for the requirements to receive a passing grade in this course.
- 3 Penalties for late submission of required work:  
If students submit assignments after the due date without prior approval then a penalty of 10% 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 40% in each of the weighted assessment items and at least 50% of the total weighted marks available for the course.
- 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 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 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).