



The University of Southern Queensland

Course specification

Description: Geographic Data Visualisation						
Subject	Cat-nbr	Class	Term	Mode	Units	Campus
GIS	3404	40903	1, 2005	ONC	1.00	Toowoomba

Academic group:	FOENS
Academic org:	FOES05
Student contribution band:	2
ASCED code:	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) visualisation methods and processes. Key topics include: Terrain and 3-D visualisation and analysis; temporal and non-temporal cartographic animation; multi-media cartography; and application and case studies.

OBJECTIVES

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

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

TOPICS

	Description	Weighting (%)
1.	Geographic data visualisation and communication concepts	10.00
2.	Terrain and 3D visualisation	30.00
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).

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.

Mapping Sciences Institute, Cartography, Mapping Sciences Institute, Canberra. Spatial Sciences Institute, Spatial Science Queensland, SSI, Brisbane

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,

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

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

MacEackren, AM & Taylor, DRF 1994, *Visualization in Modern Cartography*, Pergamon, Oxford, England.

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

Young, F 2002, *GIS3404 Geographic Data Visualisation*, USQ Publication, Toowoomba.

(Selected Bibliography for suggested web sites.)

STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assessment	40.00
Examinations	3.00
Lectures	26.00
Private Study	60.00
Tutorials	26.00

ASSESSMENT DETAILS

Description	Marks out of	Wtg(%)	Due date
ASSIGNMENT 1	200.00	20.00	18 Apr 2005
ASSIGNMENT 2	200.00	20.00	30 Jun 2005
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:
It is the students' responsibility to attend and participate appropriately in all activities (such as lectures, tutorials, laboratories and practical work) scheduled for them, and 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:
(i) To complete each of the assignments satisfactorily, students must obtain at least 50% of the marks available (or at least a grade of C-) for each assignment. (ii) To pass Assignment 2 students will be required to achieve the communication standard stipulated in the Introductory Book. (iii) To complete the examination satisfactorily, students must obtain at least 50% of the marks available (or at least a grade of C-) for the examination.
- 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:
(i) To be assured of receiving a passing grade a student must submit all of the summative assessment items, achieve at least 45% in the examination and at least 50% of the available weighted marks for the summative assessment items. (ii) Students who do not qualify for a Passing grade may, at the discretion of the Examiner, be assigned additional work to demonstrate to the Examiner that they have achieved the required standard. It is expected that such students will have gained at least 45% of the total marks available for all 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 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).