



The University of Southern Queensland

## Course specification

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: Engineering and Surveying Research Methodology

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
ENG	8001	86897	1, 2009	ONC	1.00	Toowoomba

<b>Academic group:</b>	FOENS
<b>Academic org:</b>	FOENSV
<b>Student contribution band:</b>	2
<b>ASCED code:</b>	039999

### STAFFING

Examiner: John Billingsley  
Moderator: Nigel Hancock

### RATIONALE

Whether completing an undergraduate course at honours level or embarking on postgraduate research, a student must be equipped to understand some essential research fundamentals. The student must appreciate the appropriateness of writing style and expression, particularly for the purpose of preparing a project proposal or submitting a paper to a learned journal. The student must be conversant with ethical issues, particularly with the need to report results honestly, to avoid plagiarism and to acknowledge source material in a proper manner. The student must understand the planning, purpose and significance of data collection, with insight into methods of extracting meaningful conclusions from it.

### SYNOPSIS

The course provides students with the ability to (critically) evaluate research literature including conference papers and journal articles in order to determine the current state of knowledge. In addition, the course will instruct students in the principles of research to enable them to conduct research and prepare an original project in their professional area of interest. Students will be instructed how to propose and justify an appropriate research plan for a particular research problem, to choose and apply appropriate methodology, to judge the degree to which conclusions are supported by data, to judge the logical consistency of written material and evaluate the outcome of a research project in terms of useable knowledge, and to design, defend and evaluate research proposals, and to apply techniques for writing clear and well expressed technical papers and reports.

### 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. use information systems effectively; (Assignment)

2. judge the degree to which conclusions are supported by data and the logical consistency of written material, and to write a critical review of the relevant literature; (Assignment)
3. understand and analyse the ethical issues raised in a range of research situations, and have a clear appreciation of the foundations of ethics in research;
4. propose and justify an appropriate research plan for a particular research problem;
5. choose and apply an appropriate experimental design to a particular research problem; (Research Proposal)
6. perform standard statistical analyses; (Assignment)
7. understand and apply a range of standard techniques for instrumentation and data acquisition; (Assignment)
8. understand the principles of good writing, and be able to analyse and edit technical papers written by others; (Assignment)
9. prepare a well written and concise research paper or report; (Assignment)
10. develop and write a research proposal for their discipline area;
11. (if appropriate) commence their project (course ENG8002 Project and Dissertation) in the semester following based on the proposal developed.

## TOPICS

Description	Weighting (%)
1. Research in Engineering and Surveying	3.00
2. Information Systems	5.00
3. Literature Surveys and Reviews	8.00
4. Ethical Issues	10.00
5. Preparation of Research Plans	5.00
6. Instrumentation and Data Acquisition	4.00
7. Design of experiments and statistical analysis	20.00
8. Good writing and analysis of technical papers	15.00
9. Writing Research Papers and Reports	5.00
10. Development of Research Proposals	25.00

## 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).

Greenfield, T (ed.) 2002, *Research methods guidance for postgraduates*, Oxford University Press, London.

(Latest edition. Available directly from Hodder Headline Australia, Locked Bag 386, Rydalmere NSW 2116.)

## 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.

Coley, SM & Scheinberg, CA 2007, *Proposal writing*, 3rd edn, Newbury Sage Publications,

Day, RA 2006, *How to write and publish a scientific paper*, 6th edn, Cambridge University Press, Cambridge.

Leedy, PD 2005, *Practical research: planning and design*, 8th edn, Merrill Prentice Hall, Upper Saddle River, NJ.

Montgomery, DC 2004, *Design and analysis of experiments*, 6th edn, Wiley & Sons, New York.

Pease, A & Dunn, P 1994, *Write language: the new secrets of writing letters that really work*, Heinemann Asia, Singapore.

## STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assessments	30.00
Directed Study	33.00
Lectures and Tutorials	30.00
Private Study	42.00
Report Writing	20.00

## ASSESSMENT DETAILS

Description	Marks out of	Wtg (%)	Due date
ASSIGNMENT 1	100.00	10.00	27 Apr 2009
ASSIGNMENT 2	100.00	10.00	25 May 2009
RESEARCH PROPOSAL	800.00	80.00	29 Jun 2009

## 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:  
To satisfactorily complete an individual assessment item a student must achieve at least 50% of the marks or a grade of at least C-. (Depending upon the requirements in Statement 4 below, students may not have to satisfactorily complete each assessment item 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 extenuating circumstances then a penalty of 5% of the assigned mark may apply for each working day late up to a maximum of ten working days at which time a mark of zero can be recorded for that assignment.
- 4 Requirements for student to be awarded a passing grade in the course:  
To be assured of receiving a passing grade in a course a student must obtain at least 50% of the total weighted marks 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:  
There is no examination in this course.
  - 7 Examination period when Deferred/Supplementary examinations will be held:  
Not applicable.
  - 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 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).