



The University of Southern Queensland

Course Specification

Description: Operations Research A

Subject	Cat-Nbr	Class	Term	Mode	Units	Campus
MAT	4200	20371	1, 2003	ONC	1.00	TWMBBA

Academic Group:	FOSCI
Academic Org:	FOS003
HECS Band:	2
ASCED Code:	010101

STAFFING

Examiner: Ashley Plank

Moderator: Peter Dunn

RATIONALE

The course seeks to strengthen students' mathematical understanding of Linear Programming, as well as introduce students to further topics in Operations Research.

SYNOPSIS

This course deals with more advanced topics in Linear Programming and Integer Programming and introduces students to Non-Linear Programming, Game Theory and Heuristic Problem Solving.

OBJECTIVES

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

- demonstrate an understanding of the mathematical basis of linear programming;
- use a variety of methods for solving LP and IP problems;
- demonstrate an understanding of and apply elementary game theory;
- demonstrate an understanding of the elements of non-linear programming
- demonstrate an understanding of the use of heuristic problem solving;
- investigate a new topic in Operations Research, explain this topic in his/her own words, and apply it.

TOPICS

Description	Weighting (%)
1. Mathematics of Linear Programming	15.00
2. Advanced Topics in Linear Programming	20.00

3. Integer Programming	15.00
4. Game Theory	15.00
5. Non-Linear Programming	15.00
6. Heuristic Problem Solving	20.00

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.

Winston, W.L 1994, *Operations Research: Applications and Algorithms*, 3rd edition, Duxbury Press, Belmont, Calif.

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.

2003, *Introductory Book: Course MAT4200, Operations Research A*, USQ Distance Education Centre, Toowoomba.

2003, *Study Book : Course MAT4200, Operations Research A*, USQ Distance Education Centre, Toowoomba.

Daellenbach, H.G., George, J.A. & McNicholl, D.C. 1983, *Introduction to Operations Research Techniques*, 2nd edition, Allyn and Bacon, Boston.

Hillier, F.S. & Lieberman, G.J. 1995, *Introduction to Operations Research*, 6th edition, McGraw Hill, New York.

Reeves, C.R. (Ed). 1993, *Modern Heuristic Techniques for Combinatorial Problems*, John Wiley, New York.

Taha, H.A. 1995, *Operations Research - An Introduction*, 5th edition, Prentice Hall, Singapore.

STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assessment	18
Lectures	26
Private Study	76
Project Work	50

ASSESSMENT DETAILS

Description	Marks Out of	Wtg(%)	Required	Due Date
ASSIGNMENT 1	100.00	12.00	Y	04 Mar 2003 (see note)
ASSIGNMENT 2	100.00	12.00	Y	04 Mar 2003 (see note)
ASSIGNMENT 3	100.00	12.00	Y	04 Mar 2003 (see note)
PROJECT	100.00	30.00	Y	04 Mar 2003 (see note)
3 HOUR RESTRICTED EXAMINATION	100.00	34.00	Y	END S1 (see note)

NOTES:

- . Further details about the due dates will be advised by the Examiner.
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- . Examination dates will be available during the Semester. Please refer to Examination timetable when published.

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 complete each of the assessment items satisfactorily, students must obtain at least 50% of the marks available 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 10% of the total marks gained by the student 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 a passing grade, students must demonstrate, via the summative assessment items, that they have achieved the required minimum standards in relation to the objectives of the course by satisfactorily completing 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 obtained for each of the summative assessment items in the course.
- 6 Examination information:

In a Restricted Examination, candidates are allowed access to specific materials during the examination. The only materials that candidates may use in the restricted examination for this course are: writing materials (non-electronic and free from material which could give the student an unfair advantage in the examination); calculators which cannot hold textual information (students must indicate on their examination paper the make and model of any calculator(s) they use during the examination). With the Examiner's approval, candidates may, take an appropriate non- electronic translation dictionary into the examination. This will be subject to perusal and, if it is found to contain annotations or markings that could give the candidate an unfair advantage.

- 7 Examination period when Deferred/Supplementary examinations will be held:
Any Deferred or Supplementary examinations for this course will be held during the next examination period.
- 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

- 9 Students must retain a copy of each item submitted for assessment. This must be produced within 24 hours if required by the Examiner.