



The University of Southern Queensland

## Course Specification

### Description: Foundation Mathematics

Subject	Cat-Nbr	Class	Term	Mode	Units	Campus
MAT	1100	10365	1, 2002	EXT	1.00	TWMBBA

<b>Academic Group:</b>	FOSCI
<b>Academic Org:</b>	FOS003
<b>HECS Band:</b>	2
<b>ASCED Code:</b>	010101

### STAFFING

Examiner: David Mander

Moderator: Harry Butler

### OTHER-REQUISITES

Pre-requisite: Maths A or equivalent assumed. Maths B recommended.

### RATIONALE

Students entering tertiary studies in science, engineering, surveying and business require expertise in mathematics and problem solving. This course will provide students with basic mathematical competencies for tertiary studies in the above areas or for students requiring core mathematical expertise.

### SYNOPSIS

Using principles of self-paced instruction the course guides students through a carefully sequenced series of topics which will provide the foundation for mathematics that will be encountered in tertiary studies in science, engineering, surveying and business. Topics covered are algebra, functions and graphing, exponentials and logarithms, trigonometry, introductory matrix algebra, and introductory calculus. Students also participate in problem based workshops applying mathematical processes to analyse real life applications from science, engineering and business. The self-paced structure and the flexibility of three alternative entry points through the course allows students to work at their own pace developing confidence with mathematics and general problem solving appropriate to this level of mathematics.

## OBJECTIVES

On successful completion of this course the student should be able to:

- demonstrate an understanding of a number of mathematical topics essential for tertiary studies in science, engineering, surveying and business;
- demonstrate the skills necessary to extend mathematical knowledge beyond this course;
- interpret and solve a range of authentic problems involving mathematical concepts relevant to this course;
- effectively communicate mathematical concepts and arguments.

## TOPICS

Description	Weighting (%)
1. Managing Mathematics - study strategies and planning to study mathematics	1.00
2. Arithmetic - calculations, fractions, scientific notation, metric system	3.00
3. Algebra - algebraic indices and fractions, solving linear and quadratic equations, factorisation, simultaneous equations	8.00
4. Relations and Functions - analytical geometry, definition of functions and relations, graphs of straight lines, parabolas, circles, hyperbolas, graphical solution of equations	7.00
5. Exponential and Logarithmic Functions - exponential and logarithmic functions and graphs, solution of exponential and logarithmic equations	6.00
6. Matrices and Vectors - definition of matrices, matrix operations	5.00
7. Trigonometry - trig ratios and identities, solution of triangles, trigonometric functions and graphs, solution of trigonometric equations.	8.00
8. Calculus - nature of differentiation and integration, differentiation and integration of simple functions, applications of differentiation and integration	12.00
9. Applications - a series of real problems drawn from the disciplines of science, engineering, and business.	50.00

### **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.

Scientific calculator

## **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.

Coady, C. & Gosling, J 1996, *Introductory Mathematics*, Pascal Press, Glebe.

Dobson, A.J. & Stokoe, J 1990, *Self Paced Introductory Mathematics*, ANU Press,

Petocz, P., Petocz, D. & Wood, L 1992, *Introductory Mathematics*, Nelson, Melbourne.

## **STUDENT WORKLOAD REQUIREMENTS**

<b>ACTIVITY</b>	<b>HOURS</b>
Assessment	15
Directed Study	112
Private Study	38

## ASSESSMENT DETAILS

Description	Marks Out of	Wtg(%)	Required	Due Date
PRELIMINARY TEST (ALL STUDENTS)	999.00	0.00	Y	04 Mar 2002 (see note 1)
ASSIGNMENT 1	1.00	0.00	Y	04 Mar 2002 (see note 2)
QUIZ - Q1&2 (ENTRY 1 ONLY)	100.00	0.00	Y	04 Mar 2002 (see note 3)
QUIZ - Q3 (ENTRY 1 ONLY)	100.00	0.00	Y	04 Mar 2002 (see note 4)
QUIZ - Q4&5 (ENTRY 1 & 2 ONLY)	100.00	0.00	Y	04 Mar 2002 (see note 5)
QUIZ - Q6 (ENTRY 1 & 2 ONLY)	100.00	0.00	Y	04 Mar 2002 (see note 6)
QUIZ - Q7&8 (ENTRY 1 & 2 ONLY)	100.00	0.00	Y	04 Mar 2002 (see note 7)
QUIZ - Q9 (ALL STUDENTS)	100.00	0.00	Y	04 Mar 2002 (see note 8)
QUIZ - Q10 (ALL STUDENTS)	100.00	0.00	Y	04 Mar 2002 (see note 9)
QUIZ - Q11 (ALL STUDENTS)	100.00	0.00	Y	04 Mar 2002 (see note 10)
QUIZ - Q12 (ALL STUDENTS)	100.00	0.00	Y	04 Mar 2002 (see note 11)
QUIZ - Q13 (ALL STUDENTS)	100.00	0.00	Y	04 Mar 2002 (see note 12)
QUIZ - Q14 (ALL STUDENTS)	100.00	0.00	Y	04 Mar 2002 (see note 13)
ASSIGNMENT 2	100.00	0.00	Y	04 Mar 2002 (see note 14)
ASSIGNMENT 3	7.00	50.00	Y	04 Mar 2002 (see note 15)
2 HOUR OPEN EXAMINATION Part A	1.00	0.00	Y	END S1 (see note 16)
2 HOUR OPEN EXAMINATION Part B	100.00	50.00	Y	END S1 (see note 17)

### NOTES:

1. Further details about the due dates are detailed in the assessment section of the Course Specifications.
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14. Further details about the due dates are detailed in the assessment section of the Course Specifications.
15. Further details about the due dates are detailed in the assessment section of the Course Specifications.
16. Examination dates will be available during the Semester. Please refer to Examination timetable when published.
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## **OTHER REQUIREMENTS**

- 1 Students must complete the Preliminary Test before being permitted to participate in the rest of the course.
- 2 The results of the Preliminary Test will determine at which point students will enter the course. There are three entry points (Entry Point 1, 2 and 3). Entry Point 1 students are required to complete Modules 1 to 14. Entry Point 2 students are required to complete Modules 4 to 14. Entry Point 3 students are required to complete Modules 9 to 14.
- 3 To satisfactorily complete a module, students are required to pass a quiz on the content of that module. Students may make as many attempts as necessary to pass a quiz on each module.
- 4 The quizzes are competency tests. To pass, students must demonstrate an understanding of 100% of the material assessed in each quiz.
- 5 To obtain a pass in the Examinations (Part A and Part B) students must obtain at least 50% of the available marks for the examinations. Students may attempt both of the Part A and Part B examinations if necessary.

- 6 Passing Requirements: (i) for Entry Point 1 students to be assured of receiving a passing grade in this course they must: - pass Quizzes Q1&2 to Q7&8 by the end of semester 1; and - pass the remaining quizzes by the end of semester 2; and - pass one of the part A examinations; and - obtain a grade of at least 'Pass' in Assignment 3 to be submitted by the end of semester 2 (1 Nov, 2002); and - obtain a grade of at least 'Pass' in one of the Part B examinations. The compulsory assessment items are items 1 to 13, item 15, and item 16 plus 17, or item 18 plus 19. (ii) for Entry Point 2 students to be assured of receiving a passing grade in this course they must: - pass Quizzes Q4&5 to Q10 by the end of semester 1; and - pass the remaining quizzes by the end of semester 2; and - pass one of the part A examinations; and - obtain a grade of at least 'Pass' in Assignment 3 to be submitted by the end of semester 2 (1 November, 2002); and - obtain a grade of at least 'Pass' in one of the Part B examinations. The compulsory assessment items are items 1 and 2, items 5 to 13, item 15, and item 16 plus 17, or item 18 plus 19. (iii) for Entry Point 3 students to be assured of receiving a passing grade in this course they must: - pass Quizzes Q9 to Q14 by the end of semester 1; and - pass one of the part A examinations; and - obtain a grade of at least 'Pass' in Assignment 3 to be submitted by the end of semester 1 (14 June, 2002); and - obtain a grade of at least 'Pass' in one of the Part B examinations. The compulsory assessment items are items 1 and 2, items 8 to 13, item 15, and item 16 plus 17, or item 18 plus 19.
- 7 Students qualifying for a passing grade will receive a grade determined by their combined grades in Assignment 3 and the Part B examination. Grades will be awarded for Assignments 2 and 3 and the Part B examination according to the descriptions in item 5.6.3 of USQ Academic Regulations.
- 8 Open Examination: an open examination indicates that the candidate may have access to any material during the examination except the following: electronic communication devices, bulky material, devices requiring mains power and material likely to disturb other students.
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