



The University of Southern Queensland

## Course specification

<b>Description: Mathematics Communication Level D</b>						
Subject	Cat-nbr	Class	Term	Mode	Units	Campus
UNP	7384	58021	3, 2006	ONC	1.00	Toowoomba

<b>Academic group:</b>	INTOF
<b>Academic org:</b>	INT002
<b>Student contribution band:</b>	2
<b>ASCED code:</b>	010199

### STAFFING

Examiner: Robyn Pigozzo

Moderator: Lyndal Wood

### RATIONALE

This course is designed to provide students with the basic mathematical competencies for entry into the Bachelor of Information Technology (Maths and Computing) or Bachelor of Science (Applied Mathematics). Students also need to develop and practise language and problem solving skills in the English so that they can build upon their existing knowledge and express themselves adequately in the mathematical context. This course is designed to allow students to appreciate the diverse applications and power of mathematics; the precise language and structure of mathematics; and to develop confidence and reduce anxiety by using mathematics skills in a variety of problem solving sessions.

### SYNOPSIS

There are two compulsory parts of the course. Part A consists of the mastery of the content of selected topics within algebra, matrices, geometry, trigonometry, differentiation, integration. Part B consists of group work designed to develop the mathematical communication and problem solving skills of students. This work utilises some of the content mastered in Part A of the course.

### OBJECTIVES

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

1. demonstrate an understanding of mathematical topics essential for tertiary study as detailed below;
2. demonstrate an ability to select and use appropriate technology such as calculators, measuring instruments and computers with selected software;
3. select and use appropriate mathematical procedures;
4. work accurately and manipulate formulae;
5. transfer and apply mathematical procedures to a range of situations;

6. demonstrate problem solving through using a range of problem solving strategies, selecting appropriate mathematical procedures, identifying the problem, reflecting on the solutions, extending and generalizing from problems:
7. On successful completion of this course, students will be able to demonstrate communication through:
8. understanding, organising and presenting information in a variety of forms (such as oral, written, symbolic, pictorial and graphical);
9. using mathematical terms and symbols accurately and appropriately;
10. using accepted spelling, punctuation and grammar in written communication;
11. translating material from one form to another when appropriate (eg words to formulas);
12. recognising necessary distinctions in the meanings of words and phrases according to whether they are used in a mathematical or non-mathematical situation.
13. Write sentences and paragraphs in class on class-related activities.
14. Write prepared sentences, paragraphs and report on class-related activities.

## TOPICS

	Description	Weighting (%)
1.	Managing Mathematics - study strategies and planning to study mathematics	1.00
2.	Arithmetic - calculations, fractions, scientific notation, metric system	6.00
3.	Algebra - algebraic indices and fractions, solving linear and quadratic equations, factorisation, simultaneous equations	16.00
4.	Relations and Functions - analytical geometry, definition of functions and relation, graphs of straight lines, parabolas, circles, hyperbolas, graphical solution of equations	15.00
5.	Exponential and Logarithmic Functions - exponential and logarithmic functions and graphs, solution of exponential and logarithmic equations	12.00
6.	Matrices and Vectors - definition of matrices, matrix operations	10.00
7.	Trigonometry - trig ratios and identities, solution of triangles, trigonometric functions and graphs, solutions of trigonometric equations	15.00
8.	Calculus - nature of differentiation and integration, differentiation and integration of simple functions, applications of differentiation and integration	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).

Students are expected to have a scientific calculator and Course MAT1100 Foundation Mathematics - Study Book C.

Galligan, et al. 2002, *Mathematics communication: introductory book*, USQ, Toowoomba.

Galligan, et al. 2006, *Mathematics communication: problem solving*,

## 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.

## STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assessment	39.00
Directed Study	52.00
Private Study	80.00

## ASSESSMENT DETAILS

Description	Marks out of	Wtg(%)	Due date
TEST 9	20.00	10.00	17 Nov 2006
TEST 10	20.00	10.00	22 Dec 2006
TEST 11	22.00	10.00	22 Dec 2006
ASSIGNMENT 2 - REPORT	24.00	12.00	19 Jan 2007
ASSIGNMENT 3 - STOCK MARKET	30.00	12.00	25 Jan 2007
TEST 12	17.00	10.00	16 Feb 2007
TEST 13	19.00	10.00	16 Feb 2007
TEST 14	19.00	10.00	16 Feb 2007
ASSIGNMENT 1 - STUDENT PROBLEM	20.00	6.00	16 Feb 2007
REVISION TEST	40.00	10.00	23 Feb 2007

## IMPORTANT ASSESSMENT INFORMATION

1 Attendance requirements:

Students are required to attend at least 80% of the mathematics communication group work sessions and ensure their attendance is registered with the staff member in charge of the activity. It is the students' responsibility to study all course material to pass the mathematics competency tests. Students need to attend module sessions to complete competency tests and seek support as necessary.

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. 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 an approved extension of time then a penalty of 5% of the total marks available for the assignments may apply for each 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 complete all of the summative assessment items, achieve at least 50% of the total weighted marks for Group A, at least 50% of the total weighted marks for Group B, at least 40% in the revision test and at least 50% of the total weighted marks available for the 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:  
Examinations in this course are restricted examinations. In a Restricted Examination, candidates are allowed access to specific materials during the examination. The only materials the candidates can 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); 1 A4 page of hand written or typed notes (written on both sides).
- 7 Examination period when Deferred/Supplementary examinations will be held:  
Any Deferred or Supplementary examination will be held within four weeks following the examination period by arrangement with the examiner.
- 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 Students must retain a copy of each item submitted for assessment. This must be produced within 24 hours if required by the Examiner. In accordance with the 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.

## **OTHER REQUIREMENTS**

- 1 Students should have knowledge of UNIPREP Applied Communication Level B and Mathematics Communication Level C.
- 2 Part A is predominantly a self-paced course. Students work sequentially through the modules they are required to master at their own pace, completing this part of the work by the end of the term. Mastery of a module is demonstrated by the student taking appropriate tests before proceeding with study of another module.
- 3 Part B consists of different activities each week. Students must participate actively in the group work of the problem solving sessions. Students also must submit written work as required.