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: Foundation Mathematics

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
MAT	1100	91502	2, 2009	EXT	1.00	Toowoomba

Academic group: FOSCI
Academic org: FOS003
Student contribution band: 6
ASCED code: 010101

STAFFING

Examiner: Harry Butler
Moderator: Christine McDonald

OTHER REQUISITES

Pre-requisite: Current skills at the level of Queensland Senior Secondary School Studies Mathematics B or equivalent. This course is equivalent to MAT1500. Students cannot enroll in MAT1100 if they have successfully completed MAT1500.

RATIONALE

Students entering tertiary studies in science and other disciplines require mathematical skills in a wide range of areas, and experience in applying these skills to problem solving in engineering contexts. Assuming that students have basic competencies, this course further explores and develops skills relating to a range of mathematical concepts that are needed in tertiary programs in science. It establishes strong mathematical foundations for computation and modeling. Mathematical applications are explored within a range of contexts.

SYNOPSIS

Assuming current skills at the level of Queensland Senior Secondary School Studies Mathematics B, this course strengthens and further develops algebra, functions, trigonometric, exponential, logarithmic and graphing competencies, and introduces matrices, vectors and calculus. Emphasis is placed on developing strong foundation mathematical skills in these areas for use in tertiary studies, and on exploring and applying these skills to a range of contexts.

OBJECTIVES

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

1. demonstrate a sound understanding of a number of mathematical topics that are essential for tertiary studies in science, engineering, surveying and business (Assignments 2 and 3, Quizzes, Exam);

2. interpret and solve a range of authentic problems involving mathematical concepts relevant to this course (Assignments 2 and 3, Exam);
3. effectively communicate the mathematical concepts and arguments contained in this course (Assignments 2 and 3, Exam).

TOPICS

	Description	Weighting (%)
1.	Mathematical writing, communication and study.	10.00
2.	Number calculation, scientific notation and rounding. Basic geometry. Algebra, including factorizing, solving equations and inequalities. Function concepts, linear, quadratic, polynomial and rational functions, exponential and logarithmic functions and their graphs. Inverses, compositions and asymptotes, and applications to engineering contexts.	30.00
3.	Trigonometric functions and identities, inverse trigonometric functions, and their applications to engineering contexts;	20.00
4.	Vectors, scalars and scalar product, basic concepts and applications	10.00
5.	Matrices, matrix multiplication, the inverse and determinant of a 2x2 matrix, and applications.	10.00
6.	Calculus: the concept of gradient and differentiation, differentiation of simple functions, optimization; and applications to engineering and science.	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).

Scientific calculator

Study Book 2009, *Course MAT1100 Foundation Mathematics*,

(available on the StudyDesk in Electronic Form or can be printed on request by the USQ Bookshop)

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.

Texts that are titled College Algebra, Pre-Calculus and Calculus will be helpful

James, G *Modern Engineering Mathematics*, 4th edn, Pearson (Prentice Hall),

STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assessments	30.00
Private Study	130.00

ASSESSMENT DETAILS

Description	Marks out of	Wtg (%)	Due date
ASSIGNMENT 1	42.00	5.00	03 Aug 2009
ASSIGNMENT 2	100.00	15.00	07 Sep 2009
ASSIGNMENT 3	100.00	15.00	19 Oct 2009
CMAs	100.00	0.00	30 Oct 2009
2 HOUR OPEN EXAMINATION	100.00	65.00	END S2 (see note 1)

NOTES

1. Examination dates will be available during the Semester. Please refer to Examination timetable when published.

IMPORTANT ASSESSMENT INFORMATION

1 Attendance requirements:
There are no attendance requirements for this course. However, it is the students' responsibility 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 assignments satisfactorily, students must obtain at least 50% of the marks available for the assignment. To complete the examination satisfactorily, students must obtain at least 50% of the marks available 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 5% of the marks gained by the student for the assignment may apply for each working 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 achieve at least 50% of the total weighted marks available 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 aggregate of the weighted marks obtained for each of the summative assessment items in the course.

6 Examination information:
In an Open Examination, candidates may have access to any material during the examination except the following: electronic communication devices, laptop computers, bulky materials, devices requiring mains power and material likely to disturb other students.

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/corporateservices/calendar/part5.htm or in the current USQ Handbook.

ASSESSMENT NOTES

9 Students will require access to e-mail and web access to UConnect for this course.

10 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. Students must retain a copy of each item submitted for assessment. This must be produced within 24 hours if required by the Examiner. The Examiner may grant an extension of the due date of an assignment in extenuating circumstances.

11 The Faculty will normally only accept assessments that have been written, typed or printed on paper-based media. The Faculty will NOT accept submission of assignments by facsimile.