



The University of Southern Queensland

Course specification

| Description: Foundation Mathematics | | | | | | |
|--|---------|-------|---------|------|-------|-----------|
| Subject | Cat-nbr | Class | Term | Mode | Units | Campus |
| MAT | 1100 | 50274 | 1, 2006 | ONC | 1.00 | Toowoomba |

| | |
|-----------------------------------|--------|
| Academic group: | FOSCI |
| Academic org: | FOS003 |
| Student contribution band: | 2 |
| ASCED code: | 010101 |

STAFFING

Examiner: Christine McDonald

Moderator: Janet Taylor

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

This course uses self-paced computer managed instruction methods and group problem solving techniques to encourage students to develop an understanding of mathematical concepts that provide a foundation for the mathematics encountered in tertiary programs in science, engineering, surveying and business. Topics included are: basic algebra, functions and graphing, exponential, logarithmic and trigonometric functions, introductory matrix algebra, and introductory calculus. The self-paced structure and the flexibility of three alternative entry points into the course allow students to work at their own level thereby developing confidence in mathematics and general problem solving.

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

TOPICS

| | Description | Weighting (%) |
|----|---|---------------|
| 1. | Managing Mathematics - study strategies and planning to study mathematics | 1.00 |
| 2. | Arithmetic - calculations, fractions, scientific notation, metric system | 5.00 |
| 3. | Algebra - algebraic indices and fractions, solving linear and quadratic equations, factorisation, simultaneous equations | 15.00 |
| 4. | Relations and Functions - analytical geometry, definition of functions and relations, 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 | 10.00 |
| 6. | Trigonometry - trigonometric ratios and identities, solution of triangles, trigonometric functions and graphs, solution of trigonometric equations. | 15.00 |
| 7. | Matrices - definition of matrices, matrix operations | 10.00 |
| 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 above topics and the disciplines of science, engineering, and business. | 17.00 |

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 2006, *Course MAT1100 Foundation Mathematics*, USQ Distance Education Centre, Toowoomba.

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 | 15.00 |
| Directed Study | 76.00 |
| Private Study | 38.00 |
| Workshops | 26.00 |

ASSESSMENT DETAILS

| Description | Marks out of | Wtg(%) | Due date |
|--------------------------------|--------------|--------|------------------------------|
| QUIZ - Q1&2 (ENTRY 1 ONLY) | 100.00 | 0.00 | 06 Mar 2006 (see note 1) |
| QUIZ - Q3 (ENTRY 1 ONLY) | 100.00 | 0.00 | 06 Mar 2006 (see note 2) |
| QUIZ - Q4&5 (ENTRY 1 & 2 ONLY) | 100.00 | 0.00 | 06 Mar 2006 (see note 3) |
| QUIZ - Q6 (ENTRY 1 & 2 ONLY) | 100.00 | 0.00 | 06 Mar 2006 (see note 4) |
| QUIZ - Q7&8 (ENTRY 1 & 2 ONLY) | 100.00 | 0.00 | 06 Mar 2006 (see note 5) |
| QUIZ - Q9 (ALL STUDENTS) | 100.00 | 1.00 | 06 Mar 2006 (see note 6) |
| QUIZ - Q10 (ALL STUDENTS) | 100.00 | 1.00 | 06 Mar 2006 (see note 7) |
| QUIZ - Q11 (ALL STUDENTS) | 100.00 | 1.00 | 06 Mar 2006 (see note 8) |
| QUIZ - Q12 (ALL STUDENTS) | 100.00 | 1.00 | 06 Mar 2006 (see note 9) |
| QUIZ - Q13 (ALL STUDENTS) | 100.00 | 1.00 | 06 Mar 2006 (see note 10) |
| QUIZ - Q14 (ALL STUDENTS) | 100.00 | 1.00 | 06 Mar 2006 (see note 11) |
| PRELIMINARY TEST | 3.00 | 0.00 | 10 Mar 2006 |
| ASSIGNMENT 1 | 1.00 | 0.00 | 20 Mar 2006 |
| ASSIGNMENT 2 | 15.00 | 10.00 | 24 Apr 2006 (see note 12) |
| WORKSHOP SUBMISSION | 15.00 | 4.00 | 05 Jun 2006 (see note 13) |
| ASSIGNMENT 3 | 15.00 | 20.00 | 12 Jun 2006 (see note 14) |
| 3 HOUR OPEN EXAMINATION | 15.00 | 60.00 | END S1 (see note 15) |

NOTES

1. Entry Point 1 Students: Quiz Q1, Q2 advisory due date is 24/03/2006.
2. Entry Point 1 Students: Quiz Q3 advisory due date is 31/03/2006.
3. Entry Point 1 and 2 Students: Quiz Q4 and Q5 advisory due date is Entry Point 1 14/04/2006 and Entry Point 2 is 24/03/2006.
4. Entry Point 1 and 2 Students: Quiz Q6 advisory due date is Entry Point 1 05/05/2006 and Entry Point 2 is 31/03/2006.
5. Entry Point 1 and 2 Students: Quiz Q7 and Q8 advisory due date is Entry Point 1 is 19/05/2006 and Entry Point 2 is 14/04/2006.
6. Entry Point 1, 2 and 3 Students: Quiz 9 advisory due date is Entry Point 1 as 09/06/2006, Entry Point 2 as 05/05/2006 and Entry Point 3 as 24/03/2006.

7. Entry Point 1, 2 and 3 Students: Quiz 10 advisory due date is Entry Point 1 as 04/08/2006, Entry Point 2 as 19/05/2006 and Entry Point 3 as 31/03/2006.
8. Entry Point 1, 2 and 3 Students: Quiz 11 advisory due date is Entry Point 1 as 18/08/2006, Entry Point 2 as 09/06/2006 and Entry Point 3 as 14/04/2006.
9. Entry Point 1, 2 and 3 Students: Quiz Q12 advisory due date is Entry Point 1 01/09/2006, Entry Point 2 as 18/08/2006 and Entry Point 3 as 05/05/2006.
10. Entry Point 1, 2 and 3 Students: Quiz 13 advisory due date is Entry Point 1 as 06/10/2006, Entry Point 2 as 29/09/2006 and Entry Point 3 as 19/05/2006.
11. Entry Point 1, 2 and 3 Students: Quiz Q14 advisory due date is Entry Point 1 as 27/10/2006, Entry Point 2 as 27/10/2006 and Entry Point 3 as 09/06/2006.
12. Assignment 2 Part A to be submitted by all students. Part B may be required of some continuing students at the request of the examiner by 09/06/2006.
13. All students gain workshop marks through participation in weekly workshop discussions.
14. Assignment 3 Part A only required to be submitted by Entry Point 3 students and other students wishing to complete by end of Semester 1. Part B which will be issued at the beginning of Semester 2 is due for continuing students on 30/10/2006.
15. 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. Compulsory assessment will take place in tutorials. If circumstances prevent a student from attending a tutorial, the student must contact the Examiner to arrange an alternative activity.

2 Requirements for students to complete each assessment item satisfactorily:

To complete each of the assignments satisfactorily, students must obtain at least a grade of C- for each assignment. To complete the examination satisfactorily, students must obtain at least a grade of C- for the examination. To complete each of the quizzes satisfactorily, students must gain at least 50% of the marks available for the quiz. Students may attempt a quiz for a module as many times as they wish up to the number of quizzes available. The final mark for a quiz will be the maximum mark of all attempts made by the student. To complete the tutorial workshop satisfactorily, students must gain at least a grade of C- for the tutorial workshops.

3 Penalties for late submission of required work:

If students submit assignments after the due date without prior approval then a penalty of 1 Equivalence Points 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 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. Students who do not qualify for a Passing grade in Assignment 2A may, at the discretion of the Examiner, be assigned additional work to demonstrate to the Examiner that they have achieved the required standard for this assessment item. Entry Point 1 students who do not complete the course by the end of Semester 1 will be awarded an incomplete grade (IDB, IDS or IDM) provided they satisfactorily complete Quizzes

- 1-2 to 9 by Week 14 of Semester 1; submit Assignment 1 by Week 2 of Semester 1; submit Assignment 2 by the due date of Semester 1 and receive a passing grade; and complete the Workshop Submission by the due date of Semester 1. Entry Point 2 students who do not complete the course by the end of Semester 1 will be awarded an incomplete grade (IDB, IDS or IDM) provided they satisfactorily complete Quizzes 4 to 11 by Week 14 of Semester 1; submit Assignment 1 by Week 2 of Semester 1; submit Assignment 2 by the due date of Semester 1 and receive a passing grade; and complete the Workshop Submission by the due date of Semester 1.
- 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 grades obtained for each of the summative assessment items in the course. The marks for Q9 to Q14 will be converted to grades for this process.
 - 6 Examination information:
In an Open Examination, candidates may have access to any material during the examination except the following: electronic communication devices, 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 must complete the Preliminary Test before being permitted to participate in the rest of the course. 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 Quizzes 1 to 14. Entry Point 2 students are required to complete Quizzes 4 to 14. Entry Point 3 students are required to complete Quizzes 9 to 14.
- 10 The workload in the Student Workload Requirements is for Entry Point 3 students. It is anticipated that the workload for Entry Point 1 and Entry Point 2 students will be substantially more .
- 11 Students will require access to e-mail and web access to USQConnect for this course.
- 12 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.
- 13 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.