The University of Southern Queensland

Course Specification

Description: Uniprep Mathematics Communication Level A

<table>
<thead>
<tr>
<th>Subject</th>
<th>Cat-Nbr</th>
<th>Class</th>
<th>Term</th>
<th>Mode</th>
<th>Units</th>
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<td>18021</td>
<td>3, 2002</td>
<td>ONC</td>
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Academic Group: OPACS
Academic Org: OPACSP
HECS Band: 2
ASCED Code: 010199

STAFFING
Examiner: Linda Galligan
Moderator: Robyn Pigozzo

RATIONALE
Students considering entry into Psychology, Education, Nursing and Arts require some mathematical knowledge and skills if they are to be successful in their chosen field of study. Students need to be numerate and need to have a basic understanding of functional relationships and classifying data if they are to operate successfully at the tertiary level. Students also need to develop and practise language and problem solving skills in English so that they can build upon their existing knowledge and express themselves adequately in the mathematical context.

SYNOPSIS
There are two compulsory parts of the course. Part A consists of the mastery of the content of selected topics within arithmetic, algebra, measurement, graphing and statistics. Students are also expected to show competence in communicating using mathematical language in English. Part B consists of group work designed to develop the mathematical communication and problem solving skills of students. This work utilises the content mastered in Part A of the course.

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

- OBJECTIVES PART A
- Modules 1A, 1B, 1C
- Manipulate and perform operations on numbers in the real number system including positive and negative integers, fractions and decimals.
- Calculate percentages and ratios, including ratios in triangles.
- Perform operations on powers with positive, negative, zero and fractional indices.
• Find perimeters, areas and volume of basic geometric figures.
• Use scientific notation and correct units of the metric system.
• Perform operations on numbers expressed in scientific notation.
• Convert between units of the metric system.
• Convert between scientific and ordinary notation.
• Modules 2A, 2B, 2C
• Plot points on a Cartesian plan.
• Identify co-efficients, variables and constant terms in expressions.
• Interpret the meaning of algebraic equations.
• Simplify expressions involving algebraic symbols.
• Expand and factorise algebraic expressions.
• Use Sigma notation.
• Rearrange algebraic formulae.
• Solve linear equations.
• Solve simultaneous equations.
• Develop equations for practical problems and solve them.
• Modules 3A
• Identify and draw the graphs of linear, parabolic, exponential and logarithmic equations.
• Predict the effect on the graphs of these equations when constants and co-efficients are changed.
• Use graphs to solve simultaneous equations.
• Module 4A
• Define and give examples of population, sample, parameter, statistic, variable, randomness, discrete and continuous data.
• Demonstrate an understanding of the methods of collection of data.
• Critically examine procedures used in the collection of data.
• Classify data according to type.
• Construct and interpret stem-and-leaf plots - frequency distribution, histograms, bar charts and pie charts.
• Calculate the mean and mode of grouped and ungrouped data.
• Calculate the median of ungrouped data.
• Construct and interpret scatter plots with lines of best fit.
• perform statistical calculations on a calculator in the statistics mode.
• OBJECTIVES PART B
• Read, construct and interpret tables and graphs from a variety of sources.
• Use arithmetic and statistical calculations in problem solving situations.
• Use a calculator efficiently.
• Use and develop formulae
• Communicate confidently in English in pairs and small groups.
• Present results from class work and assignments to whole class groups.
• Read, speak and ask questions in class in English impromptu.
• Write sentences and paragraphs in class on class-related activities.
• Write prepared sentences, paragraphs and report on class-related activities.
TOPICS

Description Weighting (%)  
1. Arithmetic (Modules 1A,1B,1C) 30.00  
2. Algebra (Modules 2A,2B,2C) 20.00  
3. Graphing (Modules 3A) 30.00  
4. Statistics (Modules 4A,4B) 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.

2001, Mathematics Communication Level A Book 1, USQ,  
2001, Mathematics Communication Level B Book 2, USQ,  

Students are expected to have a scientific calculator.


STUDENT WORKLOAD REQUIREMENTS

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<th>ACTIVITY</th>
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<td>Directed Study</td>
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### ASSESSMENT DETAILS

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### OTHER REQUIREMENTS

1. Students are not eligible for a pass in this course if they have not demonstrated mastery of all the required modules and if they have not attended at least 80% of the mathematics communications group work sessions.
2. Assignments submitted after the due date without an approved extension of time will have a 5% reduction in marks per day.
3. Items of assessment must be submitted to the satisfaction of the lecturer before a pass grade will be awarded.
4. The total score for all summative items of assessment must be at a minimum of 55% to gain a pass mark for the course.
5. Additional Notes: 1 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. 2 Part B consists of different activities each week. Students must participate actively in the group work of the problem solving sessions and the mathematics writing sessions. Students also must submit written work as required.