

## Introductory Mathematics

UNILEARN Introductory Mathematics is the first of two courses in preparatory mathematics offered by Learning Network Queensland. This course provides the learner with a foundation in basic algebra, the concept of function, matrix algebra, the elements of trigonometry and elementary statistics. It sets the scene for further studies in mathematics and statistics. The course material has been designed for self-paced learning. Although there is a 12 month formal time limit for completion of the course regular progress should be maintained so that previously learned concepts are not forgotten. On successful completion of UNILEARN Introductory Mathematics the learner will have a sound background for the study of the mathematical content of such undergraduate programs as Business, Information Technology, Psychology and Health Science, to name a few, as well as having the mathematical skills suitable for many positions in industry and commerce.

### Aims

At the end of this course the learner should

- demonstrate an understanding of basic algebra, linear and quadratic equations, linear, polynomial and exponential functions and their graphs, basic matrix algebra, elementary trigonometry and the elements of statistics.
- have developed confidence and competence in applying the mathematical concepts and techniques learned to problem solving situations with reference to simple mathematical modelling.
- have acquired prerequisite knowledge necessary to undertake further studies in mathematics and statistics.
- be motivated to continue with lifelong learning where quantitative skills are required.

### Structure

The course consists of five Modules each with an overview of the topics covered in that Module.

A range of Activities is included for the learner to work through. Detailed solutions for all Activities are included in each Module.

Progress Tests have been included in each Module to give the learner feedback on their progress.

Tutorial Support is available from the UNILEARN Mathematics tutor. This support can be accessed by telephone, fax and email to clarify understanding of concepts, details of solutions of activities, feedback on Progress Tests and general information on the mathematics required for undergraduate courses and other relevant queries.

### Presentation

The learner may enrol in the course at any time. Whilst working through the course material, the learner is strongly encouraged to attempt the relevant Progress Test and send it to the Mathematics Tutor for assessment and feedback. The time taken to complete the course depends on the learner in terms of background, time available and other factors. Normally the course should be completed in 180-220 hours of study. If the learner requires assistance with any academic aspect of the course, contact should be made with the Mathematics Tutor.

# course information (continued)

## Assessment

Learners who work their way through the five Modules and submit at least seven of the progress tests are eligible to sit for a 3 hour final examination. A Specimen examination is sent out to the student with the study materials.

### **Module 1      Beginning Mathematics – Five Topics**

Operations on numbers, calculations involving percentages, the essentials of plane geometry, ratios and elementary trigonometry. Three Progress Tests

### **Module 2      Introduction to Algebra – Three Topics**

Algebraic manipulation and linear equations, the laws of indices and scientific notation, the Cartesian plane and graphs of formulae whose graphs are straight lines. Two Progress Tests

### **Module 3      Linear and Quadratic Equations – Three Topics**

The laws of algebra, solutions of sets of linear and quadratic equations, using linear and quadratic equations to solve word problems. One Progress Test

### **Module 4      Basic Functions and Matrix Algebra – Four Topics**

The concept of function and linear functions and graphs, quadratic and polynomial functions and their graphs, exponential and logarithmic functions and their graphs, an introduction to matrix algebra. Three Progress Tests

### **Module 5      Introduction to Statistics – Four Topics**

Terminology and data collection, representing data graphically, summary of data and central tendency, exploring bivariate data graphically. One Progress Test