

UNL31 Introductory Mathematics

Course Outline

About the Course

The unit is a preparatory mathematics unit designed to help you gain the necessary knowledge to enter into tertiary study. This unit helps you to gain an understanding of percentages, basic geometry and trigonometry leading to an introduction to algebraic manipulation and linear, quadratic and exponential functions. Matrix algebra is introduced and the final module introduces statistics. On successful completion of this unit, you should have a sound mathematical base for further studies at advanced levels, or to commence tertiary studies in business or similar courses.

This unit is self-paced and self-directed; it includes individual tutorial support with an experienced high school mathematics teacher. Tutorial support is via email, phone and an online classroom with discussion forums.

The unit has flexible enrolment dates to meet your needs. Start your study when you want and complete the unit any time within the 12 month enrollment window. This unit is equivalent to some high school maths subjects and students should ensure their intended university accepts this subject to meet the prerequisite needs. This unit requires approximately 220 hours of individual study.

Aim

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

UNL31 Introductory Mathematics consists of 5 Modules. Questions and Exercises are included within each Module so that the learner can work through them to develop experience in problem solving. Worked Solutions for the questions and exercises are provided at the back of each Module.

Progress Tests are also provided at appropriate points in the course. Students are required to successfully complete ten (10) Quizzes (progress tests) to be eligible to sit for the final examination.

Tutorial Support is available from the UNL31 Introductory Mathematics Teacher. This support, which can be accessed by the online classroom in the discussion board or email, is designed to help students clarify understanding of concepts, to provide details of solutions to exercises, and to answer other relevant queries.

Specimen/Practice Examination

The specimen exam or practice final exam is available once you have completed approximately 80% of the course. The Practice test allows students to work through similar problems under exam conditions which allow them to see if they are pacing themselves appropriately to be successful on the final exam. Most students who are successful on the practice exam find they are successful on the final exam as they are prepared for the type of questions and the exam format they will have during the final exam.

Hours of Study

In general, the course should be completed in a minimum of 220 hours of study. The actual time required by an individual student to receive a successful result, however, will depend on the background, time available and needs of the learner.

Assessment

The chapter questions, the end-of-chapter exercises, the quizzes (progress tests) and the Specimen (practice) Examination are designed to help students prepare for the final examination for UNL31 Introductory Mathematics. Examinations are prepared and assessed by the UNL31 Introductory Mathematics Teacher.

To be eligible to sit for the final, closed book examination, students are required to achieve a mark of 60% or higher on each of the 10 Quizzes (progress tests). The formal supervised examination covers the content of Modules 1 to 5. Candidates, who successfully complete the course, are awarded a Statement of Achievement which lists the percentage mark gained and a grade of Pass, Credit, Distinction or High Distinction. Students who fail to obtain the minimum mark required for a Pass grade, after submitting a reasonable attempt, may then be eligible to sit a second examination at the teachers' discretion.

Examinations are not held at set times. Rather, they are arranged through the Unilearn office after the student has successfully completed all 10 Quizzes (progress tests) with a score of 60% or higher on each.

Grading Scheme

To pass overall, a student must achieve at least 50% on the course. A student's final grade is an accumulation of all required content and will be weighted as follows:

Quizzes-Progress Tests (10)	10%
Final Exam (1)	90%
	100%

The final grading scale is as follows:

Grade	% required
High Distinction (HD)	85% and above
Distinction (D)	75 - 84%
Credit (C)	65 – 74%
Pass (P)	50 - 64%
Fail	0 – 49%

Content

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*