

9. Year 12 Subjects 2011 (Maths)

Further Maths Units 3&4

Units 3 AND Unit 4

Areas Of Study:

Further Mathematics consists of a compulsory core area of study 'Data analysis' and then a selection of three from six modules in the 'Applications' area of study.

Assumed knowledge and skills for the 'Data analysis' area of study are contained in the topics: Univariate data, Bivariate data, Linear graphs and modelling, and Linear relations and equations from General Mathematics B (Business) Units 1 and 2.

The appropriate use of technology to support and develop the teaching and learning of mathematics is to be incorporated throughout the units.

There are two areas of study:

1. Data analysis – core material
2. Applications – module material:
 - o Module 1: Number patterns
 - o Module 2: Geometry and trigonometry
 - o Module 3: Graphs and relations
 - o Module 4: Business-related mathematics
 - o Module 5: Networks and decision mathematics
 - o Module 6: Matrices

Assessment:

Both Units 3 and 4 consist of 3 outcomes:

- Outcome 1 - Students should be able to define and explain key concepts as specified in the content from the areas of study, and apply a range of related mathematical routines and procedures.
- Outcome 1 - Students should be able to define and explain key terms and concepts as specified in the content from the areas of study, and use this knowledge to apply related mathematical procedures to solve routine application problems.
- Outcome 2 - Students should be able to use mathematical concepts and skills developed in the 'Data analysis' area of study to analyse a practical and extended situation, and interpret and discuss the outcomes of this analysis in relation to key features of that situation.
- Outcome 3 - Students should be able to select and appropriately use technology to develop mathematical ideas, produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques or approaches in the area of study 'Data analysis' and the selected module from the 'Applications' area of study.

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Further Maths Units 3&4 (Cont...)

Assessment Break-Down:

Demonstration of achievement of Outcomes 1, 2 and 3 will be based on the student's performance on a selection of assessment tasks as follows:

- A data analysis application task using contexts for investigation from a suitable data set selected by the teacher. The task has three components of increasing complexity:
 - display and organisation of univariate and bivariate data
 - consideration of general features of the data
 - analysis of the data such as regression analysis, the use of transformations to linearity, deseasonalisation, smoothing, or analysis of time series.

AND

- An analysis task for the first selected module, from one of the four types of analysis task described for Unit 4.

The outcomes are to be assessed across the application task and the analysis task.

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Further Maths Units 3&4 (Cont...)

Graded Assessment

The Victorian Curriculum and Assessment Authority will supervise the assessment of all students undertaking Units 3 and 4. In Mathematics: Further Mathematics the student's level of achievement will be determined by school-assessed coursework and two end-of-year examinations. Percentage contributions to the study score in Mathematics are as follows:

- Unit 3 school-assessed coursework: 20%
- Unit 4 school-assessed coursework: 14%
- Units 3 and 4 examination 1: 33%
- Units 3 and 4 examination 2: 33%

Other Information

- Further Maths does NOT have a mid-year Exam, but a Practice Exam is held during the third week of the July term break. Other practice exams are also held during Semester Two. It is important that students take every opportunity to ready themselves for the final examination.
- In Further Maths (Units 3 and 4) the use of the TI-Nspire CAS calculator is the main mode for satisfying Learning Outcome 3 (Use of technology). As a result it is compulsory for students undertaking any of these units to purchase or retain their CAS calculator.
- Students intending to undertake Further Maths at Year 12 (Units 3 and 4) level must undertake General Maths at Year 11 (Units 1 and 2) level.
- The Mathematics courses at Year 12 may form pre-requisites for entry into a range of tertiary courses. It is HIGHLY RECOMMENDED THAT ADVICE IS OBTAINED FROM THE CAREERS COUNSELLOR AND YOUR TEACHER BEFORE SELECTION.
- The following pre-requisites apply for VCE Mathematics Units offered at Alphington Grammar School:

Subject	Units	Pre-requisites
Further Maths	Units 3 & 4	A unit average of 65% in Year 11 General Maths (Semester One result). Semester Two results will also be looked at.

Entry – Units 3 and 4

Except in exceptional circumstances students must complete both Units 1 and 2 of Further Maths prior to attempting to complete the Unit 3 and 4 progression. Students must complete Unit 3 before completing Unit 4. The school does not encourage students taking Units 3 and 4 Further Maths in Year 11.