

## 9. Year 12 Subjects 2011 (Maths)

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### Maths Methods (CAS) Units 3&4

#### Units 3 AND Unit 4

##### *Areas Of Study:*

Mathematical Methods (CAS) Units 3 and 4 consists of the following areas of study: 'Functions and graphs', 'Calculus', 'Algebra' and 'Probability', which must be covered in progression from Unit 3 to Unit 4, with an appropriate selection of content for each of Unit 3 and Unit 4. Assumed knowledge and skills for Mathematical Methods (CAS) Units 3 and 4 are contained in Mathematical Methods Units (CAS) Units 1 and 2, and will be drawn on, as applicable in the development of related content from the areas of study, and key knowledge and skills for the outcomes of Mathematical Methods (CAS) Units 3 and 4.

The appropriate use of CAS technology to support and develop the teaching and learning of mathematics, and in related assessments, is to be incorporated throughout the course.

##### *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 2 - Students should be able to apply mathematical processes in non-routine contexts, and analyse and discuss these applications of mathematics.
- Outcome 3 – Students should be able to select and appropriately use a computer algebra system and other technology to develop mathematical ideas, produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques or approaches.

##### *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 function and calculus application task based on content from the areas of study, with three components of increasing complexity:
  - introduction of a context through specific cases or examples
  - consideration of general features of this context
  - variation, or further specification, of assumptions or conditions involved in the context to focus on a particular feature related to the context.

AND

- Two equally weighted tests that consist of an appropriate combination of multiple-choice, short-answer and extended response items.
- The outcomes are assessed across the application task and the two tests.

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### Maths Methods (CAS) 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: Mathematical Methods (CAS) 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: 22% (*technology free examination*)
- Units 3 and 4 examination 2: 44% (*technology examination*)

#### Other Information

- Maths Methods 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 Mathematical Methods (Units 1, 2, 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 Mathematical Methods at Year 12 (Units 3 and 4) level must undertake Mathematical Methods 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
Mathematical Methods	Units 3 & 4	A unit average of 65% in Year 11 Mathematics Methods (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 Maths Methods 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 Maths Methods in Year 11.