



Specialist Mathematics

What is Specialist Mathematics?

Mathematics is a key enabling science for the technologies that are driving the new global economy. Specialist Mathematics is a semester course that presents three traditional topics in a way that promotes their fundamental concepts as a paradigm for models of interacting quantities.

The aim is to provide students with an appreciation of certain mathematical ideas that are both elegant and profound and at the same time allow them to understand how this kind of mathematics enables computers to model, for example, chemical, biological, economic, and climatic systems.

Specialist Mathematics will develop ideas that are new to the student and give a new emphasis to familiar ones, by featuring the modelling capabilities of the topics presented.

It is an essential pre-requisite for students who wish to study Stage 2 Specialist Mathematics and Mathematical Studies.

Students must be enrolled in Core Mathematics and Mathematical Studies to take this subject.

Why study Specialist Mathematics?

Specialist Mathematics will enable students to experience and understand mathematics as a growing body of knowledge for creative use in application to an external environment; a view of mathematics that students are likely to find relevant to their world. This subject deals with phenomena from the students' common experiences, as well as from scientific, professional, and social contexts. Students can gain from Specialist Mathematics the insight, understanding, knowledge, and skills to follow pathways that will lead them to become designers and makers of technology.

Course content of Specialist Mathematics

Students study three topics:

- Topic 1: Vectors
- Topic 2: Deductive Geometry
- Topic 3: Periodic phenomena

Assessment Components

Assessment in Specialist Mathematics is conducted in Semester 2 and consists of the following components for SACE, weighted as shown:

- | | |
|---------------------|----------|
| • Two folio tasks | 20% each |
| • Three topic tests | 20% each |

Students must also complete a semester examination on all of the content covered throughout the semester. This examination is included in the Trinity Grade where each task is weighted equally.

Specialist Mathematics continued

Learning Outcomes of the Course

At the end of the program in Stage 1 Specialist Mathematics, students should be able to:

- understand mathematical concepts and relationships, making use of electronic technology where appropriate to aid and enhance understanding
- identify, collect, and organise mathematical information relevant to investigating and solving problems taken from social, scientific, economic, or historical contexts
- recognise and apply the mathematical techniques needed when analysing and solving a problem in context
- interpret results, draw conclusions, and reflect on the reasonableness of these in the context of a problem
- communicate mathematical reasoning and ideas by using appropriate language and representations
- work both independently and cooperatively in planning, organising, and carrying out mathematical activities.

Future Pathways in Specialist Mathematics

- Mathematical Sciences
- Engineering
- Computer Science
- Physical Sciences
- Surveying
- Students envisaging careers in other related fields, including economics and commerce, may also benefit from studying this subject.

Required Texts for Specialist Mathematics

- Mathematics for Yr 11: Functions, Statistics and Chance, with CD (6th edition), Haese
- Mathematics for Yr 11: Geometry and Trigonometry, with CD (5th edition), Haese
- Calculator: Casio Graphic FX-9860GAU PLUS

What are the prerequisites?

- B⁺ promotion grade in Year 10 Core Mathematics.
- B⁻ promotion grade in Year 10 Extension Mathematics.



TRINITY COLLEGE
Senior

Contact Details

For more information about studying Year 11 at Trinity College Senior, please contact the Head of Year 11 on 8523 8705 or visit: www.trinity.sa.edu.au/curriculum/index.htm

Further Information

More information about SACE may be obtained from the SACE Board of South Australia webpage at: www.sace.sa.edu.au