Subject name **Mathematics**

Subject code MAT

Additional subject cost Students will need to purchase a scientific calculator. The Ti-30XB MultiView scientific calculator is preferred as its layout is similar to the Ti-84+ graphic calculators students will be using in Senior Mathematics. This brand of scientific calculator may be purchased from the school textbook office for $25.

Prerequisites Nil

Course overview The Year 9 and first semester Year 10 Mathematics course, written to the Australian Curriculum (v9.0), provides students with an opportunity to continue to develop their numeracy knowledge and skills, whilst introducing the algebraic faculty and other concepts important for the progression to the higher-level Mathematics subjects in second semester Years 10 and Years 11 and 12.

Throughout the program students have the opportunity to:

- increase their mathematical knowledge
- apply their knowledge to situations both real-life and purely mathematical
- communicate using the concise language of mathematics
- justify and think critically
- perform effective mental calculations
- reflect on mathematical understanding
- use digital technology, both calculators and computers

Course outline Students will undertake the following topics based on the Australian Curriculum (v 9.0).

Semester 1 (Year 9)

Number:
- applications of scientific notations
- recognise rational and irrational numbers

Measurement:
- ratio, similarity and scale in 2D
- apply Pythagoras' theorem and trigonometric ratios to solve problems involving right angle triangles

Geometry
- enlargement of shapes
- geometric constructions
- use the properties of similar triangles to recognise the constancy of sine, cosine, and tangent ratios

Algebra
- extend index laws to variable values
- expand and factorise quadratic expressions
- identify quadratic functions and solve quadratic equations

Semester 2 (Year 9)

Statistics
- investigate data sets describing the features using summary statistics
- recognise how sampling techniques and representation can affect results

Probability
- probability of compound events
- design and construct probability experiments

Measurement
- volume and surface area of prisms and cylinders
- absolute, relative, and percentage error

Algebra
- gradient of line
- midpoint of an interval
- distance between two points

Semester 3 (Year 10)

Statistics
- box plot displays
- investigating bi-variate data

Measurement
- volume and surface areas of
  - prism shapes
  - pyramid, sphere shapes

Algebra
- simultaneous equations
- further quadratic functions and solving quadratic equations with real number solutions

Assessment: Assessment will consist of 60 minute in-class tests each semester, with a project/maths investigation task twice throughout the year.

Subject requirements Nil

Career opportunities Performance in Mathematics in Year 9 and 10 will influence subject choices in the area of Mathematics and to some extent Science for Year 11 and 12.