Mathematics Methods
Units 1-2

Students taking this subject should have a keen interest in mathematics, have achieved strong results in Year 10 Mathematics and should have the support of their year 10 mathematics teacher. This subject provides a pathway for students that require specific mathematics requirements for university courses such as: science, engineering, commerce, medicine, and computer sciences.

Students in this course must have an approved CAS calculator.

It is advised that students completing Mathematical Methods Units 1 and 2 also attempt Specialist Mathematics units 1 and 2 for the best preparation for Mathematical Methods Units 3 and 4.

UNIT 1
Students will study simple algebraic functions in relation to the following areas of study: Functions and Graphs, Algebra, and Probability and Counting Methods. Students use CAS calculators to explore skills and concepts as well as practicing skills without using technology.

LEARNING ACTIVITIES
Explicit instruction of theory and use of technology, textbook exercises, problem-solving and modelling, application of skills to real-world problems.

KEY SKILLS REQUIRED
Well-developed mathematical skills and understanding, graphing calculator (CAS) technology.
Ability to apply mathematical skills and knowledge to solve application problems.

ASSESSED TASKS
Formative hurdle tasks for each topic, combined summative SACs at the end of unit.

UNIT 2
In this unit, students will focus on the following areas of study: circular, exponential and logarithmic functions and graphs, algebra, Differentiation and Integration. Students use CAS calculators to explore skills and concepts as well as practicing skills without using technology.

LEARNING ACTIVITIES
Explicit instruction of theory and use of technology, textbook exercises, problem-solving and modelling, application of skills to real-world problems.

KEY SKILLS REQUIRED
Well-developed mathematical skills and understanding, graphing calculator (CAS) technology.
Ability to apply mathematical skills and knowledge to solve application problems.

ASSESSED TASKS
Formative hurdle tasks for each topic, combined summative SACs at the end of unit. Students also sit two end of year written examinations.

Mathematics Methods
Units 3-4

This unit is designed to equip students to undertake Mathematics at a tertiary level. As algebra is instrumental in much of the content of this subject, students should have developed strong algebraic skills and achieved very good to excellent results in Mathematical Methods Units 1 and 2. This subject provides a pathway for students that require specific mathematics requirements for university courses such as: science, engineering, commerce, medicine, and computer sciences.

Students in this course must have an approved CAS calculator.

UNIT 3
The focus of this unit will be a selection of content that would typically include Functions and Graphs, Algebra and applications of derivatives and differentiation. This also includes identifying and analysing key features of functions and their graphs with Calculus as a focal point. Students use CAS calculators to explore skills and concepts as well as practicing skills without using technology.

LEARNING ACTIVITIES
Explicit instruction of theory and use of technology, textbook exercises, problem-solving and modelling, application of skills to real-world problems.

KEY SKILLS REQUIRED
Mathematical skills and understanding, graphing calculator technology, application of mathematical skills and knowledge.

ASSESSED TASKS
Formative hurdle tasks for each topic, combined application SACs at the end of unit.

UNIT 4
Students will continue to study Algebra and Functions and Graphs as well as Calculus including anti-differentiation, integration, the relationship between integration and the area of regions defined by lines or curves with a focus on real world applications of Calculus. Students will also study random variables and discrete and continuous probability distributions and the distribution of sample proportions. Students use CAS calculators to explore skills and concepts as well as practicing skills without using technology.

LEARNING ACTIVITIES
Explicit instruction of theory and use of technology, textbook exercises, problem-solving and modelling, application of skills to real-world problems.

KEY SKILLS REQUIRED
Mathematical skills and understanding, graphing calculator technology, application of mathematical skills and knowledge.

ASSESSED TASKS
Formative hurdle tasks for each topic, combined application and problem-solving SACs at the end of unit.

VCAA ASSESSMENT – The overall Study Score will consist of:
School Assessed Coursework (30%)
Examination 1 (technology free) in November (20%) – 60 minutes
Examination 2 (technology active) in November (40%) – 120 minutes