Subject  
**Stage 2 Mathematical Studies – Full Year**

**Course Content**

The aim of this subject is to give students the tools to explore, describe, and explain aspects of the world around them in a mathematical way. The subject focuses on the mathematics needed for this exploration. This mathematics can empower students to describe their world, and changes in it. As a result, students appreciate the role that mathematics can play in effective decision-making.

The interrelationships of the topics are indicated and used in relevant contexts involving mathematical, physical, and social phenomena.

In **Topic 1: Working with Statistics**, students move from asking statistically sound questions towards a basic understanding of how, and why, statistical decisions are made. The topic provides students with opportunities and techniques to examine argument and conjecture from a ‘statistical’ point of view. This involves working with categorical and interval data, discovering and using the power of the central limit theorem, and understanding the importance of this theorem in statistical decision-making about means and proportions.

In **Topic 2: Working with Functions and Graphs Using Calculus**, students gain a conceptual grasp of introductory calculus, and the ability to use its techniques in applications. This is achieved by working with various kinds of mathematical models in different situations, which provide a context for the examination and analysis of the mathematical function behind the mathematical model.

In **Topic 3: Working with Linear Equations and Matrices**, students use a system of equations as a model to represent problem situations, solve such representations, and interpret their solution(s) in the context of the original model. Working with the systems of linear equations is another context for modelling with mathematics in practical situations.

**Assessment**

All SACE Stage 2 subjects have a school assessment component and an external assessment component.

Teachers design a set of school assessments that enable students to demonstrate the knowledge, skills, and understanding they have developed to meet the learning requirements of the subject. These assessments provide students' evidence of learning in the school assessment component.

**School Assessment (70%)**

- Assessment Type 1: Skills and Applications Tasks (45%)
- Assessment Type 2: Folio (25%)

School assessment will include a range of the following, both as individual and group tasks:

- Tests
- Directed investigations
- Assignments
- Research
- Folios
- Other tasks as directed by the teacher

**External Assessment (30%)**

- Assessment Type 3: Examination (30%).

External assessment is administered as a three-hour externally moderated examination based on the key questions and key ideas outlined in the three topics and their subtopics.