Mathematical Methods T

Rationale

"Mathematics is the study of order, relation and pattern. From its origins in counting and measuring it has evolved in highly sophisticated and elegant ways to become the language now used to describe much of the modern world. Statistics is concerned with collecting, analysing, modelling and interpreting data in order to investigate and understand real-world phenomena and solve problems in context. Together, mathematics and statistics provide a framework for thinking and a means of communication that is powerful, logical, concise and precise." [1]

Curriculum

At ISS students take the Australian Curriculum Mathematics Methods T. Prerequisites for entry would be completion of Mathematics at Year 10 level.

'The major themes of Mathematical Methods are calculus and statistics. . The ability to transfer skills to solve problems based on a wide range of applications is a vital part of mathematics in this subject. Because both calculus and statistics are widely applicable as models of the world around us, there is ample opportunity for problem solving throughout this subject.' [1]

Topics included in the units are:

Unit 1 – Functions and Graphs, Trigonometric Functions & Counting and Probability

Unit 2 – Exponential Functions, Sequences and Series and Introduction to Differential Calculus

Unit 3 – Further Differentiation and Applications, Integrals & Discrete Random Variables

Unit 4 – The Logarithmic Function, Continuous Random Variables and the Normal Distribution & Interval Estimates for Proportions

In any one year the choice of the four units may change as there is flexibility in the program that will allow this.

Where does it lead to?

'Calculus is essential for developing an understanding of the physical world because many of the laws of science are relationships involving rates of change. Statistics is used to describe and analyse phenomena involving uncertainty and variation. For these reasons this subject provides a foundation for further studies in disciplines in which mathematics and statistics have important roles. It is also advantageous for further studies in the health and social sciences. In summary, the

subject Mathematical Methods is designed for students whose future pathways may involve mathematics and statistics and their applications in a range of disciplines at the tertiary level.' [1]

1. BSSS, AC Mathematical Methods, 2015.