Year 12 Mathematics Advanced
Scope and Sequence 2021 - 2022

KURRI KURRI HIGH SCHOOL
Creating Futures

STEM Faculty

Head Teacher: Mrs J. O'Neill

	1	2	3	4	5	6	7	8	9	10
TERM 4		_Year 11 course_ _Refer to Year 11 Scope and Sequence document for 2021_			FUNCTIONS: **Graphing Techniques (MA-F2)** _MA12-1, MA12-9, MA12-10_ − Use key features of graphs of functions and the effect of basic transformations of these graphs to explain graphical behaviour. − Understand properties of functions by using technology, and both algebraic and graphical approaches. − Read scales and interpret magnification effects.			STATISTICAL ANALYSIS: **Descriptive Statistics & Bivariate Data Analysis (MA-S2)** _MA12-8, MA12-9, MA12-10_ − Identify, analyse and describe associations between pairs of variables (bivariate data). − Display, interpret and analyse statistical relationships within bivariate data. − Recognise, describe, and apply statistical techniques to analyse current situations and predict future outcomes.		

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TERM 1	TRIGONOMETRIC FUNCTIONS: **Trig Functions and Graphs (MA-T3)** _MA12-1, MA12-5, MA12-9, MA12-10_ − Explore the key features of the graphs of trigonometric functions. Understand and use basic transformations to solve trigonometric equations. − Systematically alter functions and reflect changes in graphical form. − This is important in understanding how mathematical models of real-world phenomena can be developed. − Develop mathematics model of real world phenomena.				CALCULUS: **Differential Calculus (MA-C2); Application of Differentiation (MA-C3)** _MA12-3, MA12-6, MA12-9, MA12-10_ − Develop and apply rules for differentiation to a variety of functions. − Use of calculus to help solve problems from each topic. − Investigate applications of the calculus of trigonometric, exponential, and logarithmic functions. − Use the second derivative in applications such as stationary points and the concavity of graphs. − Use of calculus to help solve problems such as optimisation, from each topic. − Locate the maximum or minimum values of a function.					
			Investigation + Quiz = 20%						**Study Guide & Quiz = 25%**	

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TERM 2	FINANCIAL MATHEMATICS: **Modelling Financial Situations (MA-M1)** *MA12-2, MA12-4, MA12-9, MA12-10* – Explore the meaning and mathematics of annuities. – Understand arithmetic and geometric sequences and series and apply this to financial situations. – Understand the use of series in the borrowing and investing of money. – Solve financial problems, such as superannuation and loan repayments, by finding the sum of a geometric series.				CALCULUS: **Integral Calculus (MA-C4)** *MA12-3, MA12-7, MA12-9, MA12-10* – Use indefinite and definite integrals in various contexts. – Apply the rules for integration to solve a variety of problems. – Use the Trapezoidal Rule as a method of approximation for area. – Represent calculus problems geometrically in various applications.			**Assignment + Quiz = 25%**	**REVISION** – Targeted review of trial exam format – Building examination skills – Interpreting and breaking down questions – Setting out of solutions to maximise marks – Revision of course	

	1	2	3	4	5	6	7	8	9	10
TERM 3	**EXAMINATIONS**		STATISTICAL ANALYSIS: **Random Variables (MA-S3)** *MA12-8, MA12-9, MA12-10* – Understand continuous random variables, the normal distribution, and its use in a variety of contexts. – Use the probability density function, integration, or area under a function to determine probabilities. – Solve problems involving random variables.			**REVISION / FINAL HSC PREPARATION** – In depth analysis of past papers, markers comments and mark distribution – Building examination skills – Data analysis of trial exam results – Interpreting and breaking down questions – Setting out of solutions to maximise marks				
	Trial HSC Exam 30 %									