Liverpool Girls' High School
Innovation Excellence Learning

Mathematics
STAGE 6 HSC ~ COURSE OUTLINE

The course is intended to give students who have demonstrated general competence in the skills of Stage 5 Mathematics an understanding of and competence in some further aspects of mathematics which are applicable to the real world. It has general educational merit and is also useful for concurrent studies in science and commerce. The course is a sufficient basis for further studies in mathematics as a minor discipline at tertiary level in support of courses such as the life sciences or commerce. Students who require substantial mathematics at a tertiary level, supporting the physical sciences, computer science or engineering, should undertake the Mathematics Extension 1 course or both the Mathematics Extension 1 and Mathematics Extension 2 courses.

MAIN TOPICS COVERED

HSC Course
- Coordinate methods in geometry
- Applications of geometrical properties
- Geometrical applications of differentiation
- Integration
- Trigonometric functions
- Logarithmic and exponential functions
- Applications of calculus to the physical world
- Probability
- Series and series applications

SYLLABUS OUTCOMES

H1   Seeks to apply mathematical techniques to problems in a wide range of practical contexts

H2   Constructs arguments to prove and justify results

H3   Manipulates algebraic expressions involving logarithmic and exponential functions

H4   Expresses practical problems in mathematical terms based on simple given models

H5   Applies appropriate techniques from the study of calculus, geometry, probability, trigonometry and series to solve problems

H6   Uses the derivative to determine the features of the graph of a function

H7   Uses the features of a graph to deduce information about the derivative

H8   Uses techniques of integration to calculate areas and volumes

H9   Communicates using mathematical language, notation, diagrams and graphs

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BOSTES Assessment Information

External examination	Marks	Internal assessment	Weighting
Section 1 – Objective Response Questions	10	A. Concepts, skills and techniques	50
Section 2 - Short answer questions	90	B. Reasoning and Communication	50
TOTAL MARKS	**100**	**TOTAL MARKS**	**100**

School Based Evidence of Learning ~ Formal Task Schedule

Task No.	Targeted Outcomes	Learning Context	Task	Date Due	Weighting A	Weighting B	Marks
1	H – 1, 5	Geometrical applications of the derivative, sequence and series	Assessment Task	Tm 4 Wk 9	12.5%	12.5%	25%
2	H – 2, 3, 5	Integration, plane geometry, exponential and log functions	Assessment Task	Tm 1 Wk 8	12.5%	12.5%	25%
3	H – 2-8	All Areas	Trial HSC Examination	Tm 2 Wk 9/10	15%	15%	30%
4	H – 3-7	Applications of calculus probability	Assessment Task	Tm 3 Wk 2	10%	10%	20%
TOTAL					**50%**	**50%**	**100%**