Varsity College
Year 12 Mathematical Methods 2025

Term 1

Week	Date	Topics	Assessment
1	**27-31 January** **O-Week** **Australia Day: Monday**	• Week • Chapter 6 will be assumed knowledge	
2	**3-7 February**	**Unit 3 Topic 2: Further differentiation and applications 2 cont.** • Review of differentiation skills. • Differentiation of the natural logarithm. • Differentiation of the natural logarithm using the product and quotient rules • Applications of logarithms and their derivatives.	
3	**10-14 February** **Swimming Carnival: Tuesday**	**Unit 3 Topic 3: Integrals** Anti-Differentiation: • Anti-differentiation of polynomials and power functions. • The anti-derivative of $(ax+b)^r$	
4	**17-21 February**	• The anti-derivative of e^{kx} • Anti-differentiation of trigonometric functions.	
5	**24-28 February**	• Further anti-differentiation techniques (recognition). • Applications to motion in a straight line.	
6	**3-7 March** **GC25: Wednesday**	Fundamental theorem of calculus and definite integrals: • Estimating the area under a graph. • The definite integral.	
7	**10-14 March**	Applications of integration: • Signed area. • Integration of more families of functions. • Further integration techniques (recognition with definite integrals).	
8	**17-21 March**	• The area of a region between two curves. • Applications of integration.	
9	**24-28 March**	**REVISION UNIT 3**	
10	**31 March - 4 April**	**EXAM BLOCK**	**IA2 Unit 3 Exam**
School holidays: Friday April 4 - Sunday April 19			

Term 2

Week	Date	Topics	Assessment
1	**21-25 April** **Easter Monday** **ANZAC Day: Friday**	**Unit 4 Topic 1: Further differentiation and applications 3** • **Exam Feedback – IA2** The second derivative and applications of differentiation • The second derivative and acceleration.	
2	**28 April-2 May** **GC25: Tuesday**	• Using the second derivative in graph sketching.	
3	**5-9 May** **Labour Day: Monday**	**Unit 4 Topic 2: Trigonometric functions 2** • Absolute maximum and minimum values. • Optimisation. Cosine and sine rules: • The sine rule.	
4	**12-16 May**	• The cosine rule. • The area of a triangle. • Angles of elevation, angles of depression and bearings.	
5	**19-23 May**	• Problems in 3D. • Angles between planes and more complex 3D problems.	
6	**26-30 May**	**Unit 4 Topic 3: Discrete random variables 2** Bernoulli and Binomial distributions • Introduction to Bernoulli sequences and the binomial distribution. • The graph, expectation, and variance of a binomial distribution. • Finding sample size.	
7	**2-6 June** **GC25: Wednesday**	**Unit 4 Topic 4: Continuous random variables and the normal distribution** General continuous random variables • Introduction to continuous random variable (probability density functions). • Mean and median for a continuous random variable (mean, expected value only).	
8	**9-13 June** **GC25: Wednesday**	• Measures of spread (variance and SD only). Normal distributions: • The normal distribution.	
9	**16-20 June**	• Standardisation. • Determining normal probabilities.	
10	**23-27 June**	• Solving problems using the normal distribution.	
School holidays: Saturday June 28 - Sunday July 13			

Term 3

Week	Date	Topics	Assessment
1	14-18 July	**Unit 4 Topic 5: Interval estimates for proportions** Random sampling: • Populations and sampling. • The exact distribution of the sample proportion.	
2	21-25 July	• **Start REVISION UNIT 4**	
3	28 July-1 August	• **REVISION UNIT 4**	
4	4-8 August	• **REVISION UNIT 4 & IA3 Exam**	**IA3 Unit 4 Exam Wednesday**
5	11-15 August GC25: Tuesday	• Exam feedback • Approximating the distribution of the sample proportion. • Confidence intervals for the population proportion.	
6	18-22 August GC25: Tuesday	**REVISION UNIT 3 & 4**	
7	25-29 August GC Show Day: Friday	**REVISION UNIT 3 & 4**	
8	1-5 September	**REVISION UNIT 3 & 4**	
9	8-12 September	**MOCK EXAMS**	
10	15-19 September	**MOCK EXAMS**	
School holidays: Saturday September 20 – Sunday October 4			

Term 4

Week	Date	Topics	Assessment
1	6-10 October King's Birthday: Monday	**REVISION UNIT 3 & 4**	
2	13-17 October	**REVISION UNIT 3 & 4**	
3	20-24 October	**REVISION UNIT 3 & 4**	
4	27-31 October	**EXTERNAL EXAMS**	**External Assessment: Unit 3 and 4**
5	3-7 November		
6	10-14 November		
7	17-21 November	**Final Week Events**	