

**Varsity College**  
**Year 12 Mathematical Methods 2024**

**Term 1**

Week	Date	Topics	Assessment
1	22-26 January O-Week Australia Day PH Fri	<ul style="list-style-type: none"> <li>O Week</li> <li>Chapter 6 will be assumed knowledge</li> </ul>	
2	29 Jan-2 Feb	<b>Unit 3 Topic 2: Further differentiation and applications 2 cont.</b> <ul style="list-style-type: none"> <li>Review of differentiation skills. <b>Ch.8F, G, H, J, K</b></li> <li>Differentiation of the natural logarithm. <b>Ch.8D</b></li> <li>Differentiation of the natural logarithm using the product and quotient rules <b>Ch.8F, G</b></li> <li>Applications of logarithms and their derivatives. <b>Ch.8H, J, K</b></li> </ul>	
3	5-9 February Swimming Carnival - Thurs	<b>Unit 3 Topic 3: Integrals</b> Anti-Differentiation: <ul style="list-style-type: none"> <li>Anti-differentiation of polynomials and power functions. <b>Ch.9A, 9B</b></li> <li>The anti-derivative of <math>(ax + b)^r</math> <b>Ch.9C</b></li> </ul>	
4	12-16 February	<ul style="list-style-type: none"> <li>The anti-derivative of <math>e^{kx}</math> <b>Ch.9D</b></li> <li>Anti-differentiation of trigonometric functions. <b>Ch.9E</b></li> </ul>	
5	19-23 February	<ul style="list-style-type: none"> <li>Further anti-differentiation techniques (recognition). <b>Ch.9F</b></li> <li>Applications to motion in a straight line. <b>Ch.9G</b></li> </ul>	
6	26 Feb-1 Mar GC24 - Wednesday	Fundamental theorem of calculus and definite integrals: <ul style="list-style-type: none"> <li>Estimating the area under a graph. <b>Ch.10A</b></li> <li>The definite integral. <b>Ch.10B</b></li> </ul>	
7	4-8 March	Applications of integration: <ul style="list-style-type: none"> <li>Signed area. <b>Ch.10C</b></li> <li>Integration of more families of functions. <b>Ch.10D</b></li> <li>Further integration techniques (recognition with definite integrals). <b>Ch.10E</b></li> </ul>	
8	11-15 March	<ul style="list-style-type: none"> <li>The area of a region between two curves. <b>Ch.10F</b></li> <li>Applications of integration <b>Ch.10G</b></li> </ul>	
9	18-22 March GC24 - Thursday	<b>REVISION UNIT 3</b>	
10	25-29 March Good Friday PH	<b>EXAM BLOCK</b>	<b>IA2 Unit 3 Exam</b>
<b>School holidays: Friday March 29 - Sunday April 14</b>			

## Term 2

Week	Date	Topics	Assessment
1	15-19 April Cross Country – Wed	<b>Unit 4 Topic 1: Further differentiation and applications 3</b> <ul style="list-style-type: none"> <li>• <b>Exam Feedback – IA2</b></li> </ul> The second derivative and applications of differentiation <ul style="list-style-type: none"> <li>• The second derivative and acceleration. <b>Ch.12A</b></li> </ul>	
2	22-26 April GC24 - Tuesday Anzac Day PH - Thurs	<ul style="list-style-type: none"> <li>• Using the second derivative in graph sketching. <b>Ch.12B</b></li> </ul>	
3	29 Apr-3 May	<b>Unit 4 Topic 2: Trigonometric functions 2</b> <ul style="list-style-type: none"> <li>• Absolute maximum and minimum values. <b>Ch.12C</b></li> <li>• Optimisation. <b>Ch.12D</b></li> </ul> Cosine and sine rules <ul style="list-style-type: none"> <li>• The sine rule. <b>Ch.13B</b></li> </ul>	
4	6-10 May Labour Day PH - Mon	<ul style="list-style-type: none"> <li>• The cosine rule. <b>Ch.13C</b></li> <li>• The area of a triangle. <b>Ch.13D</b></li> <li>• Angles of elevation, angles of depression and bearings. <b>Ch.13E</b></li> </ul>	
5	13-17 May	<ul style="list-style-type: none"> <li>• Problems in 3D. <b>Ch.13F</b></li> <li>• Angles between planes and more complex 3D problems. <b>Ch.13G</b></li> </ul>	
6	20-24 May	<b>Unit 4 Topic 3: Discrete random variables 2</b> <p>Bernoulli and Binomial distributions</p> <ul style="list-style-type: none"> <li>• Introduction to Bernoulli sequences and the binomial distribution. <b>Ch.15A</b></li> <li>• The graph, expectation, and variance of a binomial distribution. <b>Ch.15B</b></li> <li>• Finding sample size. <b>Ch.15C</b></li> </ul>	
7	27-31 May	<b>Unit 4 Topic 4: Continuous random variables and the normal distribution</b> <p>General continuous random variables</p> <ul style="list-style-type: none"> <li>• Introduction to continuous random variable (probability density functions). <b>Ch.16A</b></li> <li>• Mean and median for a continuous random variable (mean, expected value only). <b>Ch.16B</b></li> </ul>	
8	3-7 June	<ul style="list-style-type: none"> <li>• Measures of spread (variance and SD only). <b>Ch.16C</b></li> </ul> Normal distributions <ul style="list-style-type: none"> <li>• The normal distribution. <b>Ch.17A</b></li> </ul>	
9	10-14 June GC24 - Wednesday	<ul style="list-style-type: none"> <li>• Standardisation. <b>Ch.17B</b></li> <li>• Determining normal probabilities. <b>Ch.17C</b></li> </ul>	
10	17-21 June Athletics Carnival - Thurs	<ul style="list-style-type: none"> <li>• Solving problems using the normal distribution. <b>Ch.17D</b></li> </ul>	
<b>School holidays: Saturday June 22 - Sunday July 7</b>			

### Term 3

Week	Date	Topics	Assessment
1	8-12 July	<b>Unit 4 Topic 5: Interval estimates for proportions</b>  Random sampling: <ul style="list-style-type: none"> <li>• Populations and sampling. <b>Ch.18A</b></li> <li>• The exact distribution of the sample proportion. <b>Ch.18B</b></li> </ul>	
2	15-19 July	<ul style="list-style-type: none"> <li>• Completion of <b>Ch.18A &amp; 18B</b></li> <li>• <b>Start REVISION UNIT 4</b></li> </ul>	
3	22-26 July GC24 - Thursday	<ul style="list-style-type: none"> <li>• <b>REVISION UNIT 4</b></li> </ul>	
4	29 Jul- 2 Aug	<ul style="list-style-type: none"> <li>• <b>REVISION UNIT 4 &amp; IA3 Exam</b></li> </ul>	<b>IA3 Unit 4 Exam Wednesday am</b>
5	5-9 August	<ul style="list-style-type: none"> <li>• Exam feedback</li> <li>• Approximating the distribution of the sample proportion. <b>Ch.18C</b></li> <li>• Confidence intervals for the population proportion. <b>Ch.18D</b></li> </ul>	
6	12-16 August GC24 Finals - Wed.	<b>REVISION UNIT 3 &amp; 4</b>	
7	19-23 August	<b>REVISION UNIT 3 &amp; 4</b>	
8	26-30 August	<b>REVISION UNIT 3 &amp; 4</b>	
9	2-6 September	<b>MOCK EXAMS</b>	
10	9-13 September	<b>MOCK EXAMS</b>	
<b>School holidays: Saturday September 14 – Sunday September 29</b>			

### Term 4

Week	Date	Topics	Assessment
1	30 Sept – 4 Oct	<b>REVISION UNIT 3 &amp; 4</b>	
2	7-11 October King's B'day PH - Monday	<b>REVISION UNIT 3 &amp; 4</b>	
3	14-18 October	<b>REVISION UNIT 3 &amp; 4</b>	
4	21 - 25 October	<b>EXTERNAL EXAMS</b>	<b>External Assessment: Unit 3 and 4</b>
5	28 Oct – 1 Nov		
6	4-8 November		
7	11-15 November	<b>Final Week Events</b>	