

## IB Analysis and Approaches HL Yr 2 Subject Group Overview - Semester 1

Unit Name	Topic 5 - Calculus	Topic 3 - Geometry and Trigonometry	Topic 1 - Numbers & Algebra (finish during Sem 2)
<b>Time Frame</b>	8 Weeks	7 Weeks	6 Weeks (con't 2nd semester)
<b>Standards/ IB Topics</b>	Topic 5 – AHL 5.12 – 5.19; Review SL 5.1 - 5.11 Topic 1 – AHL 1.11	Topic 3 – AHL 3.9 – 3.18; Review SL 3.1 - 3.8	Topic 1 – AHL 1.12 – 1.16; Review SL 1.1 - 1.10
<b>Content Specific Information</b>	<ul style="list-style-type: none"> <li>● Continuity &amp; Differentiability</li> <li>● Limits, Definition of Derivative</li> <li>● Higher Derivatives</li> <li>● L'Hopital's Rule/Maclaurin Series</li> <li>● Implicit Differentiation</li> <li>● Related Rates of Change</li> <li>● Optimization</li> <li>● Basic derivatives</li> <li>● Indefinite Integrals</li> <li>● Use of Partial Fractions</li> <li>● Integration by Substitution</li> <li>● Integration by Parts</li> <li>● Area of Region of a Graph</li> <li>● Volumes of Revolution</li> <li>● Differential Equations</li> <li>● Euler's Method</li> <li>● Separation of Variables</li> <li>● Integrating Factors</li> <li>● Maclaurin Series</li> <li>● Partial Fractions</li> </ul>	<p>Vectors –</p> <ul style="list-style-type: none"> <li>● Basics, Vocabulary &amp; Notation</li> <li>● Operations</li> <li>● Magnitude, Direction</li> <li>● Scalar Product</li> <li>● Angle b/t Vectors, Lines, Planes</li> <li>● Vector Equations</li> <li>● Applications</li> <li>● Parallel, Intersecting, Coincident, Skew Lines</li> <li>● Vector Products</li> </ul> <p>Trig Identities -</p> <ul style="list-style-type: none"> <li>● Reciprocal</li> <li>● Pythagorean</li> <li>● Compound Angle</li> <li>● Double Angle</li> </ul> <p>Inverse Trig Functions Relationships between functions &amp; their graphs</p>	<p>Complex Numbers –</p> <ul style="list-style-type: none"> <li>● Definition, format</li> <li>● Complex Plane</li> <li>● Polar Form</li> <li>● Euler Form</li> <li>● Operations on</li> <li>● Complex Conjugates/Roots</li> <li>● DeMoivre's Theorem</li> <li>● Powers and Roots</li> </ul> <p>Proofs –</p> <ul style="list-style-type: none"> <li>● Induction</li> <li>● Contradiction</li> </ul> <p>Counterexample</p> <p>Systems –</p> <ul style="list-style-type: none"> <li>● Solving</li> <li>● Unique, infinite, and no solution</li> </ul>
<b>Common Assessments / Major Projects</b>	Formative Assessments  Summative Assessment – Unit 1 Test Pt. 1, Unit 1 Test Pt. 2	Formative Assessments  Summative Assessment – Unit 2 Test - Vectors Unit 2 Test - Vectors and Trig	Formative Assessments  Summative Assessment – Unit 3 Test
<b>Resources</b>	Textbook – Ch. 4, 7, 8  IB QuestionBank	Textbook - Mathematics: Analysis and Approaches HL (Oxford, 2019) – Ch. 9; Sections 6.1 – 6.4 IB QuestionBank	Textbook - Mathematics: Analysis and Approaches HL (Oxford, 2019) – Sections 1.3, 3.2, 10.1 – 10.3, 3.6  IB QuestionBank

## IB Analysis and Approaches HL Yr 2 Subject Group Overview - Semester 2

Unit Name	Topic 2 - Functions	Topic 4 - Statistics	IB Exam Review
<b>Time Frame</b>	3 weeks	3 Weeks	4 Weeks
<b>Standards/ IB Topics</b>	Topic 2 – AHL 2.12 – 2.16 Review SL 2.1 - 2.11	Topic 4 - AHL 4.13 & AHL 4.14 Review of SL Statistics (ASL 4.1 – 4.12)	
<b>Content Specific Information</b>	<p>Polynomial Functions</p> <ul style="list-style-type: none"> <li>● Graphs &amp; equations</li> <li>● Solutions &amp; Factors</li> <li>● Sum and Product of Roots</li> </ul> <p>Other Functions:</p> <ul style="list-style-type: none"> <li>● Rational Functions, Partial Fractions</li> <li>● Odd/Even Functions</li> <li>● Function Inverses, Domain Restrictions</li> <li>● Solutions to <math>g(x) \geq f(x)</math></li> <li>● Graphs of <math>y =  f(x) </math>, <math>y = f( x )</math>, <math>y = \frac{1}{f(x)}</math>, <math>y = f(ax + b)</math>, <math>y = [f(x)]^2</math></li> </ul>	<p>Review of Integrals</p> <p>Bayes Theorem</p> <p>Variance</p> <p>Probability density functions</p> <p>Mean variance &amp; standard deviation</p> <p>The effect of linear transformations of X</p>	Review of Mock Exam
<b>Common Assessments / Major Projects</b>	Formative Assessment – Polynomial Functions Other Functions  Summative Assessment – Unit 4 Test	Formative Assessment  Summative Assessment – Unit 5 Test	Mock Exam
<b>Resources</b>	Textbook - Mathematics: Analysis and Approaches HL (Oxford, 2019) – Sections 2.2 – 2.5, 3.3 – 3.5  IB QuestionBank	Textbook – Sections 11.1 – 11.3  IB QuestionBank	