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)

Time Frame	8 Weeks	7 Weeks	6 Weeks (con't 2nd semester)
Standards/ IB Topics	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
Content Specific Information	• Continuity & Differentiability • Limits, Definition of Derivative • Higher Derivatives • L'Hopital's Rule/Maclaurin Series • Implicit Differentiation • Related Rates of Change • Optimization • Basic derivatives • Indefinite Integrals • Use of Partial Fractions • Integration by Substitution • Integration by Parts • Area of Region of a Graph • Volumes of Revolution • Differential Equations • Euler's Method • Separation of Variables • Integrating Factors • Maclaurin Series • Partial Fractions	Vectors – • Basics, Vocabulary & Notation • Operations • Magnitude, Direction • Scalar Product • Angle b/t Vectors, Lines, Planes • Vector Equations • Applications • Parallel, Intersecting, Coincident, Skew Lines • Vector Products Trig Identities - • Reciprocal • Pythagorean • Compound Angle • Double Angle Inverse Trig Functions Relationships between functions & their graphs	Complex Numbers – • Definition, format • Complex Plane • Polar Form • Euler Form • Operations on • Complex Conjugates/Roots • DeMoivre's Theorem • Powers and Roots Proofs – • Induction • Contradiction Counterexample Systems – • Solving • Unique, infinite, and no solution
Common Assessments / Major Projects	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
Resources	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

Time Frame	3 weeks	3 Weeks	4 Weeks
Standards/ IB Topics	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)	
Content Specific Information	Polynomial Functions ● Graphs & equations ● Solutions & Factors ● Sum and Product of Roots Other Functions: ● Rational Functions, Partial Fractions ● Odd/Even Functions ● Function Inverses, Domain Restrictions ● Solutions to $g(x) \geq f(x)$ ● Graphs of $y = \|f(x)\|$, $y = f(\|x\|), y = \frac{1}{f(x)}$, $y = f(ax + b), y = [f(x)]^2$	Review of Integrals Bayes Theorem Variance Probability density functions Mean variance & standard deviation The effect of linear transformations of X	Review of Mock Exam
Common Assessments / Major Projects	Formative Assessment – Polynomial Functions Other Functions Summative Assessment – Unit 4 Test	Formative Assessment Summative Assessment – Unit 5 Test	Mock Exam
Resources	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	