

**Suggested teaching order for
MAI HL**

Topics

Topic 1: Functions and modeling	(4,6,7,8)
Topic 2: Statistics and probability	(2,5,13,14)
Topic 3: Calculus	(10,11)
Topic 5: Trigonometric and linear algebra	(1,3,9,12,15)

(Chapters are according to Oxford Book)

Plan

Year 1	Year 2
60% of the syllabus	40% of the syllabus

YEAR 1

Topic 1	Functions and modeling
4.1	Functions
4.2	Linear models
4.3	Inverse functions
4.4	Arithmetic sequences and series
4.5	Linear regression
6.1	Quadratic models
6.2	Problems involving quadratics
6.3	Cubic functions and models
6.4	Power functions, direct and inverse variation and models
7.1	Geometric sequences and series
7.2	Financial applications of geometric sequences and series
7.3	Exponential functions and models
7.4	Law of exponents- Laws of logarithms
7.5	Logistic models
8.1	Measuring angles
8.2	Sinusoidal models
8.3	Completing our number system
8.4	A geometrical interpretation of complex numbers
8.5	Using complex numbers to understand periodic models

Topic 2	Statistics and probability
2.1	Collecting and organizing data
2.2	Statistical measures
2.3	Ways in which you can present data
2.4	Bivariate data
5.1	Reflecting on experiences. Quantification of probabilities
5.2	Representing combined probabilities
5.3	Representing combined probabilities with formulae
5.4	Complete, concise and consistent
13.1	Modelling random behavior
13.2	Modelling the number of successes in a fixed number of trials
13.3	Modelling the number of successes in a fixed interval
13.4	Modelling measurements that are distributed randomly
13.5	Mean and variance of transformed or combined random variables
13.6	Distributions of combined random variables
14.1	Spearman's rank correlation coefficient
14.2	Hypothesis testing for the binomial probability, the Poisson mean
14.3	Testing for the mean of a normal distribution
14.4	X square test for independence
14.5	X square test goodness of fit test
14.6	Choice, validity and interpretation of tests

Topic 3	Calculus
10.1	Limits and derivatives
10.2	Differentiation
10.3	Application of high derivatives

YEAR 2

Topic 3	Calculus
11.1	Finding approximate areas for irregular regions
11.2	Indefinite integrals and techniques of integration
11.3	Applications of integration
11.4	Differential equations
11.5	Slope fields and differential equations

Topic 4	Trigonometry and linear algebra
1.1	Representing numbers exactly
1.2	Angles and triangles
1.3	Three dimensional geometry
3.1	Coordinate geometry in 2 and 3 dimensions
3.2	The equation of a straight line in 2 dimensions
3.3	Voronoi diagrams
3.4	Displacement vectors
3.5	The scalar and vector product
3.6	Vector equations of lines
9.1	Introduction to matrix
9.2	Matrix multiplication and properties
9.3	Solving systems of equations using matrix
9.4	Transformations of the plane
9.5	Representing systems
9.6	Representing steady state systems
9.7	Eigenvalues and eigenvectors
12.1	Vector quantities
12.2	Motion with variable velocity
12.3	Exact solutions of coupled linear equations
12.4	Approximate solutions to coupled linear equations
15.1	Constructing graphs
15.2	Graph theory
15.3	Graph theory for weighted graphs-Spanning tree
15.4	Graph theory for weighted graphs-Chinese postman theorem
15.5	Graph theory for weighted graphs-Travelling salesman