

Honours Complex Variables tentative lecture schedule

Lecture 1, Monday 14th January	Introduction and Section 1.1: Complex numbers
Lecture 2, Thursday 17th January	Section 1.1: Complex numbers
Lecture 3, Friday 18th January	Sections 1.2, 1.3: Topology of the complex plane, and Complex-valued functions
Lecture 4, Monday 21st January	Section 1.4: Complex differentiability and holomorphicity
Lecture 5, Thursday 24th January	Section 1.5: Polynomials and rational functions
Lecture 6, Friday 25th January	Section 1.6: The complex exponential and related functions
Lecture 7, Monday 28th January	Section 1.7: The complex logarithm
Lecture 8, Thursday 31st January	Section 1.8: Complex powers
Lecture 9, Friday 1st February	Section 2.1: Conformal maps
Lecture 10, Monday 4th February	Sections 2.2, 2.3: Definition of Möbius transformations, and The extended complex plane and the Riemann sphere
Lecture 11, Thursday 7th February	Section 2.4: Deconstructing Möbius transformations
Lecture 12, Friday 8th February	Section 2.5: The cross-ratio
Lecture 13, Monday 11th February	Sections 3.1, 3.2: Complex integrals and Contour integrals
Lecture 14, Thursday 14th February	Section 3.2: Contour integrals
Lecture 15, Friday 15th February	Section 3.3: Independence of path
Lecture 16, Monday 25th February	Section 3.4: Cauchy's Integral Theorem
Lecture 17, Thursday 28th February	Section 3.5: Cauchy's Integral Formula
Lecture 18, Friday 1st March	Section 3.5: Cauchy's Integral Formula
Lecture 19, Monday 4th March	Section 3.6: Liouville's Theorem and its applications
Lecture 20, Thursday 7th March	Section 3.7: The Maximum Modulus Principle
Lecture 21, Friday 8th March	NO LECTURE
Lecture 22, Monday 11th March	Section 4.1: Infinite series
Lecture 23, Thursday 14th March	Section 4.2: Power series
Lecture 24, Friday 15th March	Section 4.3: Taylor series
Lecture 25, Monday 18th March	Section 4.4: Laurent series
Lecture 26, Thursday 21st March	Section 4.5: Zeros and singularities
Lecture 27, Friday 22nd March	Section 4.6: Analytic continuation
Lecture 28, Monday 25th March	Section 5.1: The Cauchy Residue Theorem
Lecture 29, Thursday 28th March	Section 5.2: The Argument Principle and Rouché's Theorem
Lecture 30, Friday 29th March	Section 5.3: Trigonometric integrals
Lecture 31, Monday 1st April	Section 5.4: Improper integrals
Lecture 32, Thursday 4th April	Section 5.5: Improper integrals with poles
Lecture 33, Friday 5th April	Section 5.6: Infinite series

