

MATH0040 Mathematics for Science 1

<i>Year:</i>	2021–2022
<i>Code:</i>	MATH0040
<i>Level:</i>	4 (UG)
<i>Normal student group(s):</i>	UG: Students outside Mathematics
<i>Value:</i>	15 credits (= 7.5 ECTS credits)
<i>Term:</i>	1
<i>Assessment:</i>	85% examination, 15% coursework
<i>Normal Pre-requisites:</i>	A in A-level Mathematics
<i>Lecturer:</i>	Dr M Dalwadi

Course Description and Objectives

The course presents the type of mathematics useful in physical sciences. It focuses on revising and extending A-level work, aimed at those with a high pass (A or B) in A level mathematics.

Recommended Texts

While everything examinable will be given in the course notes, some students may find K.A Stroud's Engineering Mathematics, or any further maths (pure) A level textbook useful.

Detailed Syllabus

- Calculus, differentiation of simple functions and inverse functions. Integration by parts, integration by substitution, partial fractions and reduction formulae. First and second order differential equations.
- Curve sketching, stationary points, vertical and horizontal asymptotes.
- Complex numbers, complex arithmetic, De Moivre's theorem, roots of unity and complex roots in general.
- Series and sequences, convergence of series, the ratio and comparison test, Maclaurin expansions.