

MATH0110 Analysis for Joint Honours

<i>Year:</i>	2024{2025
<i>Code:</i>	MATH0110
<i>Level:</i>	4 (UG)
<i>Normal student group(s):</i>	First year students on BSc/MSci Mathematics and Statistical Science only
<i>Value:</i>	15 credits (= 7.5 ECTS credits)
<i>Term:</i>	1
<i>Assessment:</i>	The final weighted mark for the module is given by: 70% Final examination, 15% coursework, 10% mid-session examination and 5% Proofs and Foundation coursework. In order to pass the module you must have at least 40% for both the final examination mark and the overall weighted mark.
<i>Normal Pre-requisites:</i>	A* in A-level Mathematics and Further Mathematics
<i>Lecturer:</i>	Dr Beatriz Navarro Lameda

Course Description and Objectives

This module is an introduction to mathematical analysis, one of the most important and well-developed strands of pure mathematics with many elegant and beautiful theorems. The aim is to introduce students to the ideas of formal definitions and rigorous proofs (one of the fundamental features of modern mathematics, and something that is not familiar from A-level),

and to analyse the real power series and the complex power series. The module is designed for students who are taking a joint honours programme in Mathematics and another subject.

8. The Fundamental Theorem of Calculus.

9. Power series: radius of convergence, Taylor's formula, Taylor's series, power series as functions: differentiability, standard power series (exponential function, $\sin x$; $\cos x$; $\sinh x$; $\cosh x$)