

# MATH0032 An Introduction to Mathematica

<i>Year:</i>	2021–2022
<i>Code:</i>	MATH0032
<i>Level:</i>	6 (UG)
<i>Normal student group(s)</i>	UG: Year 3 Maths degrees
<i>Value:</i>	15 credits (= 7.5 ECTS credits)
<i>Term:</i>	1
<i>Assessment:</i>	4 or 5 computer tests
<i>Normal Pre-requisites:</i>	Some programming knowledge is desirable
<i>Lecturer:</i>	Dr JA Haight

## *Course Description and Objectives*

The Mathematica system is a high-level computing environment including computer algebra, graphics and programming. At the basic level, it can be used as a scientific calculator; at more advanced levels, it incorporates all the features of classical programming languages such as PASCAL, LISP, MIRANDA, C, etc. It is particularly suitable for mathematics, as it incorporates symbolic manipulation and automates many mathematical operations.

The aim of this course is to give all students a basic competence in its use, while encouraging more talented students to explore some of its advanced features.

## *Detailed Syllabus*

Basic Mathematica use. Different styles of programming, including functional programming and procedural programming. Applications to many areas including cryptography and geometry. These vary from year to year, this year I hope to include a more detailed discussion of the ideas behind cryptocurrencies.