

## School of Mathematics

**Course 123 - Mathematical Methods course for JF Natural Sciences.** 2002-2003  
(JF Natural Sciences)

**Lecturer:** A. Dougall

**Requirements/prerequisites:** None

**Duration:** 24 weeks

**Number of lectures per week:** 2 + 1 examples class

**Assessment:** See below

**End-of-year Examination:** See below

### Michaelmas term

Simultaneous equations, binomial expansions, polynomials, functions, rational functions, partial fractions, limits, differentiation.

### Hilary Term

Applications of differentiation (maxima and minima, linear approximation, Newton's method), indefinite and definite integrals, logarithmic and exponential functions, applications of integration to areas, volumes, arc lengths.

### Trinity Term

Differential equations (first order, linear with constant coefficients, systems of first order equations), numerical methods, matrices and determinants, curve fitting.

Assessment:

### **Grading:**

1. There will be a multiple-choice examination at the end of each of the aforementioned terms. Each of these exams will count 10% of your final mark for these two terms. The final examination will count 80% of your final mark for these two terms.
2. Science students will attend all three terms of this course. There will be a multiple-choice examination at the end of each term. Each of these three exams will count 10% of your final mark.

There will be a computer project during Hilary term that will count 10% of your final mark. So this is how the final mark for Course 123 is calculated:

Michaelmas exam	10%
Hilary exam	10%
Trinity exam	10%
Computer project	10%
Final exam	60%