### **School of Mathematics**

## Course 121 - Introduction to Analysis

(JF Mathematics, JF Theoretical Physics, JF Two-Subject Moderatorship (for Mathematics + Economics), SF Two-Subject Moderatorship)

Lecturer: Dr. D. R. Wilkins

 ${\bf Requirements/prerequisites:} \ {\rm Some \ mathematical \ intuition}$ 

Duration: Full year

## Number of lectures per week: 3

**Assessment:** A 2-hour examination in December will count for 30%. The end of year examination will count for 70% of the final grade, and will be set on the work of Hilary and Trinity Terms only. The supplemental examination in September (for those required to take it) will however be set on the work of the entire course, and will count for 100%.

# End-of-year Examination: A 3-hour paper.

### **Description:**

The following topics will be covered among others:-

- 1. numbers and sets; the Least Upper Bound Axiom;
- 2. convergence of sequences;
- 3. limits and continuity;
- 4. differentiation;
- 5. integration;
- 6. analysis in the complex plane;
- 7. infinite series;
- 8. open and closed sets.

### Textbooks

No text book will be followed slavishly.

For those who wish to see a text book the following may appeal (this is a highly personal matter).

- 1. W. Rudin Principles of Mathematical Analysis.
- 2. D.G. Bell An Introduction to Real Analysis.
- 3. M. Spivak Calculus.

#### 2003-04