School of Mathematics

Course 1S1 — Mathematics for Science students 2002-03

(JF Mathematics as a whole subject within the Natural Science Moderatorships. JF Human Genetics. JF Computational Physics and Chemistry. JF Medicinal Chemistry. JF Physics & Chemistry of Advanced Materials.)

Lecturer: Dr. J.M.Drummond

Requirements/prerequisites: None

Duration: 24 weeks

Number of lectures per week: 2 lectures per week in Michaelmas Term, 2.5 in Hilary and Trinity Terms, plus a tutorial every third week.

Assessment: Work during the year counts 0% towards the final result.

End-of-year Examination: Three hour exam. Result is combined with results of 1S2/4 and 1S3.

Description:

- Differentiation of functions of one variable.

  Anton (Calculus): Chapters 2-3. Chapter 1, sections 1.1, 1.2, 1.4 assumed known.

- Antiderivatives and integration.

  Anton (Calculus): 7.1–7.5, 7.8.

- Trigonometric and hyperbolic functions, and the corresponding inverse functions; logarithmic function, exponential function.

  Anton (Calculus): 3.4 and Chapter 4. Also part of 7.6.

- Introduction to partial derivatives.

  Anton (Calculus): Part of 15.3

- Polynomials, sequences and series, including simple convergence tests.

  Anton (Calculus): 11.1–11.6, 11.8.

- Complex numbers.

Essential Reference

1. Howard Anton, Calculus: a new horizon (6th edition), Wiley, 1998.

March 24, 2003