School of Mathematics

Course 1S1 — Mathematics for Science students

2005-06 (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. S. A. Cherkis

Requirements/prerequisites: None

Duration: 24 weeks

Number of lectures per week: 2 lectures per week plus a tutorial every other week.

Assessment: Work during the year counts 10% towards the final result.

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

Description:

- Functions Anton (Calculus): Chapters 1 Sections 1.1, 1.3-1.6
- Limits and Continuity Anton (Calculus): Chapter 2
- Differentiation of functions of one variable. Anton (Calculus): Chapter 3.
- Antiderivatives and integration. Anton (Calculus): Chapter 5, Chapter 6 Sections 6.5-6.8, and Chapter 8 Sections 8.1-8.4.
- Trigonometric and hyperbolic functions, and the corresponding inverse functions; logarithmic function, exponential function. Anton (Calculus): Chapter 7.
- Modeling with Differential Equations Anton (Calculus): Chapter 9
- Polynomials, sequences and series, including simple convergence tests. Anton (Calculus): Chapter 10.
- Introduction to partial derivatives. Anton (Calculus): Chapter 14
- Complex numbers.

See http://www.maths.tcd.ie/~cherkis/1S1/ for further information. Essential Reference

1. Howard Anton, Irl Bivens, and Stephen Davis, Calculus, Eighth Edition, Wiley, 2005; ISBN 0471 728608.

January 30, 2006