

## School of Mathematics

Course **2S2 Mathematics for Science Students** <http://www.maths.tcd.ie/~saram/2S2/> 2005-06

( SF Students of Mathematics as a whole subject within the Natural Science Moderatorships )

**Lecturer:** Dr. S. McMurry

**Requirements/prerequisites:** none (except 1S)

**Duration:** 24 weeks

**Number of lectures per week:** 2.5, including tutorials

**Assessment:** Corrected exercises contribute 10% of the final mark.

**End-of-year Examination:** A three hour final examination held in June covers the entire course. A 3 hour supplemental examination also covers the entire course.

### Description:

- Fourier Analysis  
Kreysig: Chapter 10 (Fourier Series and Fourier Transforms)
- Ordinary Differential Equations with Applications, Special Functions, Introduction to Partial Differential Equations  
Kreysig: from Chapters 1-4 (excluding parts already covered in 1S2); Chapter 11, 11.1–11.3.
- Linear Algebra with Applications  
Anton & Rorres: Review of Chapter 1 (systems of Linear Equations and Matrices); Chapter 4 (Euclidean vector spaces); Chapter 5 (General vector spaces — simple treatment) Chapter 7 (Eigenvalues and eigenvectors).

### Textbooks:

#### *Essential References*

1. Erwin Kreyszig, Advanced Engineering Mathematics, (7th edition) Wiley, 1993.
2. Howard Anton and Chris Rorres, Elementary Linear Algebra applications version, (7th edition) Wiley 1994. **OR** Howard Anton, Elementary Linear Algebra, (7th edition) Wiley 1994.
3. Howard Anton, Calculus: a new horizon (6th edition), Wiley, 1998.

#### *Recommended references*

1. S. Lipschutz, Linear Algebra (Schaum's Outline Series).
2. S. Wolfram, Mathematica a system for doing mathematics by computer, Addison-Wesley (3rd edition) 1996, published by Wolfram Media and Cambridge University Press.