School of Mathematics

Course 2S1 — Mathematics for Science Students 1999-2000
(SF Mathematics as a whole subject within the Natural Science Moderatorships)

Lecturer: Dr. Ralph Kenna

Requirements/prerequisites: Course 1S

Duration: 24 weeks

Number of lectures per week: 3

Assessment:

End-of-year Examination: One 3-hour annual examination

Description:

- Functions of several variables. Vector calculus. Differential operator "nabla" and its properties.
  Anton (Calculus): Chapter 15.
- Probability and Statistics
  Kreysig: from Chapter 22-23 (excluding topics covered in 1S).
- Multiple integrals, change of variables, Jacobians. Line, surface and volume integrals. Gauss's theorem and Stokes' theorem.
  Anton (Calculus): Chapters 16–17.

Textbooks:
Essential References

1. Howard Anton, Calculus: a new horizon (6th edition), Wiley, 1998.
2. Erwin Kreyszig, Advanced Engineering Mathematics, (7th edition) Wiley, 1993.

Recommended references

1. S. Wolfram, Mathematica a system for doing mathematics by computer, Addison-Wesley (3rd edition) 1996, published by Wolfram Media and Cambridge University Press.
2. G. B. Thomas & R.L. Finney, Calculus and Analytic Geometry (9th edition), Addison Wesley, 1996.

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