

MTH 3D13: Functional Analysis

This is a 20 UCU course comprising 33 lectures. There will be assessed homework and course tests for 20% of the total mark and an exam for 80% of the total mark. My office hours for the course are 11-12 on a Wednesday morning.

The course will give a broad introduction to how functional analysis is used to allow a great deal of mathematics to be subsumed in one clean framework: that of operators acting on spaces of functions.

There are printed lecture notes on the web at

www.mth.uea.ac.uk/~h720/sheets/functionalanalysis/

You do not need to buy a book for this course, but the following may be useful for background reading. If you do buy something, the starred books are recommended

[1] *Functional Analysis*, W. Rudin, McGraw--Hill (1973). This book is thorough, sophisticated and demanding.

[2] *Functional Analysis*, F. Riesz and B. Sz.-Nagy, Dover (1990). This is a classic text, also much more sophisticated than the course.

[3]* *Foundations of Modern Analysis*, A. Friedman, Dover (1982). Cheap and cheerful, includes a useful few sections on background.

[4]* *Essential Results of Functional Analysis*, R.J. Zimmer, University of Chicago Press (1990). Lots of good problems and a useful chapter on background.

[5]* *Functional Analysis in Modern Applied Mathematics*, R.F. Curtain and A.J. Pritchard, Academic Press (1977). This book is closest to the course.

MTH 4D13: Functional Analysis with advanced topics

This course will comprise 3D13 with an additional assessed seminar on a topic to be agreed with the lecturer. There will be a separate exam paper for this course.

TBW/3D13/2003