

# London Taught Course on Spectral Theory

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Weeks 1 and 2  
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Most of the first lecture discussed general spectral properties of bounded linear operators on Banach and Hilbert spaces. Complete statements and proofs of the theorems presented can be found in most introductory texts on functional analysis and operator theory. The material covered in lecture 1 is also summarized in Sections 1.1 and 1.2 of LOTS, which is ‘Linear Operators and Their Spectra’. A legal copy of this may be found online at

[http://www.mth.kcl.ac.uk/staff/eb\\_davies/LOTS.html](http://www.mth.kcl.ac.uk/staff/eb_davies/LOTS.html)

If you download some of this, could you please also ask your library to order a copy.

The other book, on which much of the course is based, is STDO, which is ‘Spectral Theory and Differential Operators’, which is available in paperback from Amazon (for example) for about 28 pounds. A list of misprints, including the correction of a serious error in the proof of Theorem 1.2.10, may be downloaded from

[http://www.mth.kcl.ac.uk/staff/eb\\_davies/STDO.html](http://www.mth.kcl.ac.uk/staff/eb_davies/STDO.html)

Lecture 2 contained material from STDO sections 1.1, 1.2 and 2.3. Note Lemma 1.2.2, which is quite useful for ‘exactly soluble’ operators. I also presented, partly in Lecture 1 and partly in Lecture 2, a simplified version of section 1.3 in which the Borel set  $E \subseteq \mathbf{R}^N$  was replaced by the set of natural numbers  $\mathbf{N}$  with the counting measure. You should try to do some of the problems at the ends of the chapters, because some of them might be asked in the end of course test.