Suggested Lecture Schedule for B4.1 Functional Analysis 1:

W2:
Banach spaces, Videos
- 0 Practical information
- 1.1 Banach Spaces
- 1.2 Examples of normed spaces
- 1.3 completeness

W3:
Bounded linear operators, Videos
- 2.1 Bounded linear Operators
- 2.2-1 Examples of bounded linear operators
- 2.2-2 Examples(part 2) and 2.3 Completeness of L(X,Y)
- 2.4 Composition and Neumann series

W4:
Finite dimensional normed spaces and beginning of the chapter on density. Videos:

- 3.1 Basic properties of finite dimensional normed spaces
- 3.2 Heine Borel property equivalent to finite dimensionality
- 4.1 Extension of operators from dense subspaces

W5:
Theorem of Stone Weierstrass and dense subspaces of Lp
- 4.2-1 sublattice form of Theorem of Stone Weierstrass
- 4.2-2 Stone Weierstrass subalgebra version
- 4.3 Approximation of Lp functions

W6:
Separability and Theorem of Hahn Banach
- 5. Separability
- 6.1-1 Hahn-Banach for R vector spaces: Statement of results
- 6.1-2 Proof of Hahn-Banach (R version)
- 6.2 C version of Hahn-Banach and 6.3 Applications of HB1

W7:
Last part of chapter on Hahn-Banach and dual spaces
- 6.4 Geometric applications and 6.5 further applications of HB
- 7.1 and 7.2 on dual spaces
- 7.3 Second dual and completion
- 7.4 Dual operators

W8:
Spectral theory
- 8.1 Invertible operators
- 8.2-1 Basic properties of spectral theory
- 8.2-2 Spectral theory part 2
- Summary of the course