

科目：泛函分析(**Functional Analysis**)

參考書：Conway, J. : A Course in Functional Analysis, Springer-Verlag, New York,
1990, 2nd ed. (Chapters 1-8.2)

Topics :

1. Hahn-Banach extension theorem.
2. Open mapping theorem.
3. Closed graph theorem.
4. Uniformly boundedness principle.
5. Separation theorem.
6. Dualities.
7. Banach-Alaoglu theorem.
8. Riesz representation theorem for bounded linear functionals on Hilbert spaces, L^p space ($1 \leq p < \infty$) and $C_0(X)$.
9. Bipolar theorem.
10. Basic concept of Banach spaces, Hilbert spaces, Banach algebras, C^* -algebras, and their classical machinaries including
 - (a) bases, weak and weak* topologies.
 - (b) Gelfand representation.
 - (c) Functional calculus (with analytic or continuous functions)
 - (d) Compact operators and the spectral theory.