

〈分析〉資格考範圍

Measurable sets, Measurable functions,
Measures and signed measures,
Basic properties of Borel measurable functions,
Basic properties of integrations,
Monotone convergence theorem and its generalized theorem,
Fatou's lemma,
Dominated convergence theorem,
Relation between Riemann integral and Lebesgue integral,
Absolute continuity of measures,
Radon-Nykodym theorem,
Lebesgue decomposition,
Lebesgue's differentiation theorem,
Absolute continuity of real-valued functions,
Relation between absolutely continuity of measures and functions,
Functions of bounded variation,
Lp-spaces,
Riesz representation theorem,
Convergence (almost everywhere, almost uniformly, in measure, in mean) of functions,
Egoroff's theorem,
Comparison of various convergence of functions,
Product of measures, Fubini's theorem,
Weierstrass approximation theorem,
Approximation of the identity,
Banach contraction theorem,
Elements of Hilbert space,
Best approximation theorem.

參考書目：

1. **Real Analysis**, 作者：H. L. Royden
2. **Real & Complex Analysis**, 作者：W. Rudin
3. **Measure and Integral**, 作者：R. L. Wheeden and A. Zygmund