Syllabus for CSI/INFT 876
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Linear Spaces
- Norms and inner products
- Holder's inequality
- Minkowski's inequality
- Normed linear spaces
- Cauchy sequences and complete spaces
- Banach spaces
- Reitz representation theorem
- Hilbert spaces
- Orthonormal bases
- Generalized Fourier expansions

Lebesgue Measure and Integration
- σ-fields
- Lebesgue outer measures
- Lebesgue measurability of sets
- Borel sets
- Measurable functions
- Lebesgue's Theorem
- Egoroff's Theorem
- Lebesgue Integration
- Bounded convergence theorem
- Fatou's lemma
- Monotone convergence theorem
- Dominated convergence theorem
- Absolute continuity