Math 6710

PROBABILITY THEORY

Instructor: E. B. Dynkin

Probability spaces.

Extension theorems.

Measurable mappings- Random variables.

$\pi - \lambda$ and the Multiplicative systems theorems.

Review of the Lebesgue theory, Fubini's and the Radon-Nikodym theorems.

Conditioning, Independence, Kolmogorov's 0-1 law, The Borel-Cantelly lemma, Kolmogorov's inequality, Series with independent terms.

Strong laws of large numbers, Weak laws of large numbers.

Laplace transform and generating functions, Branching processes.

Fourier transform-characteristic functions, Inversion formula, Central limit theorem (the Lindeberg-Feller conditions), Infinitely divisible distributions and the corresponding limit theorems, Stable distributions.

Poisson point process, White noise, Multivariant normal distribution.