

MATH 7365-1: Applied Stochastic Analysis**Time and Room**

1. Monday and Wednesday: 10:30–11:20, Lockett 111
2. Friday: 9:30–10:20, Lockett 135

Prerequisite

Math 3355 (Probability) or Math 7311 (Real Analysis I)

Textbook

H.-H. Kuo: Introduction to Stochastic Integration, Universitext, Springer, 2006

Reference

1. T. Björk: Arbitrage Theory in Continuous Time, third edition, Oxford University Press, 2009
2. H.-H. Kuo: Gaussian Measures in Banach Spaces. Lecture Notes in Math, vol. 463, Springer, 1975 (Reproduced by Amazon, 2006)

Coverage

In this course we will study the following topics in applied stochastic analysis:

1. Stochastic differential equations.
2. Constructions of diffusion processes.
3. Arbitrage pricing and hedging in finance.
4. Infinite dimensional analysis
5. A new theory of stochastic integration.

Grading

The grade will be determined by homework (40%), presentation (20%), and the final exam (40%) with the following tentative scale by using the new university grading system:

$96 \leq A^+ \leq 100$	$92 \leq A \leq 95$	$88 \leq A^- \leq 91$
$84 \leq B^+ \leq 87$	$80 \leq B \leq 83$	$76 \leq B^- \leq 79$
$73 \leq C^+ \leq 75$	$70 \leq C \leq 72$	$67 \leq C^- \leq 69$
$64 \leq D^+ \leq 66$	$61 \leq D \leq 63$	$58 \leq D^- \leq 60$
$F \leq 57$		

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