# NPTEL Syllabus

**NOC: Probability and Stochastics for finance - Video course**

## COURSE OUTLINE

This course provides the minimum mathematical requirements to study mathematical finance or more precisely the pricing of financial derivatives.

## COURSE DETAIL

<table>
<thead>
<tr>
<th>Week .No</th>
<th>Topic</th>
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| 1        | Basic Probability  
Interesting problems in probability  
Random variables, distribution functions and independence  
Chebyshev inequality, Borel-Cantelli lemmas and related issues  
Law of Large Numbers and Central Limit Theorem |
| 2        | Conditional Expectation  
Martingales  
Brownian Motion |
| 3        | Deterministic vs random differential equation  
Stochastic Integrals  
Ito Calculus |
| 4        | Stochastic Differential Equations: Definitions and Examples  
Properties of the solution of stochastic differential equations |