Maths 190
Topics be covered for the week of 13-17 February 2017

For this week, we aim to cover the following theories/concepts:

1. Continuation of Binomial Pricing of options (for both European and American-style derivatives)
   (a) Pricing of European options by replication and no-arbitrage principle

   (b) Risk-neutral valuation

   (c) American-option valuation

2. Examples of options and futures/forwards on commodities (oil, metals, agricultural); energy derivatives; and financial contracts on weather-related underlying variables.

3. Elements of discrete-time stochastic processes These would include the discussion of:
   (a) probability space
   (b) random or stochastic process
   (c) probability measure
   (d) filtration
   (e) general contingent claims
   (f) conditional operator/conditional expectation
   (g) previsible process
   (h) martingales
   (i) law of iterated expectations (or tower law)

4. Generalisation of the Cox-Ross-Rubinstein (CRR) model to an $n-$period framework