



## Analysis Seminar

**Title:** Itô's Formula for Mundane Functions

**Speaker:** Andrew Smith

**Date:** Tue 25th February 2020 at 4:00PM

**Location:** Seminar Room SCN 1.25

**Abstract:** In the 1830's, Bernard Bolzano devised a class of fractal functions: continuous but of infinite variation. Some of these functions look plausibly like the paths of asset prices or stock market indices, viewed as functions of time.

Andrew Smith uses Riemann sums to define integrals with respect to Bolzano functions. We interpret these integrals in the context of continuous-time financial trading.

Whilst this analysis has little practical application for actual trading, Bolzano functions can serve as useful classroom examples because key stochastic results (such as Itô's Lemma) emerge from deterministic calculations without requiring the introduction of probabilities.