**Quantitative Techniques**

**MATH2001 / DIT / School of Accounting and Finance**

**Module Content**

***Basic Probability:*** Mutually exclusive events, independent events, conditional probability, the additive and multiplicative laws of probability.

***Probability Distributions:*** Discrete and continuous distributions. The mean, variance and standard deviation of a probability distribution. The binomial, Poisson and normal distributions.

***Sampling:*** Methods of sampling and sampling design. The central limit theorem, confidence intervals and their application to sampling.

***Hypothesis Testing:*** Null and alternative hypotheses, type I and type II errors, levels of significance, one and two tail tests. Tests for population parameters and a difference in population parameters.

***Decision Analysis:*** Payoff tables, value of perfect information, decision rules.

***Portfolio Analysis:*** Risk and return of securities. Covariance and correlation between securities. Detailed analysis of a two-stock portfolio.

***Stock control:*** Economic Order Quantity, quantity discounts, gradual replenishment.

***Project Evaluation:*** Drawing networks, earliest start time & latest start time, cost scheduling and resource scheduling, PERT

***Chi-Square distribution:*** Its application to contingency tables, tests for independence and goodness-of-fit tests.

***Book:*** *Quantitative Techniques T. Lucey*