1 Lecturer: Dr. Shelton Peiris (Carslaw Room 819)

2 Objectives:

Establish some advanced methods of modelling and analysing of time series data. A particular attention is given to the theoretical development of various methods related to the following advanced topics:

3 Course Outline:

(i) Review of Linear Time Series Models and their Properties
(ii) Seasonal ARIMA Models
(iii) Multivariate Time Series and ARIMA Models
(iv) State-space Models and Kalman Filtering in Time Series
(v) Analysis and Applications of Long Memory Time Series
(vi) Analysis of Financial Time Series (ARCH, GARCH and ACD Models)

4 Assumed Knowledge: STAT3903 or Equivalent

5 Method of Teaching and Learning:

Lectures: 2 lectures a week

Assessments:
4 Assignments - 20%
(including 1 Technical Report*)
June Examination - 80%

*Note: This report must include the analysis of a real time series (data set) using standard time series techniques and Splus or SAS.

6 References:

(a) Time Series: Theory and Methods, BROCKWELL, P.J. & DAVIS, R.A.

(b) Time Series Analysis: Forecasting and Control, BOX, G.E.P. & JENKINS, G.M.
(Holden-Day - 1976).


(e) Modelling Financial Time Series with SPlus, Zivot, E. and Wang, J.