STAT 443, Time Series and Forecasting
2019/2020, Term 2
Instructor: Dr. Bruce Dunham

Time and Place: Tuesday/Thursday 12:30-2:00 pm, West Mall Swing Space room 222

Description: The course aims to provide learners with a toolkit for the understanding and application of a range of key methods in the field of time series. Fundamental ideas in both the time and frequency domain analysis of time series will be described. On completing the course, students should be able to demonstrate an understanding of the techniques and applications of well-known ideas in time series such as autocorrelation, stochastic models (including the ARIMA family), popular forecasting methods, and spectral analysis for univariate time series.

Prerequisites: One of MATH 302, MATH 318, STAT 302, and one of STAT 200, STAT 241/251, STAT 300, BIOL 300, COMM 291, ECON 325, ECON 327, FRST 231, POLI 380, PSYC 218, PSYC 278, PSYC 366.

Corequisite: STAT 305. Please note that the co-requisite will be strictly enforced.

Textbook/course material: Chatfield, C. (2004); *The Analysis of Time Series; An Introduction (6th ed.).* Chapman & Hall/CRC (the text is optional – older editions and/or electronic editions available with the UBC library)

Assessment:
- Written assignments: 14%
- On-line WeBWorK homework: 10%
- Group project: 6%
- Labs: 5%
- In-class work (responses to clicker questions): 5%
- Mid-term: 20%
- Final exam: 40%

Missed final exam policy: Students who miss the final exam must report to their Faculty advising office within 72 hours of the missed exam, and must supply supporting documentation. Only your Faculty Advising office can grant deferred standing in a course. You must also notify your instructor prior to (if possible) or immediately after the exam. Your instructor will let you know when you are expected to write your deferred exam. Deferred exams will ONLY be provided to students who have applied for and received deferred standing from their Faculty.

Tentative course topics:

Chapter 1: Exploratory techniques in time series analysis

Chapter 2: Stochastic models for time series

Chapter 3: Estimation and model fitting for time series

Chapter 4: Prediction for time series

Chapter 5: An introduction to the frequency domain

Chapter 6: Inference in the frequency domain

Chapter 7: Bivariate Series