

FALL 2017 - STAT 685 G100

**APPLIED TIME SERIES ANALYSIS (3)***Class Number: 3559 Delivery Method: In Person***COURSE TIMES + LOCATION:**

Mo 5:30 PM – 6:20 PM  
 AQ 3005, Burnaby

Th 4:30 PM – 6:20 PM  
 RCB 8100, Burnaby

**EXAM TIMES + LOCATION:**

Dec 7, 2017  
 7:00 PM – 10:00 PM  
 AQ 3182, Burnaby

**INSTRUCTOR:**

Richard Lockhart  
 lockhart@sfu.ca  
 1 778 782-3264  
 Office: SC-K10561

**PREREQUISITES:**

STAT 302 or STAT 305 or STAT 650 or permission of instructor. Open only to graduate students in departments other than Statistics & Actuarial Science.

## Description

**CALENDAR DESCRIPTION:**

Introduction to linear time series analysis including moving average, autoregressive and ARIMA models, estimation, data analysis, forecasting errors and confidence intervals, conditional and unconditional models, and seasonal models.

**COURSE DETAILS:****Outline:**

1. Autocorrelation, seasonality, and trends in time series and their impacts on standard statistical inference techniques.
2. Autoregressive models: definition, model formulation, and data analysis
3. Moving average models: definition model formulation, and data analysis
4. ARIMA models: definition, model formulation, and data analysis
5. Introduction to forecasting with linear time series models
6. Introduction to nonparametric fitting of trends and cycles to time series data

## Grading

Assignments	20%
Midterm	30%
Final	50%

**NOTES:**

***Above grading is subject to change.***

## Materials

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### REQUIRED READING:

#### Required Textbook:

*Time Series Analysis with Applications in R (2nd ed.)* by Jonathan D. Cryer and Kung-Sik Chan. Publisher: Springer

Book is available **on-line** for free through the SFU Library

E-Book ISBN: 978-0-387-75959-3

Hardcover ISBN: 978-0-387-75958-6

Softcover ISBN: 978-1-4419-2613-5

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### GRADUATE STUDIES NOTES:

Important dates and deadlines for graduate students are found here: [http://www.sfu.ca/dean-gradstudies/current/important\\_dates/guidelines.html](http://www.sfu.ca/dean-gradstudies/current/important_dates/guidelines.html). The deadline to drop a course with a 100% refund is the end of week 2. The deadline to drop with no notation on your transcript is the end of week 3.

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### REGISTRAR NOTES:

SFU's Academic Integrity web site <http://students.sfu.ca/academicintegrity.html> is filled with information on what is meant by academic dishonesty, where you can find resources to help with your studies and the consequences of cheating. Check out the site for more information and videos that help explain the issues in plain English.

Each student is responsible for his or her conduct as it affects the University community. Academic dishonesty, in whatever form, is ultimately destructive of the values of the University. Furthermore, it is unfair and discouraging to the majority of students who pursue their studies honestly. Scholarly integrity is required of all members of the University. <http://www.sfu.ca/policies/gazette/student/s10-01.html>

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