

FALL 2018 - STAT 652 G100

**STATISTICAL LEARNING AND PREDICTION (3)**

Class Number: 4651 Delivery Method: In Person

**COURSE TIMES + LOCATION:**Mo 9:30 AM – 10:20 AM  
SSCK 9500, BurnabyWe, Fr 9:30 AM – 10:20 AM  
SSCK 9500, Burnaby**EXAM TIMES + LOCATION:**Dec 12, 2018  
12:00 PM – 3:00 PM  
SWH 10081, Burnaby**INSTRUCTOR:**Brad McNeney  
mcneney@sfu.ca  
1 778 782-4815  
Office: SC-K10565**PREREQUISITES:**

STAT 302 or STAT 305 or STAT 350 or BUEC 333 or equivalent.

## Description

**CALENDAR DESCRIPTION:**

An introduction to the essential modern supervised and unsupervised statistical learning methods. Topics include review of linear regression, classification, statistical error measurement, flexible regression and classification methods, clustering and dimension reduction. Open only to graduate students in departments other than Statistics and ActSci. Students with credit for STAT 452 may not take this course for further credit.

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

1. Statistical Learning and Prediction
2. Measuring prediction error
3. Linear regression essentials and extensions
4. Classification: Predicting categorical data
5. Variable selection in linear regression
6. Non-linear regression methods
7. Trees and ensembles
8. Additional modern prediction methods
9. Unsupervised learning: clustering and dimension reduction

## Grading

Assignments	30%
Midterm	30%
Final Project	40%

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

## Materials

**RECOMMENDED READING:*****An Introduction to Statistical Learning with Applications in R.*** Gareth James, Daniela Witten, Trevor Hastie and Robert Tibshirani (2013). New York: Springer.Available on-line through the [SFU Library](#)  
ISBN-13: 978-1461471370.

**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.

---

**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>

ACADEMIC INTEGRITY: YOUR WORK, YOUR SUCCESS