FALL 2017 - STAT 852 G100

MODERN METHODS IN APPLIED STATISTICS (4)

Class Number: 3581   Delivery Method: In Person

COURSE TIMES + LOCATION:

Mo, We 2:30 PM – 4:20 PM

WMC 2532, Burnaby

INSTRUCTOR:

Thomas Loughin

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1 778 782-8037

Office: SC-K10549

PREREQUISITES:

STAT 830 and STAT 853 or permission of instructor.

Description

CALENDAR DESCRIPTION:

An advanced treatment of modern methods of multivariate statistics and non-parametric regression. Topics may include: (1) dimension reduction techniques such as principal component analysis, multidimensional scaling and related extensions; (2) classification and clustering methods; (3) modern regression techniques such as generalized additive models, Gaussian process regression and splines.

COURSE DETAILS:

Course Outline:

1. Problems with high dimensions,
2. Variable selection: stepwise, shrinkage, LASSO, and penalized likelihood
3. Modern regression techniques: Splines, trees, generalized additive models
4. Ensemble learning methods
5. Classification and clustering methods
6. Dimension reduction techniques: Principal components and multidimensional scaling

Grading

Assignments	50%
Projects	50%

NOTES:

Above grading is subject to change.

Final Presentations: December 11, 2017 in K9509.

Materials

REQUIRED READING:

The Elements of Statistical Learning: Data Mining, Inference, and Prediction (2nd ed.) by Trevor Hastie, Robert Tibshirani, Jerome Friedman. Publisher: Springer

Book is available on-line through the SFU Library

eBook: ISBN 978-0-387-84858-7
Hardcover: ISBN 978-0-387-84857-0

RECOMMENDED READING:

Modern Multivariate Statistical Analysis: Regression, Classification, and Manifold Learning. by Alan J. Izenman. Publisher: Springer

Book is available on-line through the SFU Library

eBook: ISBN 978-0-387-78189-1
Hardcover: ISBN 978-0-387-78188-4

GRADUATE STUDIES NOTES:

Important dates and deadlines for graduate students are found here: 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

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