FALL 2017 - STAT 830 G100

STATISTICAL THEORY I (4)

Class Number: 3579   Delivery Method: In Person

COURSE TIMES + LOCATION:

Tu, Th 11:30 AM – 1:20 PM
AQ 5008, Burnaby

INSTRUCTOR:

Brad McNeney
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1 778 782-4815
Office: SC-K10565

PREREQUISITES:

STAT 450 or permission of the instructor.

Description

CALENDAR DESCRIPTION:

The statistical theory that supports modern statistical methodologies. Distribution theory, methods for construction of tests, estimators, and confidence intervals with special attention to likelihood and Bayesian methods. Properties of the procedures including large sample theory will be considered. Consistency and asymptotic normality for maximum likelihood and related methods (e.g., estimating equations, quasi-likelihood), as well as hypothesis testing and p-values. Additional topics may include: nonparametric models, the bootstrap, causal inference, and simulation. Students with credit for STAT 801 may not take this course for further credit.

COURSE DETAILS:

Course Outline:

This course covers the statistical theory that supports modern statistical methodologies. Distribution theory, methods for construction of tests, estimators, and confidence intervals with special attention to likelihood and Bayesian methods. Properties of the procedures including large sample theory will be considered. Consistency and asymptotic normality for maximum likelihood and related methods (e.g., estimating equations, quasi-likelihood) will be covered. I will start with inference and fill in background in probability as needed.   Our focus is chapters 6 through 11 of the text.

1. Probability: random variable, expectation, inequalities, and convergence
2. Inference: Parametric and nonparametric models, empirical distribution function, bootstrap, maximum likelihood and related methods, properties of MLEs and related methods, hypothesis testing and p-values, simulation, selected topics.

Grading

Assignments	50%
Midterm	20%
Final	30%

NOTES:

Above grading is subject to change.

Materials

REQUIRED READING:

Textbook:

All Of Statistics: A Concise Course in Statistical Inference by Larry Wasserman. Publisher: Springer.

eBook: ISBN 978-0-387-21736-9

Softcover: ISBN 978-1-4419-2322-6

Harcover: ISBN 978-0-387-40272-7

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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