

SPRING 2019 - STAT 843 G200

FUNCTIONAL DATA ANALYSIS (4)*Class Number: 8505 Delivery Method: In Person***COURSE TIMES + LOCATION:**

Mo 1:30 PM – 3:50 PM

WMC 3531, Burnaby

We 1:30 PM – 3:50 PM

WMC 3517, Burnaby

INSTRUCTOR:

Jiguo Cao

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1 778 782-7600

Office: SC-K10567

PREREQUISITES:

STAT 830 or permission of the instructor.

Description

CALENDAR DESCRIPTION:

An introduction to smoothing and modelling of functional data. Basis expansion methods, functional regression models and derivative estimation are covered.

COURSE DETAILS:

1. Basis expansions and data smoothing
2. Roughness penalty smoothing
3. Bias/variance tradeoff and the smoothing parameter
4. Functional principal components
5. Functional regression models
6. Derivative estimation
7. Principal differential analysis
8. Differential equation models

Grading

Assignments	30%
Project	70%

Materials

REQUIRED READING:

Ramsay, J. O. and B. W. Silverman (2005). *Functional Data Analysis* (Second ed.). New York: Springer

Book is Free online in the SFU Library

RECOMMENDED READING:

Applied Functional Data Analysis by James O. Ramsay & B.W. Silverman. Publisher: Springer. c2002

Functional Data Analysis with R and MATLAB by James O Ramsay & Giles Hooker & Spencer Graves. Publisher: Springer. c2009

Nonparametric Functional Data Analysis Theory and Practice by Frédéric Ferraty & Philippe Vieu. Publisher: Springer. c2006

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://www.sfu.ca/students/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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