

SPRING 2019 - STAT 851 G100

**GENERALIZED LINEAR MODELS AND DISCRETE DATA ANALYSIS (4)***Class Number: 3457    Delivery Method: In Person***COURSE TIMES + LOCATION:**

Tu, Th 9:30 AM – 11:20 AM

AQ 2122, Burnaby

**INSTRUCTOR:**

Rachel Altman

rachelm@sfu.ca

1 778 782-3288

Office: SC-K10551

**PREREQUISITES:**

STAT 830 and STAT 850 or permission of instructor.

## Description

**CALENDAR DESCRIPTION:**

The theory and application of statistical methodology for analyzing non-normal responses. Special emphasis on contingency tables, logistic regression, and log-linear models. Other topics can include mixed-effects models and models for overdispersed data.

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

1. Analysis of contingency tables
2. Generalized linear models (GLMs)
  - a. The exponential family
  - b. Link functions
  - c. Relationship to linear models
  - d. Iterated reweighted least-squares estimation
3. Models for overdispersed data
  - a. Quasi-likelihood
  - b. Introduction to estimating functions
4. Models for multinomial data
  - a. Log-linear models
  - b. Ordinal responses

## Grading

Assignments	40%
Midterm	40%
Final Project	20%

**NOTES:**

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

## Materials

---

### RECOMMENDED READING:

**Categorical Data Analysis, 3rd ed.** Author: Alan Agresti. Publisher: Wiley  
ISBN: 978047046365

**Generalized Linear Models, 2nd ed.** Authors: McCullagh and Nelder. Publisher: CRC Press  
ISBN: 9780412317606

**An Introduction to Generalized Linear Models, 3rd ed.** Authors: Dobson and Barnett. Publisher: CRC Press  
ISBN: 9781584889502

---

### 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://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>

ACADEMIC INTEGRITY: YOUR WORK, YOUR SUCCESS