

FALL 2020 - STAT 605 G100

## BIostatistical Methods (3)

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**COURSE TIMES + LOCATION:**

Mo 12:30 PM - 2:20 PM  
REMOTE LEARNING, Burnaby

We 12:30 PM - 1:20 PM  
REMOTE LEARNING, Burnaby

**EXAM TIMES + LOCATION:**

Dec 11, 2020  
12:00 PM - 3:00 PM  
REMOTE LEARNING, Burnaby

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**INSTRUCTOR:**

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**PREREQUISITES:**

Any course in Statistics. Open only to students in departments other than Statistics and Actuarial Science.

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3. be familiar with data analysis methods commonly used in health sciences and understand the basic limitations of competing methods,
4. understand and be able to critique the analysis methods described in published health research papers,
5. be able to communicate effectively with statistical consultants.

### **Topics**

The scheduling of the following topics is approximate:

1. Review of introductory statistics from the pre-requisite course: Hypothesis testing estimation and confidence intervals for means and proportions.  
Review of basic concepts of probability with applications including diagnostic testing sensitivity and specificity, the relative risk and the odds ratio.
2. Contingency Tables: The Chi-square test,  $r \times c$  tables, multiple  $2 \times 2$  tables, Simpson's paradox, Mantel- Haenszel method.
3. Correlation and simple linear regression: Regression concepts, estimation and testing for regression coefficients, evaluation of the model.
4. Multiple linear regression: Inference for regression coefficients, confounding and interaction, indicator variables, model selection, prediction, model assumptions and checking
5. Logistic regression: Odds ratios, inference for regression coefficients, model assumptions, case-control studies.
6. Time permitting: Survival analysis including life tables, censoring Kaplan-Meier method, log-rank test.

Lecture: Synchronous

Midterm: Take home

Final exam: Take home

### Grading

Assignments	30%
Midterm	30%
Final Exam	40%

#### NOTES:

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

### Materials

#### MATERIALS + SUPPLIES:

Access to high-speed internet.

#### 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>

**A**

Teaching at SFU in fall 2020 will be conducted primarily through remote methods. There will be in-person course components in a few exceptional cases where this is fundamental to the educational goals of the course. Such course components will be clearly identified at registration, as will course components that will be "live" (synchronous) vs. at your own pace (asynchronous). Enrollment acknowledges that remote study may entail different modes of learning, interaction with your instructor, and ways of getting feedback on your work than may be the case for in-person classes. To ensure you can access all course materials, we recommend you have access to a computer with a microphone and camera, and the internet. In some cases your instructor may use Zoom or other means requiring a camera and microphone to invigilate exams. If proctoring software will be used, this will be confirmed in the first week of class.

Students with hidden or visible disabilities who believe they may need class or exam accommodations, including in the current context of remote learning, are encouraged to register with the [SFU Centre for Accessible Learning](#) ([caladmin@sfu.ca](mailto:caladmin@sfu.ca) or 778-782-3112).