

SPRING 2019 - STAT 854 G100

**BIOMETRICS: METHODS IN BIOMEDICAL STUDIES (4)**

Class Number: 3459 Delivery Method: In Person

**COURSE TIMES + LOCATION:**

Tu, Th 2:30 PM – 4:20 PM

AQ 5006, Burnaby

**INSTRUCTOR:**

Joan Hu

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Office: SC-K10555

**PREREQUISITES:**

STAT 450 or permission of the instructor.

## Description

**CALENDAR DESCRIPTION:**

Principles, methods and applications of basic statistical approaches in biomedical studies are presented. Topics include introduction to epidemiology; design of cohort and case-control studies; experimental versus observational data, and cross-sectional versus longitudinal studies; issues of confounding, causation and missing data; design of clinical trials; data monitoring and interim analysis.

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

1. History of epidemiology, and commonly-used concepts and terminology in biomedical studies
2. Measures of disease occurrence and association.
3. Design of medical studies: cohort and case-control studies; controlled clinical experiments.
4. Models and analysis in prospective and retrospective studies.
5. Confounding, causal diagrams, and missing data.
6. Clinical trial design principles: bias control, random error control, randomization, blocking, masking
7. Types of clinical trials: phases of trial, translational, dose-finding, cross-over, safety and efficacy, and comparative trials.
8. Study monitoring: sequential methods.

## Grading

Assignments	40%
Projects	50%
Class Participation	10%

**NOTES:*****All grading is subject to change.***

## Materials

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### RECOMMENDED READING:

**Epidemiologic Methods: Studying the Occurrence of Illness, 2nd ed.** Authors: Noel S. Weiss and Thomas D. Koepsell. Publisher: Oxford University Press  
ISBN: 9780195314465

**Clinical Trials: A Methodologic Perspective, Second Edition.** Author: Steven Piantadosi. Publisher: Wiley  
ISBN: 9780471727811

**Fundamentals of Clinical Trials, 5th ed.** Authors: L.M. Friedman, C.D. Furberg, D. DeMets, D.M. Reboussin, C.B. Granger. Publisher: Springer  
ISBN: 9783319185385

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### 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.

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### 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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