COURSE TIMES + LOCATION:

Location: TBA

EXAM TIMES + LOCATION:

Feb 16, 2023
7:00 PM – 10:00 PM
AQ 3182, Burnaby

Apr 17, 2023
7:00 PM – 10:00 PM
EDB 7618, Burnaby

INSTRUCTOR:

Pulindu Ratnasekera
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PREREQUISITES:

Recommended: 30 units.

Description

CALENDAR DESCRIPTION:

Research methodology and associated statistical analysis techniques for students with training in the life sciences. Intended to be particularly accessible to students who are not specializing in Statistics. Students cannot obtain credit for STAT 201 if they already have credit for - or are taking concurrently - STAT 101, 203, 205, 285, or any upper division STAT course. Quantitative.

COURSE DETAILS:

Mode of Teaching:
Distance Education
This course will have some videos, all of which are asynchronous. There will be no live lectures.

This course may be applied to the Certi icate in Liberal Arts

Outline:

Aimed at a non mathematical audience, this course discusses procedures that are most commonly used in the summary of statistical surveys and in the interpretation of experimental data. This course covers Chapters 0-27 (excluding Chapters 13 and 23) of the textbook. Chapters 7, 11, 19, and 24 are section reviews (and thus are optional). Details of the other chapters are as follows:

1. Descriptive Statistics (Chapters 1, 2, and 4 of text) Basic graphical statistics (e.g. bar graphs, pie charts, histograms, time plots, scatterplots) and basic numerical statistics (e.g. mean, median, mode, quartiles, standard deviation, correlation) are discussed. Scales of measurement are distinguished (e.g. nominal, ordinal, ratio and interval).
2. Probability (Chapters 3 and 12 of text) The normal distribution is introduced along with probability rules.
3. Sampling (Chapter 8 of text) Various sampling designs such as simple random sampling are discussed. The implementation of sampling procedures is also presented.
4. Experiments and Observational Studies (Chapters 8 and 9 of text) The design of experiments is introduced with an emphasis on randomization, treatments, subjects, factors, pairing and controls. Comparisons are made with observational

studies.

5. Inference (Chapters 15, 16, 17, 18) Concepts related to the construction of con idence intervals (e.g. sampling distributions, con idence level, width, interpretation, the effect of sample size) are discussed. Also basic concepts related to the testing of hypotheses (e.g. hypotheses, p-values, statistical signi icance) are presented.
6. Estimation and Testing for One Sample Problems (Chapters 20 and 22 of text) Procedures for means and proportions are discussed with an emphasis on the use of statistical software and the interpretation of results.
7. Estimation and Testing for Two Sample Problems (Chapters 21 and 23 of text) Procedures for means and proportions are discussed with an emphasis on the use of statistical software and the interpretation of results.
8. One Way ANOVA (Chapter 27 of text) One way analysis of variance procedures are discussed with an emphasis on implementation using statistical software and the interpretation of results.
9. Chi-Square Tests (Chapters 6 and