

COURSE SYLLABUS



COURSE TITLE: STAT-219: Probability and Statistics 2

CLASS SECTION: 001

TERM: WINTER 2024

COURSE CREDITS: 3

DELIVERY METHOD(S):

Camosun College campuses are located on the traditional territories of the Lək̓ʷəŋən and W̱SÁNEĆ peoples. We acknowledge their welcome and graciousness to the students who seek knowledge here.

Learn more about Camosun's [Territorial Acknowledgement](#).

INSTRUCTOR DETAILS

NAME: Bree Wilton

EMAIL: wiltonb@camosun.bc.ca

OFFICE: E246

HOURS: Mon, Tues, Thurs, Fri 9:30-10:20 Wed 10:30 – 11:20

As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.

CALENDAR DESCRIPTION

Students will continue their exploration of the mathematical foundations of statistical inference by applying previously learned foundational techniques to a variety of real-world problems. Students will build modelling frameworks through the estimation and testing of hypotheses, analysis of variance, linear regression and correlation, and distribution-free methods. A laboratory component enables applied learning of theoretical techniques to relevant and current problems and data.

PREREQUISITE(S):

One of:

- C in MATH 100 and STAT 216
- C in MATH 108 and STAT 216
- C in STAT 218
- C in STAT 254

CO-REQUISITE(S):

Not applicable

EXCLUSION(S):

Equivalencies: MATH 219

COURSE LEARNING OUTCOMES / OBJECTIVES

Upon completion of this course a student will be able to:

- Derive and compute maximum likelihood estimates.
- Make inferences concerning a difference between population proportions.
- Make inferences concerning a population variance, or two population variances.
- Make inferences concerning more than two population means (analysis of variance) with a single factor or with two factors.
- Compute Type I error, Type II error, or the power of a hypothesis test.
- Perform correlation and regression analyses, and make inferences about parameters and predictions.
- Perform basic categorical data analysis.
- Perform basic non-parametric data analysis.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

a. Texts

Textbook: Probability and Statistics for Engineers and the Sciences by Devore, any edition 7th and up. The 9th edition is available in Lansdowne Bookstore and for purchase online.

b. Other

1. *STAT 219 R Lab tutorials*, available on D2L
2. Sharp EL-531 Scientific Calculator, which is the only calculator allowed for tests and the final exam.

COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

PLEASE SEE PACING SCHEDULE ON D2L FOR DAILY TOPICS, COURSE DELIVERABLES AND TEST DATES

Topic Sections

1. Review: Confidence Intervals and Tests of Hypotheses 7.1-7.3, 8.1-8.5, 9.1-9.3
2. Derive and compute maximum likelihood estimates 6.2
3. Error and Power supplementary notes
4. Confidence Intervals for the Variance 7.4 plus supplementary notes
5. Inference Based on Two Samples 9.4 – 9.5
6. The Analysis of Variance 10.1 - 10.3
7. Multifactor Analysis of Variance 11.1 - 11.2
8. Simple Linear Regression and Correlation 12.1 - 12.5
9. Analysis of Categorical Data 14.1 - 14.3
10. Distribution-Free Procedures 15.1 - 15.2, 15.4

Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advanced notice is required. Deadlines can be reviewed on the [CAL exams page](http://camosun.ca/services/accessible-learning/exams.html). <http://camosun.ca/services/accessible-learning/exams.html>

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Labs	10%
Assignments	14%
Tests	36%
Lab Final	10%
Final Exam	30%
	TOTAL
	100%

If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. Refer to the [Grade Review and Appeals](http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf) policy for more information. <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf>

COURSE GUIDELINES & EXPECTATIONS

R Labs: This course includes R lab sessions designed to familiarize students with the use of a computer as a tool for statistical analysis. *You will need to work through a lab tutorial in R in each lab.* A lab assignment will be assigned for each lab session. Understanding each lab is essential for succeeding the Lab Final Examination which will take place at the end of term.

Calculator policy: A Sharp EL-531 scientific calculator is required. This is the *only* calculator that will be allowed for tests and the final examination. This calculator is available at the Lansdowne Bookstore, and some other stores.

Homework: The homework for this course will include 1) Homework sheets (Assignments), 2) R lab assignments, and 3) Suggested exercises posted on D2L. *In order to get a full understanding of the course materials, which usually leads to a good grade, it is necessary to mindfully complete all three sets of homework. It is essential to review notes and do homework each week and to keep up consistently. **Cramming does not work for this course.***

Attendance

Showing up to class is the easiest and most important thing you can do to help succeed the course. Keeping up is an essential part of any statistics course as much of the material builds on itself. If you feel yourself falling behind at any point during the term, then please do not hesitate to come speak to me.

Missed Test Policy: Students are expected to make every reasonable effort to write the test at the scheduled time. **A missed test usually counts as a 0**, so if for any reason it appears that you may miss a test,

- **before the test**, talk with the instructor about missing the test, unless an unforeseen emergency makes this impossible, in which case leave a comprehensive message.
- assuming that you qualify for a missed test (for instance, medical or compassionate leave), the weight of the test will be moved to the final exam. There will not be any rewrites of tests.

Please inquire if you have any questions or concerns about your particular situation.

Desire2Learn (D2L)

This class has the assistance of D2L, an online course management system. All course related materials, including lab manuals and data sets, handouts, suggested practice problems, grades, and announcements will be available on D2L. It is your responsibility to subscribe to the *notifications on D2L* or check it regularly.

SCHOOL OR DEPARTMENTAL INFORMATION

Math Lab: Math lab E224 is staffed with math tutors available for free help. It is a great idea to do your homework there and get help whenever needed.

STUDENT RESPONSIBILITY

Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

SUPPORTS AND SERVICES FOR STUDENTS

Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit <http://camosun.ca/students/>.

Academic Advising	http://camosun.ca/advising
Accessible Learning	http://camosun.ca/accessible-learning
Counselling	http://camosun.ca/counselling
Career Services	http://camosun.ca/coop
Financial Aid and Awards	http://camosun.ca/financialaid
Help Centres (Math/English/Science)	http://camosun.ca/help-centres
Indigenous Student Support	http://camosun.ca/indigenous

International Student Support	http://camosun.ca/international/
Learning Skills	http://camosun.ca/learningskills
Library	http://camosun.ca/services/library/
Office of Student Support	http://camosun.ca/oss
Ombudsperson	http://camosun.ca/ombuds
Registration	http://camosun.ca/registration
Technology Support	http://camosun.ca/its
Writing Centre	http://camosun.ca/writing-centre

If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

Academic Accommodations for Students with Disabilities

The College is committed to providing appropriate and reasonable academic accommodations to students with disabilities (i.e. physical, depression, learning, etc). If you have a disability, the [Centre for Accessible Learning](#) (CAL) can help you document your needs, and where disability-related barriers to access in your courses exist, create an accommodation plan. By making a plan through CAL, you can ensure you have the appropriate academic accommodations you need without disclosing your diagnosis or condition to course instructors. Please visit the CAL website for contacts and to learn how to get started:

<http://camosun.ca/services/accessible-learning/>

Academic Integrity

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf> for policy regarding academic expectations and details for addressing and resolving matters of academic misconduct.

Academic Progress

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.1.pdf> for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

Course Withdrawals Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <http://camosun.ca/learn/fees/#deadlines>.

Grading Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf> for further details about grading.

Grade Review and Appeals

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf> for policy relating to requests for review and appeal of grades.

Mandatory Attendance for First Class Meeting of Each Course

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable reason in advance, you will be removed from the course and the space offered to the next waitlisted student. For more information, please see the “Attendance” section under “Registration Policies and Procedures” (<http://camosun.ca/learn/calendar/current/procedures.html>) and the Grading Policy at <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf>.

Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal. Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.8.pdf> to learn more about the process involved in a medical/compassionate withdrawal.

Sexual Violence and Misconduct

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun’s Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence or misconduct occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student’s right to choose what is right for them. For more information see Camosun’s Sexualized Violence and Misconduct Policy: <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.9.pdf> and camosun.ca/sexual-violence. To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-3703841

Student Misconduct (Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College’s Student Misconduct Policy at <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf> to understand the College’s expectations of academic integrity and student behavioural conduct.

Changes to this syllabus: Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.