



School of Arts & Science
Department of Mathematics and Statistics

STAT 218 – Introduction to Probability and Statistics 1
Fall 2017

COURSE OUTLINE

The Approved Course Description is available on the web at: <http://camosun.ca/learn/calendar/current/web/stat.html>

Examples from a variety of disciplines will introduce the mathematical foundations of statistical inference. Topics: descriptive statistics; elementary probability theory, random variables, discrete and continuous probability distributions, expectation, joint, marginal and conditional distributions; linear functions of random variables; sampling distribution; point and interval estimation; significance testing.

1. Instructor Information

(a)	Instructor:	Susan Chen
(b)	Location:	E260
(c)	Phone:	250-370-3497
(d)	Email:	chen@camosun.ca
(e)	Course Webpage	Desire2Learn: online.camosun.bc.ca
(f)	Office Hours:	MW 12:30 – 1:20PM, TuTh 9:30 – 10:20AM, F 10:30 – 11:20AM

2. Intended Learning Outcomes

At the end of the course students will be able to:

- a) Compute and interpret descriptive statistics.
- b) Compute and interpret probability and conditional probability.
- c) Compute probability, expectation and variance of a single discrete random variable, or a single continuous random variable. Perform calculations involving Binomial, Poisson, normal, or exponential probability distributions.
- d) Perform calculations involving joint probability distributions of two discrete random variables, or random samples.
- e) Derive and compute maximum likelihood estimates.
- f) Compute and interpret interval estimate for the population mean, population proportion, and determine sample size.
- g) Compute and interpret interval estimate for a difference of two means.
- h) Test hypotheses about a mean, a proportion, and the difference of two means.

3. Required Materials

- a) Textbook: Intro to Probability and Statistics Using R by GJ Kerns, FREE PDF download at <http://www2.uaem.mx/r-mirror/web/packages/IPSUR/vignettes/IPSUR.pdf>.
- b) Reference textbook: Probability and Statistics for Engineers and the Sciences by Devore, any edition.
- c) *STAT 218 R Lab Manual*, available on D2L.
- d) A Sharp EL-531 Scientific Calculator.

4. Course Content and Other Course Information

Topics
An Introduction to Probability and Statistics
An Introduction to R
Data Description
Probability
Discrete Distributions
Continuous Distributions
Multivariate Distributions
Sampling Distributions
Estimation
Hypothesis Testing
<i>Simple Linear Regression</i>
<i>One-Way Analysis of Variance</i>

R Labs: This course includes R lab sessions designed to familiarize students with the use of a statistical software to perform data analysis and the procedure of reporting data analysis results. *You will need the lab manual for each lab.* The required lab manual is available on D2L. A lab assignment follows each lab session. Lab assignments are due in the D2L Dropbox on Monday following each lab session. Late labs will not be accepted.

Math Lab: Math lab **E224** is staffed with instructional assistants available for **free face-to-face** help (no, they don't answer emails or phone calls). Lab hours are posted on the lab door and can be viewed at <http://camosun.ca/services/help-centres/math.html>.

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 other stores such as Staples and Walmart.

Homework: "*I hear and I forget. I see and I remember. I do and I understand.*" The homework for this course will include 1) Hard copy written assignments, 2) R lab assignments, and 3) Suggested exercises which will have answers 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 complete all three sets of homework. It is essential to do homework after every class and to keep up consistently. **Cramming does not work for this course.***

Practice Tests: There will be a practice test session before each test. Students are encouraged to ask questions and to work together with peers during these sessions. Solutions for these practice tests will be posted on D2L. You will benefit most from these practice tests if you come to these sessions with the notes reviewed, all homework problems completed, and a formula sheet made.

Attendance

Attendance is required. Showing up to classes is the easiest and most important thing you can do to help you succeed the course. **5% of the course is assigned to iClicker participation. Keeping up is an essential part of any statistics course because 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 to speak to me.

Desire2Learn (D2L)

This class has the assistance of D2L, an online course management system. All course related materials, such as slides, Lab materials, practice problem sets and their answers, grades, discussion forum and announcements will be available on D2L. It is your responsibility to subscribe to the notifications on D2L or check it regularly.

5. Basis of Student Assessment (Weighting)

Assignments /Labs	15%
Daily iClicker Questions	5%
3 Tests	35%
Cumulative Final Exam (3 hrs)	45%

Please refer to the **Course Calendar** for tentative test dates and assignments due dates.

All tests must be written during the scheduled times. In the event that you missed a test due to family emergency or illness, the weight of the test will be put on the final exam if the instructor is notified before the test. NO late assignments or labs will be accepted. Final examinations will be scheduled by the College and they will take place during December 11 - 19. You must be available to write the final examination at the scheduled time. Vacations or scheduled flights are not considered as emergencies.

6. Grading System

Percentage grades will be converted to letter grades as follows:

A+	[90, 100]	B+	[77, 80]	C+	[65, 70]	F	[0, 50)
A	[85, 90)	B	[73, 77)	C	[60, 65)		
A-	[80, 85)	B-	[70, 73)	D	[50, 60)		

7. Awards

Among other Mathematics awards, the Department of Mathematics and Statistics awards a Statistics Award (\$500) to an outstanding student who excels in both Stat 218 and 219 each year. More information can be found on this page: <http://camosun.ca/learn/subjects/mathematics/awards.html>

8. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services, or the College web site at camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services, and the College web site in the Policy Section.

9. Academic Integrity

The Department of Mathematics and Statistics prepared a handout named [Student Guidelines for Academic Integrity](#) to help you to interpret college policies involving student conduct, academic dishonesty, plagiarism, etc. It is your responsibility to become familiar with the contents of the document and the college policies it references.