



## COURSE OUTLINE

The course description is online @ <http://camosun.ca/learn/calendar/current/web/stat.html#STAT157>

Ω Please note: the College electronically stores this outline for five (5) years only.

It is **strongly recommended** you keep a copy of this outline with your academic records.

You will need this outline for any future application/s for transfer credit/s to other colleges/universities.

### 1. Instructor Information

(a)	Instructor:	Patricia Wrean (Pat)		
(b)	Office Hours:	Posted on office door and website		
(c)	Location:	CBA 153		
(d)	Phone:	(250) 370-4542	Alternative Phone:	
(e)	Email:	<a href="mailto:wrean@camosun.bc.ca">wrean@camosun.bc.ca</a>		
(f)	Website:	<a href="http://wrean.disted.camosun.bc.ca/stat157/">http://wrean.disted.camosun.bc.ca/stat157/</a>		

### 2. Intended Learning Outcomes

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

- Use probability theory to solve applied problems.
  - Use counting techniques to solve applied problems.
  - Calculate probabilities using simple events, counting techniques, and the properties of probability.
  - Calculate conditional probabilities.
  - Define and identify independent events, mutually exclusive events, and complements.
  - Perform calculations involving various probability distributions including Binomial and Normal distributions.
- Use descriptive statistical techniques to organize, summarize, and display data in a meaningful way.
  - Describe a data set numerically by calculating the mean, mode, median, and sample and population standard deviation.
  - Interpret histograms and other graphical displays of data sets.
  - Make predictions about the distribution of a data set using the Empirical Rule and Tchebyshev's Theorem.
- Use inferential statistical techniques to make predictions about populations.
  - Discuss issues associated with collecting and interpreting data from sample surveys.
  - Calculate and interpret point estimates for population means and proportions.
  - For large samples, calculate and interpret confidence intervals for population means and proportions.
  - Determine appropriate sample sizes.

### 3. Required Materials

- Texts – The course pack is available via print-on-demand at the Satellite Printshop in the CBA Atrium.
- Calculator - Only ordinary scientific calculators (non-graphing, non-programmable) are permitted. The use of other electronic devices such as cell phones, MP3 players, iPods, electronic translators, etc., during exams is not allowed.

### 4. Course Content and Schedule

Chapter 1: Describing Data

- 1.1 Variables
- 1.2 Pie Charts and Bar Charts
- 1.3 Histograms
- 1.4 Measure of Centre: Mean and Median
- 1.5 Measures of Spread: Range and Standard Deviation
- 1.6 Measures of Relative Standing: z-score

Chapter 2: Distributions

- 2.1 Density Curves

- 2.2 Tchebyshev's Theorem
  - 2.3 Normal Distributions and the Empirical Rule
  - 2.4 Standard Normal Distribution
- Chapter 3: Producing Data
- 3.1 Data Collection and Sampling Techniques
  - 3.2 Observational and Experimental Studies
  - 3.3 Uses and Misuses of Statistics
- Chapter 4: Introduction to Probability
- 4.1 Counting Techniques
  - 4.2 Combinations and Permutations
  - 4.3 Classical Probability
- Chapter 5: Sampling Distributions
- 5.1 Parameters and Statistics
  - 5.2 Statistical Estimation and the Law of Large Numbers
  - 5.3 Sampling Distributions
  - 5.4 The Sampling Distribution of  $\bar{x}$
  - 5.5 The Central Limit Theorem
- Chapter 6: Confidence intervals
- 6.1 Estimating with Confidence
  - 6.2 Confidence Intervals for the Mean
  - 6.3 How Confidence Intervals Behave
  - 6.4 Choosing the Sample Size

## 5. Basis of Student Assessment (Weighting)

**Grade Calculation:** The final grade will be calculated according to the following breakdown:

Assignments:	10%
Two Term Tests:	40%
Final Exam:	50%

If your final exam grade is higher than your term work grade and your term work is 50% or higher, then your final exam grade will count as 100% of your final grade.

**Term Tests:** There will be two term tests. If a student is absent for any reason for either test, the weight of the midterm will be transferred to the final exam unless the student has made a prior arrangement with the instructor or has provided documentation of a medical or family emergency.

**Final Exam:** The final exam will cover the entire course and will be 3 hours long. As stated in the current college calendar, "students are expected to write tests and final examinations at the scheduled time and place." Exceptions will only be considered due to emergency circumstances as outlined in the calendar. The calendar specifically states that "holidays or scheduled flights are not considered to be emergencies."

**Assignments:** The assignments are online. The lowest assignment grade will be dropped when calculating the average of your assignments. This allows a student to miss one assignment for any reason, including illness, without penalty.

**Late Policy:** The online assignments close on the due date and late online submissions will not be accepted.

**Collaboration Policy:** Student are encouraged to collaborate (work together) on assignments and to consult the Math Lab tutor and/or the instructor when stuck. However, you must be prepared to answer similar questions on your own for the quizzes, so it is vital that you yourself understand all of the assigned questions and work that you turn in.

**Academic Integrity:** The Department of Mathematics and Statistics has prepared a handout called Student Guidelines for Academic Integrity to help you interpret college policies involving student conduct, academic dishonesty, plagiarism, etc. Copies will be given to students during the first week of classes, and the handout has a link on the course website. It is your responsibility to become familiar with the contents of the document and the college policies it references.

## 6. Grading System

### Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D	Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite.	1
0-49	F	Minimum level has not been achieved.	0

### Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy E-1.5 at [camosun.ca](http://camosun.ca) for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. <i>(For these courses a final grade will be assigned to either the 3<sup>rd</sup> course attempt or at the point of course completion.)</i>
CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.

## 7. 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](http://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.

**Math Lab:** Tech 142, phone: (250) 370-4492. This drop-in centre is freely available for your use to work on math homework and to seek help from the tutor on staff (see hours posted on door).