CAMOSUN COLLEGE
School of Arts & Science
Department of Mathematics & Statistics

STAT-157-X01
Applied Stats for Computing
Winter 2020

COURSE OUTLINE

The course description is available on the web @ http://camosun.ca/learn/calendar/current/web/stat.html

Ω *Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.*

1. Instructor Information

(a)	**Instructor**	Patricia (Pat) Wrean	
(b)	**Office hours**	Posted on office door and on website	
(c)	**Location**	CBA 153	
(d)	**Phone**	250-370-4542	**Alternative:**
(e)	**E-mail**	wrean@camosun.bc.ca	
(f)	**Website**	http://wrean.ca/stat157/	

2. Intended Learning Outcomes

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

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

3. Required Materials

(a) Texts – See the course website for details on how to get a digital or printed copy of the course pack.

(b) 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 with Graphs
    1.1   Variables
    1.2   Pie Charts and Bar Charts
    1.3   Histograms
    1.4   Misleading Graphs

Chapter 2: Describing Data with Numbers
    2.1   Measure of Centre: Mean and Median
    2.2   Measures of Spread: Range and Standard Deviation
    2.3   Tchebysheff and the Empirical Rule
    2.4   Measure of Relative Standing: z-score

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   Probability
    4.3   Discrete Random Variables

Chapter 5: Sampling Distributions
    5.1   Continuous Random Variables
    5.2   Standard Normal Distribution
    5.3   Normal Distribution: Finding Probabilities
    5.4   Normal Distribution: Finding Values
    ~~5.5~~   ~~The Central Limit Theorem~~

Chapter 6: Confidence intervals
    6.1   Estimating with Confidence
    6.2   Confidence Intervals for the Mean

5. Basis of Student Assessment (Weighting)
(Should be directly linked to learning outcomes.)

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

Test 1:   35%
Test 2:   35%
Test 3:   20%
Assignments: 10%
~~Assignments:~~   ~~5%~~
~~Tests:~~   ~~45%~~
~~Final Exam:~~   ~~50%~~

~~If your final exam grade is higher than your term work grade and your term work is 40% or higher, then your final exam grade will count as 100% of your final grade.~~

Tests: There will be ~~two~~ three term tests. ~~The first time a student misses a test for any reason, the weight of the missed test will be transferred to the final exam.~~ No documentation is required for the first absence. For any further absences, documentation is required or a zero will be given. There are no make-up tests.

~~**Final Exam:** The 3-hour final exam covers the entire course and takes place during final exam week. 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 tests and final exam, 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 made available during the first week of classes, and the course website has a link to the handout on the About page. It is your responsibility to become familiar with the contents of the document and the college policies it references.

6. Grading System

X	Standard Grading System (GPA)
	Competency Based Grading System

7. Recommended Materials to Assist Students to Succeed Throughout the Course

The Math Lab in Tech 142 is a drop-in centre with a tutor on staff (see hours posted on door) and study space for students working on math homework.

Students with disability-related academic barriers are encouraged to consult with the Centre for Accessible Learning (CAL) to see whether they are eligible for exam or in-class accommodations. The CAL website is http://camosun.ca/services/accessible-learning/ .

8. College Supports, Services and Policies

Immediate, Urgent, or Emergency Support
If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ http://camosun.ca/about/mental-health/emergency.html or http://camosun.ca/services/sexual-violence/get-support.html#urgent

College Services
Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at http://camosun.ca/

College Policies
Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at http://camosun.ca/about/policies/. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

A. GRADING SYSTEMS http://camosun.ca/about/policies/index.html

The following two grading systems are used at Camosun College:

1. 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		1
0-49	F	Minimum level has not been achieved.	0

2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

B. 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 at http://camosun.ca/about/policies/index.html   for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	*Incomplete*: 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	*In progress*: A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	*Compulsory Withdrawal*: 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.

9. Territorial Acknowledgement

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