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

### *STAT-216-D02*
### *Applied Statistics*
### *Fall 2020*

# COURSE OUTLINE

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

$\Omega$ *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

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|---|---|---|
| **(a)** | **Instructor** | Bree Wilton |
| **(b)** | **Office hours** | Mon – Thurs 9:30-10:20 and every other Fri 9:30-10:20 or by appointment |
| **(c)** | **Location** | E246 |
| **(d)** | **Phone** | N/A |
| **(e)** | **E-mail** | wiltonb@camosun.bc.ca |
| **(f)** | **Website** | online.camosun.ca |

## 2. Intended Learning Outcomes

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

1. Use descriptive statistical methods to display and describe distributions of data
2. Apply basic properties and concepts of probability to solve practical problems.
3. Use inferential statistical techniques to estimate and test hypotheses about parameters in both one population and two populations scenarios.
4. Conduct elementary regression analysis to solve real life problems.
5. Use Analysis of Variance (ANOVA) to make inferences about multiple populations.
6. Apply basic categorical data analysis techniques to solve practical problems.
7. Use statistical software (such as R) to perform basic statistical data analyses.

## 3. Required Materials

**1. Textbook:** *Introductory Statistics: A Problem-Solving Approach* by Kokoska, 3rd edition.
You may buy the textbook from the bookstore either in

- loose-leaf format.
- e-text format online.

**2. Lab Tutorials**: Available on D2L.

**3. Sharp EL-531 Scientific Calculator**. *Online calculators are also acceptable but I will be showing you how to use the functions for this particular calculator and it can be purchased online.*

## 4. Course Content and Schedule

| | |
|---|---|
| An Introduction to Statistics and Statistical Inference | 1.1 – 1.3 |
| Tables and Graphs for Summarizing Data | 2.1 – 2.4 |
| Numerical Summary Measures | 3.1 – 3.4 |
| Probability | 4.1 – 4.5 |
| Random Variables and Discrete Probability Distributions | 5.1 – 5.5 (Poisson only) |
| Continuous Probability Distributions | 6.1 – 6.3 |
| Sampling Distributions | 7.1 – 7.3 |
| Confidence Intervals Based on a Single Sample | 8.1 – 8.4 |
| Hypothesis Tests Based on a Single Sample | 9.1 – 9.6 |
| Confidence Intervals and Hypothesis Tests Based on Two Samples | 10.1 – 10.4 |
| Categorical Data and Frequency Tables | 13.1 – 13.2 |
| The Analysis of Variance | 11.1 |
| Correlation and Linear Regression | 12.1 – 12.4 |

**R Labs:** This course includes 7 lab sessions. You will need the lab tutorial for each lab. The lab tutorials are available on our D2L course page.  The labs are designed to familiarize you with the use of a computer as a tool for statistical analysis.  The computer software we use is R.  You may download R on your own computer (it is free) or remotely connect to the computer labs at Camosun.  Each lab session includes a lab assignment to be submitted for marking. Lab assignments must submitted to the D2L Assignment page by **4:30pm** on the due date. Late labs will not be accepted unless there is a documented medical or compassionate reason. There will be a lab final exam worth 5% of your final grade.

**Homework Assignments:** There will be **online** homework assignments using MyOpenMath (MOM). These assignments are worth marks and make up 11% of your final grade. The deadline for online homework assignments is **4:30pm.**  Late online assignments will not be accepted unless there is a documented medical or compassionate reason.  There will also be a set of suggested practice problems from the textbook. These practice problems are not for marks but you should do them before the online assignments to practice the concepts.  In order to get a full understanding of the course materials you need to do both sets of homework.

**Attendance:** Although now in an online, mainly asynchronous, format, make sure you follow the pacing schedule I give you.  Regularly doing your statistics work is the easiest and most important thing you can do to help you succeed in 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 contact me.

**Tests:** There will be 3 terms tests that will take place online during the assigned class time for this course. You must be available to write during this time.

**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. I will be posting REGULARLY on D2L. It is your responsibility to subscribe to the *notifications on D2L* or check it regularly.

## 5. Basis of Student Assessment (Weighting)

| | |
|---|---|
| Assignments | 11% |
| Labs | 10% |
| Tests (50 min each) | 39% |
| Lab Final | 5% |
| Cumulative Final Exam (3 hrs) | 35% |

Tentative Test Dates:  Oct 6, Oct 29, Dec 7.

Please refer to **D2L** for *lab due dates*.

**Final examinations will be scheduled by the college and they will take place during December 14th – 22nd.  You must be available to write the final examination at the scheduled time. Holidays or scheduled flights are not considered to be emergencies.**

## 6. Grading System

| X | Standard Grading System (GPA) |
|---|---|

| | Competency Based Grading System |
|---|---|

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

Suggested problems from the text (see end of this document), MyOpenMath assignments, materials found on D2L.

## 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](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](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. |