COURSE OUTLINE

The course description is online @ http://camosun.ca/learn/calendar/current/web/math.html

✴ *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

Instructor:	Leah Howard
Office Hours:	Mon, Tues & Fri 11:30-1:15
	Wed 11:30-12:15 Thurs 12:30-1:15
Location:	CBA 151
Phone:	250-370-4490
Email:	howardl@camosun.bc.ca
Website:	www.leahhoward.com

You can also get free math help in the Math Lab, located in TEC 142. The tutor's hours are posted on the door of the Math Lab.

2. Intended Learning Outcomes
(No changes are to be made to these Intended Learning Outcomes as approved by the Education Council of Camosun College.)

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

1. Use techniques from combinatorics to solve counting problems. Calculate probabilities using simple events, counting techniques, and the axioms and properties of probability and conditional probability. Define and identify independent events, mutually exclusive events, and complements. Calculate probabilities using Bayes' theorem.
2. Describe a discrete data set graphically via a stem-and-leaf display, histogram, relative frequency polygon, and box plot.
3. Describe a discrete data set numerically by calculating the mean, mode, median, sample and population variance, and sample and population standard deviation. Make predictions about the distribution of a data set using the Empirical Rule and Tchebyshev's Theorem.
4. Perform calculations and solve problems involving probability distributions of discrete random variables, including binomial, Poisson, hypergeometric, and negative binomial distributions. Calculate the expected value of a random variable. Perform calculations involving probability distributions of continuous random variables, including normal and gamma distributions. Use the Standard Normal Table to solve problems involving normal distributions.
5. Describe and identify sampling plans. Calculate sampling distributions for sample mean and sample proportion. Interpret control charts for sample mean and proportion.
6. For large samples, calculate point estimates and confidence intervals for population means and proportions. Perform large-sample tests of hypothesis for population means and differences in means and for population proportions and differences in proportions.
7. For small samples, use the student's t distribution to calculate point estimates and confidence intervals and for hypothesis testing. For small samples, use the chi-square probability distribution to construct confidence intervals and perform hypothesis testing on the population variance.
8. For a bivariate data set, determine the regression (least squares) line, and calculate and interpret the coefficients of correlation and determination. Use least squares to fit quadratic, cubic, and exponential curves to a given bivariate data set.

3. Materials

REQUIRED: A non-graphing, non-programmable scientific calculator. Your calculator must have the required statistics functions, as discussed in class.

There is no textbook for the course. Suggested homework problems and solutions are on the course website.

4. Course Content and Schedule

Section Number and Topic
1. Variables and Data; Types of Variables
2. Bar Charts, Histograms, Stem and Leaf Plots
3. Mean, Median and Mode
4. Range, SD and Variance
5. Tchebysheff and Empirical Rules
8. Introduction to Probability
9. Combinations and Permutations
10. Unions, Intersections and Complements
11. Conditional Probability and Independence
12. Bayes, Rule
13. Random Variables
14. The Binomial Distribution
15. The Poisson Distribution

16. The Continuous Uniform Distribution
17. Continuous Probability Distributions
18. The Exponential Distribution
19. The Normal Distribution
20. Approximating the Binomial Distribution
21. Random Sampling
22. The Central Limit Theorem
23. Statistical Process Control
24. Large-Sample Confidence Intervals
25. One-Sided Confidence Bounds; Sample Size
26. Large-Sample Hypothesis Tests
27. Type I and Type II Error

28. Small-Sample Inferences for the Mean
29. Difference of Means in Small Samples
30. Inferences about the Variance
31. Goodness-of-Fit Tests
32. Rank Sum Test
7. Correlation and the Regression Line

5. Basis of Student Assessment

To get a C or higher in the course, you must pass the final exam (50% or higher) and have an overall average of at least 60% computed from:

(a) Two Assignments (10% total)

(b) Two Tests (40% total)

(c) Comprehensive Final Exam (50%)

There is one exception: If your term mark is at least 50% AND you receive 60% or higher in the final exam, then you will receive a C in the course even if your overall average is under 60%.

Assignments are due at the beginning of class. Late assignments will not be accepted.

In the event of a missed test, your final exam will be weighted to 70% of your final grade. There is no provision for making up a missed test.

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 final examinations at the scheduled time and place." Exceptions will only be considered due to **emergency** circumstances as outlined in the calendar. Holidays or scheduled flights are not considered to be emergencies.

6. Grading System
(No changes are to be made to this section unless the Approved Course Description has been forwarded through the Education Council of Camosun College for approval.)

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** 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, 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. *(For these courses a final grade will be assigned to either the 3rd course attempt or at the point of course completion.)*
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.

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.

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.