



COURSE OUTLINE

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

Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for your records.

1. Instructor Information

(a)	Instructor:	Susan Chen
(b)	Location:	E260
(c)	Phone:	250-370-3497
(d)	Email:	<a href="mailto:chen@camosun.ca">chen@camosun.ca</a>
(e)	Desire2Learn page	<a href="http://online.camosun.ca/">http://online.camosun.ca/</a>
(f)	Webpage:	<a href="http://sites.google.com/site/susanstats/">http://sites.google.com/site/susanstats/</a>
(g)	Office Hours:	1:30 – 2:30 pm Monday - Friday

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  
Devore, Jay L., "Probability and Statistics for Engineering and the Sciences", 8th edition, 2011.
- b) Lab Manual  
Chen, "Math 218 Lab Manual", on D2L.
- c) A Sharp EL-531 Scientific Calculator.

**Note:** Although the bookstore sells the package "text + solutions manual + Minitab CD", only the textbook alone is required for this course. Minitab can be accessed from campus computers.

## Course Content and Other Course Information

Sections	Topics
1.1 -1.4	Introduction and Descriptive Statistics
2.1 – 2.5	Probability
3.1-3.4, 3.6	Discrete Random Variables and Probability Distributions
4.1-4.4	Continuous Random Variables and Probability Distributions
5.1-5.5	Joint Probability Distribution and Random Samples
6.1-6.2	Point Estimation (omit The Method of Moments)
7.1-7.3	Statistical Intervals: single sample
8.1-8.5	Tests of Hypotheses: single sample (omit $\beta$ and sample size determination)
9.1-9.2	Inferences Based on Two Samples (omit $\beta$ and the choice of sample size)

### Desire2Learn (D2L)

This class has the assistance of D2L, an online course management system. Every student who is registered for this class has access to D2L. All course related materials, such as slides, practice tests and their answers, marks, lab manual and data, and announcements will be available on D2L. It is your responsibility to check it regularly.

**D2L URL:** <http://online.camosun.ca>

**Username:** firstname.lastnamedate-of-birth in a month

**Password:** MMDDYY of your birthday

e.g., John Smith, birthday: April 7, 1989

Username: john.smith07

Password: 040789

### Class and Minitab Lab Schedule:

Math 218	day	Room	time	Duration/date
LEC	M,Tu,W,Th	Y 227	12:30 – 13:20	9/6/2011 – 12/10/2011
LAB	F	E 115	12:30 – 13:20	9/9/2011
LAB	F	E 115	12:30 – 13:20	9/30/2011
LAB	F	E 115	12:30 – 13:20	10/14/2011
LAB	F	E 115	12:30 – 13:20	10/28/2011
LAB	F	E 115	12:30 – 13:20	11/4/2011
LAB	F	E 115	12:30 – 13:20	11/25/2011

**Minitab Lab:** This course includes Minitab lab sessions designed to familiarize students with the use of a statistics 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 on the Thursday following each lab session.

**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 on the Math Department page <http://camosun.ca/learn/programs/math/>.

**Calculator policy:** A Sharp EL-531 scientific calculator is required. This is the *only* calculator that will be allowed for tests and examinations. This calculator is available at the Lansdowne Bookstore, and other stores such as Staples and Office Depot.

**Homework:** There are two sets of homework assignments for this course. Set #1 consists of Assignment Worksheets. They will be submitted for credit. Set #2 is a list of exercise problems from the textbook. Answers for these problems are given in the textbook. Solutions are available in the student solutions manual.

### 5. Basis of Student Assessment (Weighting)

Score 1	Score 2								
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">Assignments /Labs</td> <td style="width: 20%;">10%</td> </tr> <tr> <td>4 Tests</td> <td>40%</td> </tr> <tr> <td>Cumulative Final Exam (3 hrs)</td> <td>50%</td> </tr> </table>	Assignments /Labs	10%	4 Tests	40%	Cumulative Final Exam (3 hrs)	50%	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">Cumulative Final Exam (3 hrs)</td> <td style="width: 20%;">100%</td> </tr> </table>	Cumulative Final Exam (3 hrs)	100%
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4 Tests	40%								
Cumulative Final Exam (3 hrs)	50%								
Cumulative Final Exam (3 hrs)	100%								

Your course grade will be the higher of Score 1 and Score 2 if all homework and lab assignments have been completed in a satisfactory manner; otherwise, your course grade will be Score 1. Note that in order to obtain a grade of D or higher, you must score 50% or more on the final examination.

Please refer to the **Pace Schedule** for tentative *test dates* and lab/homework *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 lab assignments will be accepted for credit. Final examinations will be scheduled by the college and they will take place during December 12-17, and December 19-20. You must be available to write the final examination at the scheduled time. Holidays or scheduled flights are not considered to be emergencies.**

### 6. Awards

Among other Mathematics awards, we now have a Statistics Award (\$500). You can find out more information about the awards on this page: <http://camosun.ca/learn/programs/math/scholarships.html>.

### 7. 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)	

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

There is a Student Conduct Policy **which includes plagiarism**. It is the student's responsibility to become familiar with the content of Academic Policies and Procedures at <http://camosun.ca/learn/calendar/2010/pdf/academic.pdf>. 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.bc.ca](http://camosun.bc.ca).