School of Arts & Science
Department of Mathematics

Math 218 – Introduction to Probability and Statistics 1
Fall 2010

COURSE OUTLINE

The Approved Course Description is available on the web at:
http://camosun.ca/learn/calendar/2010/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:	chen@camosun.ca
(e)	Desire2Learn page	http://online.camosun.ca/
(f)	Webpage:	http://chen.disted.camosun.bc.ca
(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",* 7th edition, 2008

b) Lab Manual
   Chen, "*Math 218 Lab Manual"*, Camosun College Print Shop.

c) A Sharp EL-531 Scientific Calculator.

3. 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 β and sample size determination)
9.1-9.2	Inferences Based on Two Samples (omit β 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.lastname*date-of-birth*
Password: MMDDYY of your birthdate

e.g., John Smith, birthday: April 7, 1989
  Username: john.smith07
  Password: 040789

Minitab Lab: This course includes Minitab lab sessions designed to familiarize students with the use of a statistics software as a tool for statistical analysis. *You will need the lab manual for each lab*. The required lab manual is available in the bookstore at Lansdowne Campus and on D2L. A lab assignment is assigned for each lab session. Lab assignments are due by the Thursday following a lab session. The labs will be held in the computer lab E115 on the following days:

Lab Intro	Lab1	Lab2	Lab3	Lab4	Lab5
Sept 10	Oct 1	Oct 15	Oct 29	Nov 12	Nov 26

Math Labs: There are two Math Labs on the Lansdowne campus to assist students in all Math courses. They are located in E224 and E342. Lab hours are posted on the lab doors.

Calculator policy: A Sharp EL-531 scientific calculator is <u>required</u>. 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: "*I hear, I forget. I do, I understand.*" There are two sets of homework assignments for this course. Set #1 consists of ten 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. *In order to get a full understanding of the course materials (therefore a good grade), it is necessary to complete both sets of homework. It is essential to do homework after every class and to keep up consistently.* ***Cramming does not work for this course, unfortunately.***

Practice Tests: There will be a practice test session before each test. Students are encouraged to ask questions and to work together with peers during these sessions. Solutions for these practice tests will be posted on Desire2Learn. You will benefit most from these practice tests if you come to these sessions with the notes reviewed, all homework problems completed, and a formula sheet made.

5. Basis of Student Assessment (Weighting)

Score 1

Assignments & 5 Labs	30%
4 Tests	30%
Cumulative Final Exam (3 hrs)	40%

Score 2

Cumulative Final Exam (3 hrs)	100%

Your final grade will be the higher of Score 1 and Score2 if all lab assignments are submitted on time. Otherwise, your final grade will be Score 1. Your final grade will be the higher of Score 1 and Score2. Note that in order to obtain a grade of C or higher, you must have a final examination score of 40% or more.

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. <u>NO</u> 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 13-18, & December 20-21. You must be available to write the final examination at the scheduled time.

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 this policy. The policy is available in each School administration Office, at Student Services and on the College web site in the Policy Section. 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.