

**Mathematics 264: Applied Probability and Statistics
Q3, 2004-2005**

Instructor: Patricia Wrean (Pat)

Office: CBA 153

Telephone: 370-4542

E-mail: wrean@camosun.bc.ca

Web site: <http://wrean.disted.camosun.bc.ca/>

Office Hours: Posted on office door and on website.

Course Description: Topics: descriptive statistics, box and scatter plots, measures of central tendency and variability, probability, random variables, estimation, hypothesis testing, p-values, confidence intervals, multivariate distributions, covariance and correlation, linear regression and quality control.

Prerequisites: Math 260 and 261.

Textbook: Mendenhall, Beaver, and Beaver, "Introduction to Probability and Statistics", 12th edition, Thomson Brooks/Cole (2006).

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

Quizzes:	40%
Assignments:	10%
Final Exam:	50%

The lowest quiz grade will be dropped when calculating the average of your quizzes. This allows a student to be absent on any one quiz day for any reason, including illness, without penalty. There is no provision for "making up" a missed quiz.

If your final exam grade is higher than your term work grade and your term work is **50% or higher**, then your final exam grade will count as 100% of your final grade.

Final Exam: The final exam will cover the entire course and will be 3 hours long. As stated in the current college calendar on page 39, "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. Holidays or scheduled flights are not considered to be emergencies.

Late Policy: Late assignments will be given a penalty of 25% per week.

Math Room: Technologies Centre (TEC) 142 (phone: 370-4492): This drop-in centre is freely available for your use to work on math homework and to seek help from the tutor on staff (see hours posted on door).

Study Time: It is recommended that between 5 and 10 hours per week (or more for students with a weak background) be spent studying for this course outside of class time.

Grade Scale: Final letter grades are normally assigned as follows (subject to the conditions above):

A+	95-100
A	90-94
A-	85-89
B+	80-84
B	75-79
B-	70-74
C+	65-69
C	60-64
D	50-59
F	0-49

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, Registrar's Office or the College web site at <http://www.camosun.bc.ca>

Academic Conduct Policy:

There is an Academic Conduct Policy. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, Registration, and on the College web site in the Policy Section at

<http://www.camosun.bc.ca/divisions/pres/policy/2-education/2-5.html>

Course Content: (note: times given are approximate)

CHAPTER 0 Introduction: An Invitation to Statistics

Text	Time	
0.1-0.3	1.0	The Population and the Sample, Descriptive and Inferential Statistics, Achieving the Objective of Inferential Statistics
Total	1.0	lecture hours

CHAPTER 1 Describing Data with Graphs

Text	Time	
1.1-1.2	1.0	Variables and Data, Types of Variables
1.3	1.0	Graphs for Categorical Data
1.4	1.0	Graphs for Quantitative Data
1.5	1.0	Stem and Leaf Displays, Interpreting Graphs with a Critical Eye, Relative Frequency Distributions
Total	5.0	lecture hours

CHAPTER 2 Describing Data with Numerical Measures

Text	Time	
2.1-2.2	1.0	Describing a Set of Data with Numerical Measures, Measures of Centre
2.3	1.0	Measures of Variability
2.4-2.7	2.0	On the Practical Significance of the Standard Deviation, A Check on the Calculation of s , Measures of Relative Standing, The Box Plot
Total	4.0	lecture hours

CHAPTER 4 Probability and Probability Distributions

Text	Time	
4.1-4.2	1.0	The Role of Probability in Statistics, Events and the Sample Space
4.3-4.3	1.0	Calculating Probabilities using Simple Event, Useful Counting Rules
4.5	1.0	Event Relations and Probability Rules
4.6	1.0	Conditional Probability, Independence, and the Multiplicative Rule
4.7	1.0	Bayes' Rule
4.8	1.0	Discrete Random Variables and Their Probability Distributions
Total	6.0	lecture hours

CHAPTER 5 Several Useful Discrete Distributions

Text	Time	
5.1-5.2	2.0	The Binomial Probability Distribution
5.3-5.4	1.0	The Poisson Probability Distribution, The Hypergeometric Probability Distribution
Total	3.0	lecture hours

CHAPTER 6 The Normal Probability Distribution

Text	Time	
6.1-6.2	1.0	The Normal Probability Distribution
6.3	2.0	Tabulated Areas of the Normal Probability Distribution
6.4	1.0	The Normal Approximation to the Binomial Probability Distribution
Total	4.0	lecture hours

CHAPTER 7 Sampling Distributions

Text	Time	
7.1-7.2	1.0	Sampling Plans and Experimental Designs
7.3	1.0	Statistics and Sampling Distributions
7.4	1.0	The Central Limit Theorem
7.5	1.0	The Sampling Distribution of the Sample Mean, Standard Error
7.6-7.7	1.0	The Sampling Distribution of the Sample Proportion, Control Charts
Total	5.0	lecture hours

CHAPTER 8 Large-Sample Estimation

Text	Time	
8.1-8.3	1.0	Statistical Inference, Types of Estimators
8.4	1.0	Point Estimation
8.5	2.0	Interval Estimation
8.6	1.0	Estimating the Difference between Two Population Means
8.7	1.0	Estimating the Difference between Two Binomial Population
8.9	1.0	Choose the Sample Size
Total	7.0	lecture hours

CHAPTER 9 Large-Sample Tests of Hypotheses

Text	Time	
9.1-9.2	1.0	A Statistical Test of Hypothesis
9.3	1.0	A Large-Sample Test of Hypothesis about a Population Mean, p-value
9.4	1.0	A Large-Sample Test of Hypothesis for the Difference between Two Population Means
9.5	1.0	A Large-Sample Test of Hypothesis for a Binomial Proportion
9.6	1.0	A Large-Sample Test of Hypothesis for the Difference between Two Binomial Proportions
Total	5.0	lecture hours

CHAPTER 10 Inference from Small Samples

Text	Time	
10.1-10.3	1.0	Student's <i>t</i> Distribution, Small-Sample Inferences Concerning a Population Mean
10.4-10.6	1.0	Small-Sample Inferences for the Difference between Two Population Means, Inferences Concerning a Population Variance
Total	2.0	lecture hours

CHAPTER 12 Linear Regression and Correlation

Text	Time	
12.1-12.3	2.0	The Method of Least Squares
12.7	1.0	Estimation and Prediction Using the Fitted Line
12.8	1.0	Correlation Analysis
Total	4.0	lecture hours

CHAPTER 14 Analysis of Categorical Data

Text	Time	
14.1-14.3	2.0	Testing Specified Cell Probabilities
14.4	1.0	Contingency Tables
Total	3.0	lecture hours

Lecture	48 hours
Review	1 hour
Holiday	1 hour
5 one-hour tests	5 hours
Total	55 hours