School of Arts & Science
Department of Mathematics

Math 116 – Elementary Statistics
Spring 2005

COURSE OUTLINE

The Approved Course Description is available on the web
at: http://www.camosun.bc.ca/calendar/courselist.php#MATH

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

1. Instructor Information

(a) Instructor   Eric Agyekum

(b) Office hours: Mon – Fri,   11:00 am - 12:00 pm

(c) Location: E268

(d) Phone: 370-3494

(e) E-mail: agyekum@camosun.bc.ca

(f) Website : http://agyekum.disted.camosun.bc.ca

2. Intended Learning Outcomes

At the end of the course students will be able to:

1. Recognize problems in our society for which statistical analyses are suitable.
2. Compute and interpret descriptive statistics.
3. Solve basic probability problems. Distinguish between continuous and discrete probability distributions. Perform calculations involving various probability distributions including Binomial and Normal distributions.
4. Estimate the population mean and population proportion, and determine sample size.
5. Estimate the difference between two means, or two proportions.
6. Test hypotheses about a mean, a proportion, a difference of two means, or a difference of two proportions.
7. Perform basic correlation and simple linear regression analysis.
8. Perform basic categorical data analysis.
9. Perform basic statistical data analysis with the aid of a computer software package.

3. Required Materials

(a) Text:
Triola, Goodman and Law, Elementary Statistics, Second Canadian Edition, Addison-Wesley, 2002

(b) Lab Manual
Calver and Chen, *"Math 116 Lab Manual"*, Camosun College Print Shop

(c) A scientific calculator with statistics mode – Sharp EL 520V

4. Course Content and Other Course Information

Topic	Sections
Introduction	1.1 – 1.4
Descriptive Statistics	2.1 – 2.7
Probability	3.1 – 3.4, 4.1 – 4.4
Normal Probability Distributions	5.1 – 5.6
Estimates and Sample Sizes	6.1 – 6.4
Hypothesis Testing	7.1 – 7.5
Correlation and Regression	9.1 – 9.3
Chi-Square Tests	10.1 – 10.3
Tests Comparing Two Parameters	8.1 – 8.3, 8.6
Non-parametric Tests	13.1 – 13.3 time permitting

Lab: This course includes lab sessions designed to familiarize students with the use of a computer as a tool for statistical analysis. The computer software we use is Statistics Program for Social Scientists (SPSS). You must have a computer account and a lab manual ready before your first lab. The required lab manual is available in the bookstore at Lansdowne Campus. A lab assignment will be assigned for each lab session. A take-home Lab Final Examination will be given near the end of the term.

Against All Odds: Inside Statistics Video Series: The college purchased this video series to assist you study this course. Each video focuses on one topic of this course. Students who have viewed these videos in the past found them helpful and fun to watch. The videos can be signed out the same way as books. You can view them in the video room in the library as well.

Calculator: A scientific calculator with statistics mode for two variables is required. SHARP EL-520V Advanced D.A.L. ($15 - $20 range) is the recommended calculator. This is a policy of the Mathematics Department. This calculator has the following functions that are necessary for Math 116: (1) Normal scientific calculations, (2) Single-variable statistical calculations, (3) Two-variable statistical calculations including correlation and linear regression. Different calculators function differently. You will need to learn to use your calculator using the manual that comes with it, but you could always come to me for help. The reason we have this policy is to ensure that students are not at a disadvantage just because they don't have a particular calculator and also to make it easier in helping students with how to use their calculators.

Homework: Homework problems for this course will be handed out in the first week of classes. They are posted on my web page as well. Answers for the "required" problems are to be submitted for credit. The required problems are divided into four (4) homework assignments. Homework #1 contains all the "required" problems associated with the sections of the textbook that will be examined in Test #1. Similarly, Homework #2, #3 and #4 will include problems from those sections of the textbook that will be examined in Test #2, #3, and #4, respectively. Homework #1, #2, #3, and #4 are due in class immediately before tests #1, #2, #3, and #4, respectively, for credit (to check for completion). For full mark, you must do the following:

(i)   Begin each section of homework with its section number, page number and a list of problems required for the section. (e.g., Ch 1.2 p8-9 #1, 3, 5, 7, 9, 11, 13, 15, 17)

(ii)   Show all work. An answer without work (like the ones given in the textbook) will not be counted.

(iii)   Mark your answers against the answers in the back of the textbook. Mark your answer with a check sign "√" if correct; or mark it with an "X" with correction if incorrect. The number of incorrect problems will not affect your marks on the homework as long as corrections are made.

(iv)   Score each section as "*number of <u>required</u> problems that you completed*" out of "*the total number of problems required*" in the section (e.g., for Ch 1.2, Score 8/9 if one problem is not completed.). The "number of required problems completed" is the number of the required problems that you <u>answered</u>, regardless of whether your answer is correct or incorrect, **as long as a correction is made**. Assign 1 mark to each question even if it has several parts; assign yourself a 0 mark if you do not do all parts of a question.

(v)   Score the whole assignment as "total number of required problems that you completed" out of "the total number of problems required for this whole assignment" (e.g., the score is 65/69 if the total number of required problems is 69 and 4 questions were not completed). Write the score on the front page of your assignment.

(vi)   <u>Sort</u> your answers by section in the order that the problems were assigned and <u>staple</u> the sheets together.

<u>The key for earning a good grade in a Statistics course, in particular this course, is to do homework after every class and to stay on top consistently.</u> **Cramming will not work for this course.**

Practice Tests: There will be a practice-test-session on the day before each test. Students are encouraged to ask questions and to discuss among peers during the sessions. <u>Students benefit most from these practice tests when they come to the practice tests with the notes reviewed and all homework problems completed.</u>

5. Basis of Student Assessment (Weighting)

A tentative schedule for the tests and their percentages as that of the final grade are given in the table below. Each test covers material learned between this test and the previous test. The final exam covers all materials. A student's evaluation may be solely based the results of the final examinations provided that all homework and lab-assignments are completed and submitted on time.

All tests must be written during the scheduled period and <u>NO</u> late hw/lab assignments will be accepted. Final examinations will be held during June 27 – 29. You must be available to write the final exam at the scheduled time.

Test 1	Tuesday, 3rd week, May 24	10%
Test 2	Friday, 4th week, June 3	10%
Test 3	Tuesday, 6th week, June 14	10%
Test 4	Thursday, 7th week, June 23	10%
Homework and Lab assignments		10%
Lab Final (take home)	In the second last week of the term	10%
Final Examination (3 hours)	Time and room TBA	40%

Final Grade = Max (score1, score2)
where   score1 = 10%(hw/lab) + 40% (tests) + 10%(lab final) + 40%(final exam)
          score2 = 10%(lab final) + 90%(final exam) *if all lab/hw were completed and submitted on time, otherwise 0.*

6. Grading System

The following percentage conversion to letter grade will be used:

A+ = 95 - 100%	B = 75 - 79%	D = 50 - 59%
A = 90 - 94%	B- = 70 - 74%	F = 0.0 - 49%
A- = 85 - 89%	C+ = 65 - 69%	
B+ = 80 - 84%	C = 60 - 64%	

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, 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.

www.camosun.bc.ca/divisions/pres/policy/2-education/2-5.html