

SEATTLE PACIFIC UNIVERSITY
School of Business and Economics

Business 6171	Quantitative Methods
Winter 2008	Douglas Downing
6-8:50pm Monday,	Office: 221 McKenna Hall
McKenna 113	Phone: 281-2890 email: ddowning@spu.edu
	Office hours change each week.
	They are posted on the internet at
	<i>http://myhome.spu.edu/ddowning</i>

Objectives: This course covers concepts in statistical inference. The goal of the course is to provide students with an understanding of the process of analyzing data to reach conclusions about the system generating the data. During the course we will develop statistical concepts by building upon probability theory. No previous background in probability or statistics is expected, but you should be familiar with basic algebra. Specific learning objectives for this course include developing the ability to:

- calculate descriptive statistics (average, median, variance, standard deviation)
- calculate the expectation (mean) and variance of random variables
- calculate and apply probabilities for random variables with binomial and normal distributions
- calculate confidence intervals for an unknown population mean and an unknown population proportion using the standard normal distribution or the t distribution
- calculate and interpret test statistics for one-tailed and two-tailed tests of population means, chi-square tests of independence, and analysis of variance tests

Grading: The requirements for this course include one three hour examination, a class presentation, and weekly assignments. While doing the weekly assignments every student will become familiar with performing statistical calculations on a computer using the spreadsheet Microsoft Excel. Show your work for all of the problems on the assignments and the exam. The class presentation will consist of a ten-minute oral report to the class describing a brief example of a correlation analysis or other similar statistical calculation on a topic of your choice. A paper describing the presentation assignment will be handed out during the quarter. You will also turn in a 2-3 page written description of the presentation.

The exam counts for 32 percent of the grade, the presentation counts for 20 percent and the six assignments count for 8 percent each.

The final grade will be based on percent of total points earned:

A: 92; A-: 86; B+: 80; B: 74; B-: 68; C+: 62; C: 58; C-: 54; D: 50

Class format: The class sessions will be part lecture and part discussion. You should prepare to discuss the issues in the readings before you come to class. Be prepared to ask and answer questions in class. You should bring your book to class each time so you will have access to the statistical tables included. The computer screen presentations we use in the class are available on the internet at <http://myhome.spu.edu/d Downing> ; click on the "BUS6171" button in the "Classes" menu. Click the mouse on the left half of the screen in order to advance a screen presentation to the next step. (Your web browser needs to be set to view Java applets in order to use the internet information.)

Required Text: Clark and Downing, *Business Statistics* 4th edition, Barron's Educational Series

Email: You are required to have an email address through SPU. If you use another email address, then arrange to have your SPU email forwarded to that address. I will try to respond to email by the end of the next school day, but because I receive so much email I can't always guarantee this. If you haven't heard back from me after a few days then send me another message.

Course Evaluation: You are expected to participate in an online evaluation of this course in a thoughtful and constructive manner. The evaluation data is used to make improvements in the course, and your feedback is considered when selecting textbooks, designing teaching methods and preparing assignments. Courses are evaluated using the Banner Course Evaluation System. All answers are completely confidential - your name is not stored with your answers in any way. In addition, your instructor(s) will not see any results of the evaluation until after final grades are submitted to the University.

Snow: Call 281-2800 to determine if snow has caused a change in the class schedule.

Assignment Schedule

	Assigned	Due
1. Descriptive Statistics	Jan 14	Jan 30
2. Probability	Jan 21	Feb 6
3. Random Variables	Jan 28	Feb 13
4. The Normal Distribution	Feb 4	Feb 20
5. Confidence Intervals	Feb 18	Feb 25*
6. Hypothesis Testing	Feb 25	Mar 14**

Unless otherwise noted, assignments are due at 11am Wednesday morning.

*Assignment 5 is due in class (February 25).

**Assignment 6 is due at 11am Friday morning (March 14)

Schedule

Section 1

1. **Introduction** Jan 7
populations and samples,
probability and hypothesis testing
chapters 1,3
2. **Descriptive statistics** Jan 7 - Jan 14
ch 2, pages 356-358
3. **Probability** Jan 14 - Jan 21
ch 4,5

Section 2

4. **Random variables** Jan 21 - Feb 4
mean, variance, standard deviation
ch 6,7, also pages 213-217 in ch 9
5. **The normal distribution** Feb 4
related distributions: χ^2 , t , and F
law of large numbers, central limit theorem
ch 8

Section 3

6. **Statistical inference** Feb 11
ch 10
7. **Confidence intervals** Feb 11 - Feb 18
ch 11,12
8. **Hypothesis testing** Feb 25
ch 13, 14
9. **Regression analysis** Feb 25
ch 16

Examination: March 3

Class presentations: March 10

Note: Class will meet January 21 (Dr. Martin Luther King day) and February 18 (President's day).