STAT 100-3   **Chance and Data Analysis**

Fall 2002
DAY COURSE

Prerequisites: none

Textbook: Tanur, J.M. (ed) Statistics: A Guide to the Unknown. Third Edition.
Duxbury. 1989.

Calendar Description: An Introduction to chance phenomena and data analysis through
simulation and real world contexts including, sports, investment, lotteries and
environmental issues.

Outline:

1.   Introduction. Basics of Data Analysis. Distributions. Basics of Chance.
Simulation. Sports League application.
2.   Graphics – one and two variables. Time Series. Measuring Effects of Social
Innovations; Tanur 93-103. Economic Indicators; Tanur 227-238. Food Study; Tanur
161-169.
3.   Random Walks. Illusion of predictability. Stock Market Application.
4.   Risk: Insurance and Investment. Diversification. Variability.
5.   Study Design. Test Scores; Tanur 178-187. Salk Polio Vaccine Experiment;
Tanur 3-14. Health Insurance; Tanur 31-40.
6.   Models. Blue Whales; Tanur 60-67. Solar Atmosphere; Tanur 268-275. Zipf's
Law. Tanur 142-150. Tanur 126-131.
7.   Sampling. Jury Selection; Tanur 87-92. Accounts; Tanur 151-160. CPI; Tanur
198-207.   Census; Tanur 208-217.   Randomized Response Technique.
8.   Lotteries. Average and actual returns. Assessment of Coincidences.
9.   Survival. Aging of cars, cells, and people.
10.   Optimization. Travelling Salesman; Tanur 241-248.
11.   Quality Control. Color Tolerances; Tanur 170-177.
12.   Estimation. Earthquakes; Tanur 249-260.
13.   Significance Testing. Humanid bones. Tanur 68-76. (and previous selections).

Grading: Assignments   30%
                Two Midterms   30%
                Final Exam   40%

If advantageous to the student, I will weight the final 60% and the two midterms 10%.

STAT 100   Chance and Data Analysis - More Details

Web page: www.stat.sfu.ca/~weldon/stat100-02-3.html

Instructor Contact: Larry Weldon
                       Department of Statistics and Actuarial Science
                       K 10554 (Dept office is K 10545)
                       Email: weldon@sfu.ca
                       604-291-3667
                       Office Hours MW 1430-1520 F 1130-1220

Statistics Workshop (SW):
                       K 9516 (inside K 9510) - drop-in assistance from TAs
                       Assignment submission and pickup
                       TAs mark assignments
                       The SW will be open most week days 930-1630.

Midterms and Final Exam: Open Book, notes, etc.
                       Tentative Dates of Midterms:
                             MT1 - week of Oct 7-11
                             MT2 - week of Nov 4-8

Computing:

                       Although all statistical work is done these days using statistical
                       software, in this course I will attempt to introduce statistical
                       concepts and techniques without requiring students to actually use
                       statistical software. However, for students who are keen to learn
                       this aspect of statistics, I will provide opportunities for students
                       to do this with approximately the same workload. To this end, all
                       students have been allocated assignment lab access to the software
                       they would need to do this. Your assignment lab ID is your unix ID
                       and your initial password is the first 7 digits of your student
                       number. MINITAB is the statistical software you can access there.
                       The Statistics Workshop also has many (new!) computers and
                       you just need the ID=stat100 and password=class100 to use them.

Assignment Deadlines:
                       Timely marking of 100+ assignments requires some careful
                       organization. Assignment deadlines must be enforced for
                       administrative reasons. Be forewarned - late assignments
                       will not be marked.

Feedback:

                       This is a new course. I want to know what works and what does
                       not work. I learn something about this from the assignments, tests
                       exams. But a more immediate feedback would also be useful.
                       Please convey your comments on the lectures and/or material
                       either to me or the TAs in the SW (to forward to me).

Objective:

                       My objective in this course is to convey the utility and charm of
                       the discipline of statistics, assuming on a minimum of prerequisite
                       knowledge.   But I need your enthusiastic participation for this!
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