Statistics 302 H

Fall 2007
4:10-5:25 M, W
Blocker 160

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Office Hours: After class; 8:00 – 9:00 Tuesday & Thursday; or by appointment

Grader: Ying Sun
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OH: 2:30 – 4:00 Monday & Friday

Prerequisite: Math 141 or 166 or equivalent

Text: *Principles of Biostatistics*, 2nd ed., M. Pagano and K. Gauvreau

Web Site: http://stat.tamu.edu/~calvin/st302.html

Software: The course will use an Excel extension called StatTools. Details can be found at: http://dl.stat.tamu.edu/dostat. Use *login name* student30x and *password* st@tt00ls.

Exams: Two in-class exams and a final will be given. Exams will be closed book, but a single 8.5"x11" crib sheet will be allowed for each mid-term and two sheets will be allowed for the final. Tentative topics for Mid-term Exam I are topics 1 thru 8 and for Mid-term Exam II they are topics 9 thru 14. Tentative dates for the mid-terms are: October 3rd and November 14th.

Final Exam: The final exam is scheduled for 3:30-5:30 on Monday, Dec. 10, 2007.

Make-up: A student may be excused from an exam only for one of the University-approved reasons (http://www.tamu.edu). A general, comprehensive make-up exam at the end of the semester may be used for students with approved absences.

Homework: Homework will be assigned periodically during the semester. It is expected to be turned in on time. Late homework (up to one week) will be accepted and receive half credit.

Project: An individual project will constitute a major grade for this course. It will provide an opportunity for each student to demonstrate an integrated set of knowledge. The project will include:

1) Obtaining data, either from your own research or from scientific papers in the published literature;
2) Applying the appropriate statistical procedures introduced in the class;
3) Writing an article which addresses the scientific issues and present your statistical results; and
4) Giving an oral report of your findings.

Grading: Grades will be determined based on the following weighting:

Scheme 1		Scheme 2	
Project	25%	Project	20%
Mid-term I	20%	Mid-term I	15%
Mid-term II	20%	Mid-term II	15%
Final Exam	20%	Final Exam	40%
Homework	15%	Homework	10%

Your overall class score will be calculated using both schemes, and the higher of the two scores will be used to determine the course grade.

Topics:

1. Introduction
2. Data Presentation – data types, tables & graphs (Ch. 2.1-2.4)
3. Summary Statistics – central tendency, dispersion, Chebychev's inequality and the empirical rule (3.2, 3.2, 3.4)
4. Probability distributions – theory, binomial, normal (7.1, 7.2, 7.4, 7.5)
5. Sampling Distribution of the Mean – central limit theorem, application (8.1-8.4)
6. Confidence Intervals – two-sided, one-sided (9.1-9.4)
7. Hypothesis Testing – types of errors, power, sample size (10.1-10.7)
8. Comparing Two Means – paired and unpaired data (11.1-11.3)
9. Proportions – single proportion concepts, comparing two proportions, normal approximation (14.1-14.7)
10. Correlation – scatter plots, correlation coefficients (17.1-17.4)
11. Simple Linear Regression – concepts, model, evaluation (18.1-18.4)
12. Analysis of Variance – one-way ANOVA, multiple comparisons (12.1-12.5)
13. Contingency Tables – chi-square tests, odds ratio (15.1, 15.3)
14. Nonparametric Methods – sign test, signed-rank test, rank sum test (13.1-13.5)
15. Multiple Regression – model, indicator variables, interactions (19.1)
16. Rates – definition, standardization (4.1-4.3)
17. Life Tables – computation, application (5.1-5.4)
18. Sampling Theory – simple random sampling, stratified sampling, cluster sampling (22.1-22.3)

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