COURSE OUTLINE
STA 6244: Data Analysis I
FALL 2006

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Class Time and Place: Monday and Wednesday, 3:30 PM-4:45 PM at PC 416.
Office hours: Monday and Wednesday: Between 2:00 PM to 3:20 PM or by appointment.
Prerequisites: STA 3033, STA 4322 or STA 6327 (pl contact me if you have any question).

References:

COURSE OUTLINE:
This is an applied statistics course with motivation from the data sets. Some of statistical
theories may be necessary for this course. S-plus software (available in PC 322, PC 414 and
PC 415) will be used to analyze the data and you will learn how to use S-plus for graphical
data analysis. The course will cover chapter 1 to 10 from the textbook. If time permits some
of the selected topics from journals or other books will be covered. Full information about the
S-Plus software as well as computer lab will be given in the class.

Coverage from text:

Review of Probability: (Ch. 2): Parameters of a Distributions, Covariance, Correlation Coefficients, Selected Discrete Distributions, Selected Continuous Distributions, Normal Distribution.

Collecting Data (Ch. 3): Types of Statistical Studies, Observational Studies, Basic Sampling Designs, Experimental Studies.
Exploring and Summarizing Data (Ch. 4): Types of Data, Summarizing Categorical, Numerical and Time Series data.

Sampling Distributions of Statistics (Ch. 5): Sampling distributions of Sample Mean, Sample Variance, and Sample Proportion, Chi-square, Student’s t and F- distributions.

Basic Concept of Inference (Ch. 6): Bias, Variance and MSE, Point and Interval Estimation for Parameters, Hypothesis testing, Probability of Type I and II errors.

Inference for Single Population (Ch. 7): Inferences on Mean (both large and small samples), Inferences on Variance, Power calculation and Sample size determination, Prediction and Tolerance Intervals.

Inference for Two Samples (Ch. 8): Independent Samples and Matched Pair Designs, Comparing means of two Populations, Comparing variances of two Populations.

Inferences for Proportions and Count Data (Ch. 9): Inferences on Proportion, Inferences for comparing two Proportions, Inference for one-way and two-way count data (Chi-square tests).

Simple Linear Regression (Ch. 10): Simple linear regression model, Least Squares fit, Goodness of fit of the LS line, Statistical Inference for simple linear regression, Prediction of future observations, Regression Diagnostics, Checking for Normality, Outliers and Influential

Course Evaluations: The tentative course evaluation is as follows:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Assignments and Project</td>
<td>20%</td>
</tr>
<tr>
<td>Midterm Exam I</td>
<td>20%</td>
</tr>
<tr>
<td>Midterm Exam II</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>40%</td>
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</tbody>
</table>

NOTE: The final exam is cumulative. All students are required to take the final exam. Failure to obtain at least 50% in the final exam will result in a grade of “F” for the course.

Assignment: There will be 3-5 assignments (S-Plus intensive) for this course.

The first midterm exam will be held on October 4 (Wednesday) in the regular class room. Exam contains the materials which is covered by October 2 (Monday), 2006.

The second midterm exam will be held on November 15 (Wednesday) in the regular class room. Exam contains the materials which is covered by November 13 (Monday), 2006.

The final exam is cumulative and will be held on December 11 (Monday), 2006, between 3:30 PM to 6:15 PM.
Grading scale: The weighted average of the scores of the above four items will be converted to a percentage. The following scale will then be used to assign letter grades for the course.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage Range</th>
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<tbody>
<tr>
<td>A</td>
<td>90% and above</td>
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<tr>
<td>A-</td>
<td>87% to 89%</td>
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<tr>
<td>B+</td>
<td>84% to 86%</td>
</tr>
<tr>
<td>B</td>
<td>80% to 83%</td>
</tr>
<tr>
<td>B-</td>
<td>77% to 79%</td>
</tr>
<tr>
<td>C+</td>
<td>74% to 76%</td>
</tr>
<tr>
<td>C</td>
<td>70% to 73%</td>
</tr>
<tr>
<td>C-</td>
<td>67% to 69%</td>
</tr>
<tr>
<td>D+</td>
<td>64% to 66%</td>
</tr>
<tr>
<td>D</td>
<td>60% to 63%</td>
</tr>
<tr>
<td>D-</td>
<td>57% to 59%</td>
</tr>
<tr>
<td>F</td>
<td>0% to 56%</td>
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</tbody>
</table>

Project submission: December 4 (Monday), 2006.

Some Important Dates:
1. September 5 (Tuesday), 2006: Last day to complete late registration, change grading option, drop/withdraw courses without incurring a financial liability
2. September 22 (Friday), 2006: Last day to withdraw from the University with a 25% refund of tuition.
3. November 3 (Friday) 2006: Deadline to droop a course with DR grade and to withdraw from the University with a WI grade.
4. Classes end on December 7 (Thursday) 2006.

Makeup’s: No make-up exam will be given, however, if an extenuating circumstance exists, please contact the instructor prior to the exam. All students are required to attend/write/complete the final exam. Failure to write it will result in a grade of “F” for the course. No extra work will be given to improve the grade.

Incomplete: The incomplete (I) grade will be given ONLY to a student who has completed the bulk of the course works and is unable to complete the course due to a serious interruption not caused by the student’s own negligence.

Attendance: Students are expected to attend the classes regularly. If a student misses (or fails to attend) a class, it is his/her sole responsibility to obtain the missing information (for examples change of exam date, change of exam location, add/ omit some sections, class notes, new home works etc). Students are encouraged to seek the instructors help during office hours.

Notice: The course outline provides a general plan/guide for the course only, however, deviation or some changes may be necessary. The instructor will assume the sole authority in all matters related to course content, students gradings, and classroom procedures. No active beeper or cellular phones are allowed in classes. You should not register in this class if your final exam conflicts with other course.