Statistics 677, Spring 2015 TTH 16:00–17:15, GMCS 325

Instructor: Dr. Joey Lin
GMCS 515 PHONE: 594–6186 EMAIL: cdlin@sciences.sdsu.edu,
URL: http://www.rohan.sdsu.edu/~cdlin
Office Hours: TTH 14:00–15:00 or by appointment

Text: Kuehl, Design of Experiments: Statistical Principles of Research Design and Analysis (Second Ed.).

Additional References: 1. Statistical Design & Analysis of Experiments by Mason, Gunst, and Hess
2. Experimental designs, second edition by Cochran and Cox
3. Applied linear statistical statistical models, Fifth edition by Neter, etc.

Prerequisite: Stat 550, 551A or an approval by the instructor.

Computing: A statistical software (SAS) will be used throughout the class.

Grading:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tr>
<td>Homework</td>
<td>15%</td>
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<tr>
<td>Mid-term exam</td>
<td>35%</td>
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<tr>
<td>Project</td>
<td>15%</td>
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<tr>
<td>Final exam</td>
<td>35%</td>
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<tr>
<td>Total</td>
<td>100%</td>
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Grades will be based on the following scale:

A: 90-100%  B: 80-89%  C: 70-79%  D: 60-69 %  F: below 60%

Attendance and class participation will be used to help decide borderline grades.

Homework:

1. Homework (most will be on the computer) will be assigned through my homepage, and will be
due a week from the next class day. Homeworks are due at the beginning of class on the assigned
due date. NO late homeworks will be accepted. If you find you can not be in class the day an
assignment is due, please be sure it is in my departmental mailbox by the time class begins on
that day. Late homework assignments will NOT be accepted.
2. All homework assignments must be written on standard 8.5 × 11 paper or computer paper and
stapled together.
3. One homework grade will be dropped. (This is intended to cover unforeseen emergencies.)

Exams: There will be one mid-term exam, one project, and one final exam. The mid-term exam will be
held on March 24 (Tuesday) (tentative date). The written project report will be due on Tuesday, May
12.
Final exam: Tuesday, May 12 from 15:30 to 17:30.

Missed exams: Make-up of missed exams will be allowed only as a result of a University-excused absence.
1. Introduction to Experimental designs  
2. Introduction to randomizations  
3. Completely randomized designs  
4. Constrasts and multiple comparisons  
   (a) Orthogonal contrasts  
   (b) Bonferroni methods  
   (c) SCI  
5. Checking assumptions and effects of incorrect assumptions  
6. Power and sample size  
7. Factorial treatment designs  
8. Nesting vs. Crossing  
9. Complete block designs  
   (a) How to construct?  
   (b) Latin Square designs  
10. Incomplete block designs  
11. Split-plot designs  
12. Analysis of covariance  
13. Fractional factorials  
14. Mixed effects, random effects, and fixed effects