IE 400 Design & Analysis of Experiments

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Lectures. MW 12:00PM – 1:20PM, 203 Transportation Building  
Office Hours: MW 1:30PM – 2:30PM, or by appointment.  
Course Website: On Illinois Compass 2g.  
Course Blog: http://ie400doe.blogspot.com

Prerequisite. IE 300 or equivalent.


Software. SAS @OnDemand for Academics (Web Editor). Windows users can also download SAS from the University of Illinois Webstore.

Course Objectives.

- Understand the principles and the mathematical models associated with experimental designs.  
- Design and perform the statistical analysis of an experiment.  
- Utilize SAS for the purpose of analyzing statistical data.  
- Learn to communicate the results of a statistical analysis through oral and written presentations.

Course Work.

- Homework assignments will be posted on Illinois Compass2g on most Wednesdays. All students are required to submit a hard copy of the hw before the beginning of the lecture. No late homework will be accepted. There will be 9-10 homework assignments throughout the semester accounting for 15% of the course grade and 3-4 small experiments accounting for 5% of the course grade.  
- There will be two in class midterms each accounting for 15% of the course grade. The tentative dates are on 09/29/2014 and 11/10/2014. There will be no make-up exams.  
- A final exam will be scheduled in the final week accounting for 30% of the course grade. The final will be cumulative.
– There will be a group project in the end of the semester. Each group should consist of 2 students and has to perform an experiment of their own devising, analyze and present the results in a written report as well as a 10-min oral presentation. The written reports will be due on Wednesday, December 10th and the oral presentations will be scheduled on the last week of classes. The project will account for 20% of the grade.

– Graduate students who are registered for 4 credits will be required to complete some additional -more theoretical- assigned problems.

Grading. Your grade is based upon your performance only. The grading scale is as follows:

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<thead>
<tr>
<th>Grade</th>
<th>Overall Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>90.00-100.00</td>
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<tr>
<td>B</td>
<td>80.00-89.99</td>
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<tr>
<td>C</td>
<td>70.00-79.99</td>
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<tr>
<td>D</td>
<td>60.00-69.99</td>
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<tr>
<td>F</td>
<td>0.00-59.99</td>
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Regrading. If you want to dispute your homework, project or exam grade, all requests should be made within a week after receiving your grade. Please note that when you ask for a question to be regraded, the entire assignment may be regraded, and there is a possibility of losing points.

Academic Integrity. It is expected that all students will support the idea of academic integrity and be responsible for the integrity of their work. The university has a published policy on academic integrity that may be found at http://www.library.illinois.edu/learn/research/academicintegrity.html

Special Accommodation. In compliance with the University of Illinois policy and equal access laws, appropriate academic accommodations are offered for students with disabilities.

Topics covered.

– ANOVA, Multivariate ANOVA
– ANCOVA
– Randomized Complete Block Designs
– Latin Square Type Designs
– Balanced Incomplete Block Designs
– Factorial Designs
– Nested Designs
– Response Surface Designs
– Split-Splot Type Designs