ISE 525 Design of Experiments   Kurt Palmer
Summer Semester 2014   Office: GER 205
Thursdays, 2:00 - 5:00 pm   Hours: Thursdays, 11:30 - 1:00 pm
Room: OHE 100B   Phone: 740-5960
Web site: www.uscden.net   E-mail: kpalmer@usc.edu

Recommended Preparation: ISE 225 Engineering Statistics I (or equivalent)

Objective: In this course, you will develop the skills necessary to plan efficient data collection activities, derive empirical models of physical systems, and perform sequential optimization studies based upon the empirical models.

Text: Myers, Montgomery, and Anderson-Cook, Response Surface Methodology, third edition

Course Material: Chapters 1-7 and 10 of the text, plus topics discussed in lecture by the instructor

Grading Policies:
        Points Breakdown -
                Homework   90
                Project   150
                Exam #1   140
                Exam #2   120 .
                                Total   500

Course GRADES will be determined by the distribution of point totals for the class. "Natural groupings" will be used to assign letter grades. The highest scoring group will receive A's, the next group is the B's, and so on. A single point will not be the difference between any two letter grades. A "gap" must exist to create a grade boundary.

HOMEWORK assignments will be due on the following Thursdays:
May 29; June 5, 12, 26; July 3, 10
Homework will be graded on an "all or nothing" basis. If a paper shows an answer to each assigned exercise that uses approximately the correct method, the grade for the assignment is 15 points. If any exercise is unacceptable, the grade for the assignment is 0 points. Late assignments will be accepted until the Monday following the original due date.

A PROJECT will be due on the following date:
Thursday, July 31
The project will involve investigation and optimization of a response surface. You will collect data from a computer simulation, in order to model the surface. For this project, you may work either individually or in pairs. The project assignment will be distributed two weeks in advance of the due date.

An EXAM will be given on each of the following dates:
Thursday, June 19 and Thursday, July 17
Each exam will cover the material presented up to and including the preceding homework assignment. Points will be assigned to each section of the exam. Partial credit will be awarded according to work shown. No re-takes will be allowed. No make-up exam will be given.

Session	Topic(s)	Text Sections
May 22	Response Surface Studies, Multiple Linear Regression	1.1, 2.1 - 2.3
May 29	Regression Significance, Model Selection	2.4 - 2.6, 2.8, Handout
June 5	Model Diagnostics, Factorial Experiments	2.7, 3.2
June 12	Coded Variables, Orthogonality, Lack of Replication, Center Points	3.3 - 3.6
June 19	Blocking, Fractional Factorial Experiments, Exam	3.7, 4.2
June 26	Multi-factor Experiment Workshop, Deconfounding, Fold-Over	4.3 - 4.6
July 3	Multi-factor Experiment Workshop (cont.), Steepest Ascent	5.1 - 5.3, 5.5
July 10	Canonical Analysis, Ridge Analysis, Design Properties	6.2 - 6.4, 7.1 - 7.2
July 17	Central Composite Design, Exam	7.3 (omit 7.3.3), 7.4.1 - 7.4.6
July 24	Multiple Responses, Taguchi's Parameter Design	6.6, 10.2 - 10.3
July 31	Combined Array/Response Model Approach	10.4 - 10.5

Academic Integrity:

The Department of Industrial and Systems Engineering adheres to the University's policies and procedures governing academic integrity as described in SCampus. Students are expected to be aware of and to observe the academic integrity standards described in SCampus. Students should expect those standards to be enforced in this course.

Accomodations for Disabilities:

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to the instructor as early in the semester as possible. DSP is located in STU 301 and is open 8:30 am - 5:00 pm, Monday through Friday. The phone number for DSP is (213)740-0776.