Phys 481/581  Design of Experiments  Fall 2003

Class Times: MW 5:00-6:20p  Location: Willamette Rm.318

Instructor: Steve Gregory  Office: Tel: 6-4764  sgregory@darkwing.uoregon.edu
Office Hours:
Fri 2:30-3:30p
Tue 4:00-5:00p
Or by arrangement

COURSE OUTLINE  ASSIGNMENTS

Text

The main text is "Engineering Statistics" by Montgomery, Runger and Hubele, 3rd Edition (Wiley 2003) which should be available at the bookstore.

A more-advanced version of this book is "Design and Analysis of Experiments" by Montgomery, 5th Edition (Wiley 2001) which should also be available at the bookstore". I will put the 2nd edition copy of this and possibly some other books on reserve in the Science Library.
Homework, Grades

Homework is an important part of this course and should be taken seriously, but the kinds of problems we are working on often require the use of a computer and are not really suited to exams. The grades for the course will therefore be based on homework (50%) and a final project (50%). Homework will be assigned weekly, on Wednesday, and collected on the following Wednesday.

Software

Many of the homework problems will be solved using statistical analysis software. Although Excel can be used for some, a better package is SAS, which can be found on darkwing and gladstone. Here are some notes about SAS.

Course materials will appear on this Web site. They will often be in the form of PDF files, so get yourselves copies of the Adobe Acrobat Reader.

http://www.adobe.com/prodindex/acrobat/readstep.html
What is "Design of Experiments?"

The idea of an "experiment" is not exactly the same as it is in physics and we will start out by considering what is meant by an experiment in the present context.

Basic Statistical Concepts

Definitions of statistical concepts, focussing on issues such as random variables and probability distributions.

Decision Making in Statistics

Statistical inference, hypothesis testing, confidence intervals, comparing samples.

Single Factor Experiments and Analysis of Variation (ANOVA)

Block Designs - The Latin Square

Factorial Designs - Two-Level Design
Fractional Factorial Designs

Regression Methods

Response Surfaces