

### **Stat 653 Statistics in Research III.**

The analysis of messy and complex data sets using analysis of variance, analysis of covariance and regression analysis. Design of Experiments using JMP. Fixed, Random and Mixed Models using SAS MIXED ,GLIMMIX and GLMSELECT procedures.

**Prerequisite: STAT 642 or Stat 652.**

**Textbook: None**

**Software: JMP 9 and SAS 9.2 with Enterprise Guide 4.3**

**Topics:**

**Designs & Programming: SAS & JMP (3 weeks)**

Simulating an experiment  
Factorial Designs  
Block Designs  
Custom Designs

**Analyses: SAS (11 weeks)**

Regression – variable subset selection with LASSO  
Mixed Models  
Regression with non-constant variance  
AR(1) Time Series  
Split Plot Designs  
Analysis of Covariance – random factors and subset selection  
Longitudinal Logistic Regression  
Poisson Regression with Random Effects

**Project:**

The student will be required to 1) design an experiment and 2) analyze a dataset. These will be presented to the class via Camtasia. See [http://dist.stat.tamu.edu/flash/stat653\\_09a/](http://dist.stat.tamu.edu/flash/stat653_09a/) for examples.

**Grading:**

Homework	5%
Project	10%
Exam 1	25%
Exam 2	25%
Final	35%

## **Important Notice.**

**STATEMENT ON DISABILITIES:** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Office of Support Services for Students with Disabilities in Room 126 of the Koldus Student Services Building. The phone number is 845-1637.

**STATEMENT ON PLAGIARISM:** The handouts used in this course are copyrighted. By "handouts," I mean all materials generated for this class, which include but are not limited to syllabi, videos, quizzes, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless I expressly grant permission. As commonly defined, plagiarism consists of passing off as one's own ideas, words, writing, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have the permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section "Scholastic Dishonesty."

Aggie Honor Code: See: <http://www.tamu.edu/aggiehonor/definitions.php>