

## **Stat 445/545: Analysis of Variance and Experimental Design**

**Instructor:** Guoyi Zhang, gzhang123@gmail.com Office hours: MWF 14:00pm-15:00pm in SMLC 318

**Teaching Assistant:**

**Class Time/Place:** 11:00am-11:50pm MWF - SMLC 352

**Prerequisites:** Stat 440/540 Regression Analysis

**Text:** Analysis of Variance, Design and Regression, Applied statistical methods, by Ronald Christensen. Applied Linear Statistical Models by Kutner, Nachtsheim, Neter, and Li(required).

**Topics:**

- 1) Single-Factor ANOVA (about 3 weeks)
- 2) Two-Factor ANOVA (balanced design) (about 3 week)
- 3) Unbalanced Factorial Designs and General Multifactor Studies (about 2 weeks)
- 4) Mixed Models (about 3 weeks)
- 5) Design of experiments: Randomization, Randomized complete block designs, Nested and split plot designs and Repeated Measures (about 4 weeks)

**Computing:** SAS will be used in this class.

**Grading:** Homework, 50% (bi-weekly homework); Midterm Project, 25%; Final Exam, 25%. Midterm project is a take-home data analysis report. Topic, requirements and writing instructions will be given in the class. Final is a comprehensive exam given in class.

A+ 95%-100%

A 85%-94%

B 75%-84%

C 65%-74%

D 55%-64%

E Below 55

SAS is available in Dane Smith Hall, Fine arts and design library and Centennial science and engineering library.

1. (1) Start typing the following SAS program in a new file:

```
data potato;
input weight height;
datalines;
50 150
62 184
54 172
92 190
;
proc print data=potato;
proc reg;
model height = weight;
run;
```

(2) click submit icon

(3) check log file

(4) if log file is error free, then check the output file