STA 4211 — Design & Analysis of Experiments
Spring 2022 – Course # 17497 – MWF 4th (10:40-11:30) – FLO 100

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Text:Applied Linear Statistical Models, 5th Ed. by Kutner, Nachtsheim, Neter andLi (Chapters 15-30)

Course Description

This course provides an introduction to the design and analysis of statistical experiments. Experimental design techniques are used in a wide variety of academic, industrial, and scientific areas. We will cover widely used designs, and discuss practical and computational issues regarding their analysis.

Other Materials: Datasets, assignments, and overheads available on class website.

Web Site: UF Canvas and   http://www.stat.ufl.edu/~winner/

Homework and Exams:

1. **Homework Assignments:** There will be approximately 5 assignments. You will have at least one week to hand them in from the time they are posted on Canvas. Assignments will total 100 points.

2. **Exams:** There will be 3 in-class exams. Each will be worth 100 points. For each exam, you can bring one hand–written 4x6 index card with formulas and/or notes. There will also be a Take-Home component due at the beginning of the exam.

3. **ACL Exam:** Overall statistical assessment used to assess student learning across years.

4. **Final Project and Presentation:** A statistical data analysis project will be prepared, along with a 10 minute in-class presentation.

5. **Grading:** Grades will be based on the total of 500 points from homework and exams. Grades are not negotiable (unless a mis-calculation is made in totaling points).

6. **Missed Exams**: Any exams that will be missed must be confirmed as soon as possible, **before** the time of the exam. Documentation must be provided. No early exams will be given under any circumstances.

7. **Late Homework**: Will not be accepted and will receive a grade of 0.

Prerequisites and Computing:

1. STA 4211 has a pre-requisite of STA 4210.

2. You will need a computer for homework assignments. Examples will make use of EXCEL and R; but you will need to make use of R for assignments.

Tentative Topics

- Introduction to Statistical Designs – Chapter 15 / Supplemental Notes

- Completely Randomized (Single-Factor) Design – Chapter 16

- Comparisons Among Treatment Means – Chapter 17

- Residual Analysis – Chapter 18

- Balanced 2-Factor Designs – Chapter 19

- 2-Factor Designs with a Single Replicate per Treatment – Chapter 20

- Unbalanced 2-Factor Designs – Chapter 23

- Multi-Factor Studies – Chapter 24

- Randomized Block and Repeated Measures (Each Subject Receives Each Trt) Designs – Ch. 21,27.1-2

- Latin Square Design – Ch. 28.3-28.7

- Random and Mixed Effects Models – Ch. 25

- Analysis of Covariance – Ch. 22

- Nested and Repeated Measures Designs – Ch. 26.1-26.5,27.3 / Supplemental Notes

- Intro to Response Surface Methodology and Mixture Designs – Ch. 30.1-2

- Split-Plot Designs

Tests and Grading

- Exam1 – Friday February 11 (In class)   - 20%
- Exam2 – Wednesday March 23 (In class) - 20%
- Exam3 - Thursday April 28 @ 3:00-5:00 - 25%
- ACL Exam/Survey – Monday March 14 – 5%
- Homework – 20%
- Final Project & Presentation 10%

R can be downloaded for free from the website:

http://cran.r-project.org/bin/windows/base/

Course Grade Cut-offs:

A	A-	B+	B	B-	C+	C	C-	D	E
90	87.5	85	80	75	70	65	60	50	

Attendance/Exam/Assignment Policies: While attendance is not taken, students are expected to attend lectures and participate in class. Make-up exams will only be considered with documented medical event or conference attendance (graduate students). Early exams will be given under no circumstances. Assignments are to be handed in during class on the date the assignment is due in paper format. Electronic submission of assignments will not be accepted. Turn off cell phones during classes.

Academic Accommodations: If you have a documented disability and wish to discuss academic accommodations with me, please contact me as soon as possible.

University Grading Points:

A	A-	B+	B	B-	C+	C	C-	D	E
4	3.67	3.33	3	2.67	2.33	2	1.67	1	0

Online Course Evaluations: The University has an online course evaluation system. Late in each semester (after final withdrawal date), students can go to the GATORRATER portal and evaluate courses. The website is located at: https://evaluations.ufl.edu/evals/Default.aspx.

University Policies:

Academic Dishonesty: All members of the University Community share the responsibility to challenge and make known acts of apparent academic dishonesty. Acts of academic dishonesty will not be tolerated and will be referred to the Student Honor Council.

Campus Resources:

Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc/

Academic Resources: http://www.ufl.edu/academics/resources/

Disability Resource Center: https://www.dso.ufl.edu/drc/

Student Health Care Center: http://shcc.ufl.edu/

Incomplete: An incomplete grade may be assigned at the discretion of the instructor as an interim grade for a course in which the student has completed a major portion of the course with a passing grade, been unable to complete course requirements before the end of the term because of extenuating circumstances, and obtained agreement from the instructor and arranged for resolution of the incomplete grade in the next term. Instructors are not required to assign incomplete grades. For complete details please visit:
CLAS incomplete grade policies and forms.