

STAT 8050, Design and Analysis of Experiments

Spring 2020

TTH, 3:30pm – 4:45pm, Martin Hall M-102

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Office Hours: TBD

Prerequisites:

- STAT 8010 (Statistical Methods I) or equivalent
- Basic statistical computing knowledge: SAS, JMP, and R will be used in class

Required Text:

A First Course in Design and Analysis of Experiments **Gary W. Oehlert, 2010** [\[Link\]](#)

Suggested Texts:

Information from the following texts is used in the course

- Design and Analysis of Experiments, 2_{nd} Edition, Angela Dean, Daniel Voss, and Danel Draguljic. [\[Link\]](#)
- Statistical Design, George Casella [\[Link\]](#)
- Analysis of Messy Data Volume 1: Designed Experiments, 2_{nd} Edition, George Milliken and Dallas Johnson. [\[Link\]](#)

Attendance:

Regular attendance is expected. Students are free to leave if the instructor is more than 15 minutes late to class.

Test and Exam Information:

There will be three tests. The (tentative) dates for the three tests are:

1. **Exam 1:** February 13
2. **Exam 2:** March 12

3. **Exam 3:** April 16

The **Final Exam** will be given on Friday, May 1, 11:30 am - 2:00 pm.

Evaluation:

- Grade Distribution:

Test 1	25%
Test 2	25%
Test 3	25%
Final Exam	25%

- Letter Grade:

≥ 90.00	A
88.00 \sim 89.99	A-
85.00 \sim 87.99	B+
80.00 \sim 84.99	B
78.00 \sim 79.99	B-
75.00 \sim 77.99	C+
70.00 \sim 74.99	C
68.00 \sim 69.99	C-
≤ 67.99	F

Course Objectives:

Upon successful completion of this course students will be able to:

1. Identify basic designs and analyze data obtained from basic designs
2. Utilize statistical software to analyze data from designed experiments
3. Design basic experiments

Key Dates:

- **January 14:** Last day to register or add a class or declare audit
- **January 22:** Last day to drop a class or withdraw from the University without a W grade
- **March 13:** Last day to drop a class or withdraw from the University without final grades

Academic Integrity Statement:

“As members of the Clemson University community, we have inherited Thomas Green Clemson’s vision of this institution as a ‘high seminary of learning.’ Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form. In instances where academic standards may have been compromised, Clemson University has a responsibility to respond appropriately to charges of violations of academic integrity.”

Please refer to the current Graduate School Policy Handbook for the graduate academic integrity policy.

Disability Access Statement:

It is university policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities. Students with disabilities requesting accommodations should make an appointment with Disability Services (656-6848), to discuss specific needs within the first month of classes. Students should present a Faculty Accommodation Letter from Student Disability Services when they meet with instructors. Accommodations are not retroactive and new Faculty Accommodation Letters must be presented each semester.

Title IX Statement:

Clemson University is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender, pregnancy, national origin, age, disability, veteran's status, genetic information or protected activity (e.g., opposition to prohibited discrimination or participation in any complaint process, etc.) in employment, educational programs and activities, admissions and financial aid. This includes a prohibition against sexual harassment and sexual violence as mandated by Title IX of the Education Amendments of 1972. The policy is located at <http://www.clemson.edu/campus-life/campus-services/access/non-discrimination-policy.html>. Alesia Smith is Clemson University Title IX Coordinator. She is also the Executive Director of Equity Compliance, Her office is located at 223 Holtzendorff Hall, (864) 656-3181 (voice).

Inclement Weather:

Any exam that was scheduled at the time of a class cancellation due to inclement weather will be given at the next class meeting unless contacted by the instructor. Any assignments due at the time of a class cancellation due to inclement weather will be due at the next class meeting unless contacted by the instructor. Any extension or postponement of assignments or exams must be granted by the instructor via email or Canvas within 24 hours of the weather related cancellation.

Tentative Topics:

Topic	Text Chapter
Introduction	Chapters 1 and 2
Completely Randomized Designs	Chapter 3
Contrasts and Multiple Comparisons	Chapter 4
Checking Assumptions	Chapter 5
Factorial Experiments	Chapters 6 and 7
Block Designs	Chapters 10, 11, and 12
Analysis of Covariance	Chapter 9
Random Effects	Chapter 17
Confounding and Fractional Factorials	Chapter 13 and 15
Nesting and Split Plot Experiments	Chapter 18 and 19