

STAT 8020, Statistical Methods II
Section 001, Fall 2019
MWF, 12:20pm – 1:10pm, Martin Hall M-104

Instructor: William. C. Bridges and Whitney K. Huang
Email: wbrdgs@clermson.edu and wkhuang@clermson.edu
Office: O-117 and O-221 Martin Hall
Office Phone: (864) 656-3012, (864) 656-3070
Office Hours: 2:30pm – 3:30pm Tues., Weds., Thurs. and by appointment

Required Text:

An Introduction to Statistical Methods and Data Analysis, 6th Edition. **Lyman Ott and Micheal T. Longnecker, Duxbury, 2010; ISBN-13: 978-1305269477**

Registering for this course constitutes your agreement to follow the course policies listed in this syllabus

Attendance:

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

Exam Information:

There will be three in-class exams. The (tentative) dates for the three exams are:

1. **Exam 1:** September 20
2. **Exam 2:** October 18
3. **Exam 3:** November 15

The **Final Exam (Exam 4)** will be given on Monday, December 9, 8:00 am - 10:30 am.

Evaluation:

• Grade Distribution:	Quizzes and Homework	10%
	Exam 1	22.5%
	Exam 2	22.5%
	Exam 3	22.5%
	Exam 4	22.5%
• Letter Grade:	≥ 90.00	A
	$80.00 \sim 89.99$	B
	$70.00 \sim 79.99$	C
	≤ 69.99	F

- Extra credit assignments will not be given.
- Grades are not expected to be curved.
- Late assignments will not be accepted.

Course Objectives:

Upon successful completion of this course, students should be able to:

1. Summarize and interpret research data.
2. Draw appropriate conclusions and inferences from data.
3. Use several useful statistical techniques and know when and how to apply them.
4. Select and implement several basic experimental designs.
5. Use some standard statistical computing packages
6. Demonstrate an awareness of the power and capability of statistical software

Key Dates:

- **August 27:** Last day to register or add a class or declare audit
- **September 3:** Last day to drop a class or withdraw from the University without a W grade
- **October 29:** 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, veterans 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 and Dates:

Part I: Regression (August 21 – September 20)

- Simple Linear and Multiple Regression
- Model Building
- Residual Analysis
- Nonlinear Regression
- Analysis of Covariance/Heterogeneity of Slopes

Part II: Categorical and Non-normal Data (September 23 – October 18)

- One and Two Proportions
- Frequency Tables
- Nonparametric Analysis for Two Independent Samples: Wilcoxon Rank Sum Test
- Nonparametric Analysis for Paired Samples: Wilcoxon Signed-Rank Test
- Nonparametric Analysis for More Than Two Samples: Kruskal-Wallis Test

Part III: Design Basics (October 21 – November 15)

- Introduction to Experimental Design Principles and Techniques
- Experimental Designs With One Source of Variation
- Inferences for Contrasts and Treatment Means
- Block Designs
- Latin Square Designs
- Experiments with Two Crossed Treatment Factors
- Nested and Split-Plot Designs

Part IV: Multivariate Analysis (November 18 – December 6)

- Discriminate Analysis and Logistic Regression
- Principle Components Analysis
- Cluster Analysis