

MATH 3020-002

Statistics for Science and Engineering

Fall 2015

Instructor: Dr. Andrew Brown

Office: O-309, Martin Hall

Office Phone: (864) 656-1716¹

Office Hours: Wednesdays, 9:30 am - 10:30 am, or by appointment

Email: ab7@clemson.edu

Grader: Johanna Schramm

Office: 106 Long Hall

Email: jschram@g.clemson.edu

Lecture Hours: 11:15 am - 12:05 pm, MWF, 408, Daniel Hall

Prerequisites: MATH 2060 (Multivariate Calculus) or equivalent

Required Text: *Engineering Statistics*, 4th ed. (or 5th ed.), by Douglas C. Montgomery, George C. Runger, and Norma F. Hubele

Additional Course Resources: Please check the course webpage on Blackboard often for supplementary course material.

Email Communication: I will use your Clemson email address as the primary mode of communication for sending class announcements. You are responsible for messages sent to your Clemson email inbox. If you want sensitive information (e.g. an exam grade) via email, I will only respond to emails sent from your Clemson email (xxxx@clemson.edu or xxxx@g.clemson.edu), not Gmail, Yahoo, etc.

Learning Outcomes: Upon successful completion of the course, a student should be able to:

- Understand and interpret graphical and numerical summaries of data
- Calculate probabilities, especially from the normal and related distributions
- Draw inference about a population from sample data using hypothesis tests and confidence intervals

¹Email is my preferred mode of communication. It will probably be easier to get in touch with me that way.

- Understand the logic of hypothesis testing, along with the correct interpretation of a p -value
- Perform statistical calculations and present results using the statistical software package Minitab.

Topics to be Covered: The (tentative) outline for the course includes the following topics: Data summarization and visualization (descriptive statistics), random variables and probability distributions, probability mass/density functions, one- and two-sample inference, ANOVA, simple linear regression, additional topics chosen by the instructor if time permits.

Homework: Homework will be assigned periodically to be graded and returned to you in a timely manner. All assignments are to be **handed in at the beginning of class** on the due dates. **NO LATE HOMEWORK WILL BE ACCEPTED UNDER ANY CIRCUMSTANCES.** To accommodate unusual circumstances that prevent the completion of homework, the lowest homework grade will be dropped from evaluation of the homework average.

In-Class Assignments: Occasionally, I may assign a problem to be completed and turned in during class. If you are absent that day, **YOU MAY NOT COMPLETE THE ASSIGNMENT FOR CREDIT AT A LATER DATE.** To accommodate absences and unusual circumstances, the lowest in-class assignment grade will be dropped from evaluation of the in-class average.

Computer Instruction: I plan to occasionally give assignments that include the use of Minitab, available through the Clemson software repository as well as the Martin Hall computer lab. All computing assignments are expected to be completed in Minitab and must be handed in with the relevant output from the program, with your name and date included in the heading of it. The output is to be printed and handed in as you would any other homework assignment.

Exams: There will be three (3) in-class exams. **THERE WILL BE NO MAKE-UP EXAMS ALLOWED UNDER ANY CIRCUMSTANCES.** To accommodate unusual circumstances that prevent you from being present for an exam, the final exam will replace your lowest exam grade. If the final exam *is* your lowest grade, the other three exam scores will all count and the final exam score will be averaged in as the final exam component alone. The (tentative) dates for the exams are:

- Friday, September 25
- Wednesday, October 28
- Monday, November 23

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 extension or postponement of assignments or exams must be granted by the instructor via email or Blackboard within 24 hours of the weather related cancellation.

Final Exam: The final exam will be given on **Tuesday, December 8, 8:00 am - 10:30 am.**

Grade Evaluation: Your course grade will be evaluated according to the following weights: In-class assignment average, 5%; Homework average, 15%; Average of three exams, 55%; Final exam, 25%. Letter grades are determined as follows:

A: ≥ 90

B: 80 – 89

C: 70 – 79

D: 60 – 69

F: < 60

Notes:

- If a student has a course average greater than or equal to 93 going into the final, they may exempt the final exam and receive an A in the course.
- Decimals are rounded in the usual manner; e.g., an 89.5 gets rounded up to a 90, but 89.43 is rounded down to an 89.

Attendance Policy: I have no particular attendance policy. I expect you to be mature enough to attend class without me forcing you to. If you must miss a day, you need not inform me ahead of time. **You are responsible for any material that is covered in your absence.** I plan to give in-class assignments from time to time, however. If you miss one, you will receive a zero for that assignment. **These cannot be made-up at a later date** (see In-Class Assignments above). In accordance with university policy, “[i]f no advance arrangements are made, students are authorized to leave after a fifteen minute wait (on an absent instructor or substitute).”

Important Dates:

- Tuesday, August 25: End of add period
- Tuesday, September 1: End of drop period
- Friday, October 9: Midterm grades reported
- Monday, October 12 - Tuesday, October 13: Fall break, no class
- Tuesday, October 27: Withdrawal deadline
- Wednesday, November 25 - Friday, November 27: Thanksgiving break, no class
- Tuesday, December 8, 8:00 am - 10:30 am: Final Exam

Academic Integrity Policy: “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.” I take academic honesty very seriously and will pursue appropriate measures in instances of suspected cheating. “Cheating” includes, but is not limited to, (i) turning in work that someone else did for credit, (ii) plagiarism, and (iii) inappropriate contact or conduct during an exam, e.g., talking to other students or having extra resources with you that are not allowed.

Disability Access: Students with disabilities who need accommodations should make an appointment with Dr. Margaret Camp (656-6848), Director of Disability Services, 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.

Clemson University Title IX (Sexual Harassment): 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 compliant 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. This policy is located at <http://www.clemson.edu/campus-life/campus-services/access/title-ix/>. Mr. Jerry Knighton is the Clemson University Title IX Coordinator. He is also the Director of Access and Equity. His office is located at 111 Holtzendorff Hall, 864-656-3181 (voice) or 864-565-0899 (TDD).

The course syllabus is a general plan for the course. Deviations that may be necessary will be announced to the class.