Instructor: Trevor Hefley
Office: 205 Dickens Hall
Office Hours: Monday, Wednesday, and Friday 11:30am-12:20pm; or by appointment.
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Course website: https://sites.google.com/view/trevorhefleystat713fall2017

Introduction: This course is directed towards first-year graduate statistics majors. The focus of the course is matrix-based regression and analysis of variance procedures at an appropriate mathematical level. The course serves as a bridge to the more theoretical STAT 860 for those students who will be taking this course.

Prerequisites: Prior knowledge of matrix or linear algebra and one prior course in statistics. This knowledge could be gained from the K-State courses Math 515 (which carries a Calc III prereq) or Math 551 (which carries a Calc I prereq). This course differs from our Stat 704/705 sequence in that is it more mathematical and focuses on the applied mathematics underlying linear models.

Required textbook and software:
https://sites.google.com/view/trevorhefleystat713fall2017/resources

Tentative topics: Our objective will be to cover the majority of the material in Linear Models with R. This text will be supplemented with additional material that helps students build their R programing and linear algebra skills. During the semester we will cover the basics such as regression model building and checking, least squares estimation, and transformations. We will also cover modern topics such as regularization, Bayesian approaches, generalized linear models and random effects models. In addition, we will develop the skills necessary to produce documents that comply with reproducible research standards.

Reproducibility requirement: I expect that all homeworks, exams, and other assignments that involve reporting of the results obtained from computer programs will be reproducible. In the most basic sense, this is equivalent to "showing your work" as you would for assignments with analytical components. During the semester we will develop the tools necessary to implement reproducible results.

Grading: The course will be for 3 credits, graded on an A-F scale. A (>90%), B (90%-80%), C (80%-70%), D (70%-60%), and F (<60%).
- Assignments and more (35%): Includes homework, class participation, and so on.
- Exams (40%): There will be 2-3 exams. The date of each exam will be announced at least 10 days prior to the examination. Exams may include in-class, take-home, and oral examination during office hours.
- Final project (25%): A final project of the students choice will be assigned. Students will be expected to provide a ~10 min presentation of their project during class at the end of the semester. Please plan to meet with me during office hours at least once during the semester to discuss your project.

General Policies: Class attendance is expected. Late homework, take-home exams, and projects will not be accepted. Any make-up exams must be arranged with me and agreed upon in advance; otherwise, missed exams will be graded as zero unless it was due to a serious and documented emergency.

Academic Honesty: Kansas State University has an Honor System based on personal integrity, which is presumed to be sufficient assurance that, in academic matters, one's work is performed honestly and without unauthorized assistance. Undergraduate and graduate students, by registration, acknowledge the jurisdiction of the Honor System. The policies and procedures of the Honor System apply to all full and part-time students enrolled in undergraduate and graduate courses on-campus, off-campus, and via distance learning. For more information, visit the Honor and Integrity System home web page at: http://www.k-state.edu/honor/

A component vital to the Honor System is the inclusion of the Honor Pledge which applies to all assignments, examinations, or other course work undertaken by students. The Honor Pledge is implied, whether or not it is stated: "*On my honor, as a student, I have neither given nor received unauthorized aid on this academic work.*" A grade of XF can result from a breach of academic honesty. The F indicates failure in the course; the X indicates the reason is an Honor Pledge violation.

Academic Accommodations for Students with Disabilities: Students with disabilities who need classroom accommodations, access to technology, or information about emergency building/campus evacuation processes should contact the Student Access Center and/or their instructor. Services are available to students with a wide range of disabilities including, but not limited to, physical disabilities, medical conditions, learning disabilities, attention deficit disorder, depression, and anxiety. If you are a student enrolled in campus/online courses through the Manhattan or Olathe campuses, contact the Student Access Center at accesscenter@k-state.edu, 785-532-6441.

Expectations for Classroom Conduct: All student activities in the University, including this course, are governed by the Student Judicial Conduct Code as outlined in the Student Government Association By Laws, Article VI, Section 3, number 2. Students that engage in behavior that disrupts the learning environment may be asked to leave the class.

Copyright Notification: During this course students are prohibited from selling notes to or being paid for taking notes by any person or commercial firm, or posting lecture notes on any websites without the express written permission of the professor teaching this course.