STOR 455-002
METHODS OF DATA ANALYSIS
Fall 2023

Course Description

This course is a review of basic inference; two-sample comparisons, correlation; simple and multiple regression (including significance tests, diagnostics, variable selection); analysis of variance; and the use of statistical software.

Course Goals
This course will enable you to:

- understand the context for linear regression to evaluate models and estimate and predict likely values;

- transform data to deal with problems identified in the regression model;

- perform methods for building multiple regression models;

- include categorical predictors into a regression model;

- distinguish between outliers and influential data points and how to deal with these; and

- become competent using the R and RStudio to construct and evaluate regression models

Course Details

Number	STOR 455-002
Title	Methods of Data Analysis
Credit hours	3
Course Format	The course format will include 2 lectures per week. Lectures will be supplemented with in-class programming and practical discussion.
Prerequisites	STOR 120 or STOR 155 or Exemption
Target Audience	1st or 2nd year undergraduates interested in building a strong mathematical foundation in linear regression and other related topics.
Instructor	Dr. Mario Giacomazzo Office: Hanes 134 Phone: 480-489-1398 (Cell) Email: mgiacoma@email.unc.edu Office Hours: W, 9AM – 11 AM / 12PM – 2PM
Graduate TA	Coleman Ferrell Office: TBD Email: TBD Office Hours: TBD
Course Website	https://supermariogiacomazzo.github.io/STOR455_WEBSITE/
Class Days, Times, Location	TTh, 2PM – 3:15PM, Gardner 105
Required Text	Stat2: Modeling with Regression and ANOVA, Cannon et. al. (Freeman 2019) 2nd edition
Required Technology	Computer with R and RStudio Installed. Gradescope will be used to submit nearly all assignments for the course. This platform allows us to create a living rubric for speedy grading of large courses. You can login to Gradescope using your ONYEN.

Course Assessments

Assignments	Percentages
Attendance	5%
Homework	35%
Quizzes	15%
Midterms	25%
Final Exam	20%

Grading Scale

Your final grade is based on a weighted average according to the previously addressed breakdown. Curving on individual/group assessments should not be expected. A curve may be applied to the final grades depending upon the class average. Conversion to a letter grade will be based on the table below:

A	93 to 100	B	83 to 86.99	C	73 to 76.99	D	60 to 66.99
A-	90 to 92.99	B-	80 to 82.99	C-	70 to 72.99	F	0 to 59.99
B+	87 to 89.99	C+	77 to 79.99	D+	67 to 69.99		

Assignment Descriptions

Attendance:

Attendance will be taken every class using the UNC Check-in App. You will need to install the UNC Check-in app to your mobile device and bring it to every class. Starting at the beginning of class, you will have 15 minutes to check-in using the mobile app. Instructions for installing and using the UNC Check-in App are available at https://uncheckin.unc.edu/. Go to this website to learn more. You need to attend at least 70% of the classes to get credit for attendance, otherwise you will receive a 0 for your attendance grade. If you need to miss class for a reason permitted by the university and you don't want to be penalized, you will need to get a university approved absence at https://uaao.unc.edu/. If you cannot get a university approved absence and don't want to be penalized, you must notify your instructor of the reason and provide documentation of the reason in email. The reason should line up with UNC'S definition of a university approved absence. For example, a job interview would not be approved by the university or me.

Homework:

The bulk of the work you do for this class will be in the form of homework assignments. Homework assignments will typically be weekly and due on Thursdays. You will receive template RMD files that you must convert to PDF and submit to Gradescope by the deadline. Late assignments will not be accepted unless you notify your instructor prior to the due date with a reason approved by the university and provide documentation of that reason.

In most cases, these homework assignments need to be completed individually without any help from other students, AI tools (e.g. ChatGPT), or uploaded work from other students (e.g. CourseHero). If you cheat, you will receive a 0 and the alleged violation will be reported to UNC.

Quizzes:
Expect there to be quiz almost every week, typically on Tuesdays. Each quiz will be taken on Canvas during the last 5-15 minutes of class and will cover all material after the previous quiz. You will know about quizzes in advance. If you are not in attendance the day of a quiz, you will receive a 0.

You will need to have your computer in class for these quizzes. These quizzes will be "open book" meaning you will be able to use all provided course material, the internet, and R to help you. You cannot get help from other students. These quizzes will be have a deadline, and you will be penalized for not submitting on-time.

Make-up quizzes are only possible for University approved absences or consent from the instructor due to extenuating circumstances. Unless you have accommodations as determined by the university or university approved absences, you must take the quizzes at the dates and times provided. If you have accommodations, please provide the formal notification before the second week of classes.

Midterms:
There will be 2 midterm exams during the semester. The date and material covered of each midterm will be announced at least 1 week before the midterm occurs. Midterms will be completed during class and submitted to Gradescope as a knitted PDF by the end of class.

You will need to have your computer in class for these midterms. These midterms will be "open book" meaning you will be able to use all provided course material, the internet, and R to help you. You cannot get help from other students. You will be penalized for not submitting on-time.

Make-up midterms are only possible for University approved absences or consent from the instructor due to extenuating circumstances. Unless you have accommodation as determined by the university or university approved absences, you must take the midterms at the dates and times provided. If you have accommodation, please provide the formal notification before the second week of classes.

Final Exam:
The final exam will occur on December 12, 2023, from 12:00PM to 3:00PM in our normal classroom. The final exam will be completed during class and submitted to Gradescope as a knitted PDF by the end of class. The final exam will cover all of the material taught in the semester.

You will need to have your computer in class for this exam. The exam will be "open book" meaning you will be able to use all provided course material, the internet, and R to help you. You cannot get help from other students. You will be penalized for not submitting on-time.

Make-up final exams are only possible for University approved absences or consent from the instructor due to extenuating circumstances. Unless you have accommodation as determined by the university or university approved absences, you must take the final exam during the University Scheduled Exam Time. If you have accommodation, please provide the formal notification before the second week of classes.

Course Policies and Resources

Syllabus Changes

Dr. Mario reserves the right to make changes to the syllabus, including all due dates. These changes will be announced as early as possible so that students can adjust their schedules.

Attendance Policy

University Policy: As stated in the University's Class Attendance Policy, no right or privilege exists that permits a student to be absent from any class meetings, except for these University Approved Absences:

1. Authorized University activities: University Approved Absence Office (UAAO) website provides information and FAQs for students and FAQs for faculty related to University Approved Absences
2. Disability/religious observance/pregnancy, as required by law and approved by Accessibility Resources and Service and/or the Equal Opportunity and Compliance Office (EOC)
3. Significant health condition and/or personal/family emergency as approved by the Office of the Dean of Students, Gender Violence Service Coordinators, and/or the Equal Opportunity and Compliance Office (EOC).

Instructors may work with students to meet attendance needs that do not fall within University approved absences. For situations when an absence is not University approved (e.g., a job interview, illness/ flu or club activity), instructors are encouraged to work directly with students to determine the best approach to missed classes and make-up assessment and assignments. Dr. Mario will require digital documentation in situations that are not University approved, but instructor approved. Without documentation, approval to miss class will definitely not be given, and Dr. Mario has the right to inspect the validity of the documentation. Dishonest documentation is a violation of UNC's honor code.

Technology Use

Students are required to bring their cell phone and computer to every class. Students must have R and RStudio installed on their computer. Directions for free downloads of this software will be provided. The professor or teaching assistant will occasionally request computers to be closed for dynamic discussion and guest speakers.

Time Limit for Grade Disputes

You only have 1 week after the grading of an assessment is complete to dispute your grade and possibly receive points back for that assessment. The only grade that should be disputed and modified after the last day of class is the final exam. Dr. Mario makes mistakes and desires that all students receive a fair grade that is correct. However, it is the student's responsibility to review their grades on assignments in a timely manner so that Dr. Mario can make fair decisions and modify grades quickly.

Accessibility Resources

Accessibility Resources and Service (ARS – ars@unc.edu) receives requests for accommodations, and through the Student and Applicant Accommodations Policy determines eligibility and identifies reasonable accommodations for students with disabilities and/or chronic medical conditions to mitigate or remove the barriers experienced in accessing University courses, programs and activities.

ARS also offers its Testing Center resources to students and instructors to facilitate the implementation of testing accommodations.

Faculty and instructors with any concerns or questions about accommodations and/or their implementation, are invited to [reach out to ARS](#) to discuss.

Undergraduate Testing Center

The College of Arts and Sciences provides a secure, proctored environment in which exams can be taken. The center works with instructors to proctor exams for their undergraduate students who are not registered with ARS and who do not need testing accommodations as provided by ARS. In other words, the Center provides a proctored testing environment for students who are unable to take an exam at the normally scheduled time (with pre-arrangement by your instructor). For more information, visit http://testingcenter.web.unc.edu/.

Honor Code

Remember that as a student of UNC-Chapel Hill, you are bound by the University's Honor Code, which states that "It shall be the responsibility of every student at The University of North Carolina at Chapel Hill to obey and support the enforcement of the Honor Code, which prohibits lying, cheating, or stealing when these actions involve academic processes or University students or academic personnel acting in an official capacity." An especially serious Honor Code violation is plagiarism. You may wish to take a tutorial on plagiarism that was developed by librarians at UNC, Duke, NCSU, and NCCU. If you have questions, please consult your instructor.

You are not permitted to download or upload any content from this course to the web in any form, including but not limited to Chegg, Course Hero, Coursera, Google Drive, etc. If you post my course content, you may be violating my intellectual property rights. If you post your own work from this course, you are allowing sites to profit from your intellectual property. In utilizing web sources to upload or download course content, you risk violating the University's Honor Code.

IT Acceptable Use Policy

By attending the University of North Carolina at Chapel Hill, you agree to abide by the University of North Carolina at Chapel Hill policies related to the acceptable use of IT systems and services. The Acceptable Use Policy (AUP) sets the expectation that you will use the University's technology resources responsibly, consistent with the University's mission. In the context of a class, it's quite likely you will participate in online activities that could include personal information about you or your peers, and the AUP addresses your obligations to protect the privacy of class participants. In addition, the AUP addresses matters of others' intellectual property, including copyright. These are only a couple of typical examples, so you should consult the full [Information Technology Acceptable Use Policy](#), which covers topics related to using digital resources, such as privacy, confidentiality, and intellectual property.

Additionally, consult the [Safe Computing at UNC](#) website for information about data security policies, updates, and tips on keeping your identity, information, and devices safe.

Counseling and Psychological Services

UNC-Chapel Hill is strongly committed to addressing the mental health needs of a diverse student body. The Heels Care Network website is a place to access the many mental health resources at Carolina. CAPS is the primary mental health provider for students, offering timely access to consultation and connection

to clinically appropriate services. Go to their website https://caps.unc.edu/ or visit their facilities on the third floor of the Campus Health building for an initial evaluation to learn more. Students can also call CAPS 24/7 at 919-966-3658 for immediate assistance.

Title IX and Related Resources

Any student who is impacted by discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, or stalking is encouraged to seek resources on campus or in the community. Reports can be made online to the EOC at https://eoc.unc.edu/report-an-incident/ or by contacting the University's Title IX Coordinator (Elizabeth Hall, titleixcoordinator@unc.edu) or the Report and Response Coordinators in the Equal Opportunity and Compliance Office (reportandresponse@unc.edu). Confidential resources include Counseling and Psychological Services and the Gender Violence Services Coordinators (gvsc@unc.edu). Additional resources are available at safe.unc.edu.

Policy on Non-Discrimination

The University is committed to providing an inclusive and welcoming environment for all members of our community and to ensuring that educational and employment decisions are based on individuals' abilities and qualifications. Consistent with this principle and applicable laws, the University's Policy Statement on Non-Discrimination offers access to its educational programs and activities as well as employment terms and conditions without respect to race, color, gender, national origin, age, religion, genetic information, disability, veteran's status, sexual orientation, gender identity or gender expression. Such a policy ensures that only relevant factors are considered, and that equitable and consistent standards of conduct and performance are applied.

If you are experiencing harassment or discrimination, you can seek assistance and file a report through the Report and Response Coordinators (email reportandresponse@unc.edu or see additional contact info at safe.unc.edu) or the Equal Opportunity and Compliance Office at https://eoc.unc.edu/report-an-incident/.

Learning Center

Want to get the most out of this course or others this semester? Visit UNC's Learning Center at http://learningcenter.unc.edu to make an appointment or register for an event. Their free, popular programs will help you optimize your academic performance. Try academic coaching, peer tutoring, STEM support, ADHD/LD services, workshops and study camps, or review tips and tools available on the website.

Writing Center

For free feedback on any course writing projects, check out UNC's Writing Center. Writing Center coaches can assist with any writing project, including multimedia projects and application essays, at any stage of the writing process. You don't even need a draft to come visit. To schedule a 45-minute appointment, review quick tips, or request written feedback online, visit http://writingcenter.unc.edu.