



Syllabus

[Click here](#) to download a PDF copy of the syllabus.

Office hours

[Click here](#) for the instructor and TA office hours locations and Zoom links. You are welcomed to attend the office hours for **any** ST 511, regardless of section.

Textbooks

While there is no official textbook for the course, readings will primarily be assigned from the following texts (all freely available online)

[R for Data Science, 2e](#)

Grolemund, Wickham

[Introduction to Modern Statistics](#)

Çetinkaya-Rundel, Hardin

[Tidy modeling with R](#)

Max Kuhn and Julia Silge

[Beyond Multiple Linear Regression](#)

Paul Roback and Julie Legler

Course learning objectives

By the end of the semester, you will...

- learn to explore, visualize, and analyze data, in a shareable manner using Quarto
- gain experience in exploratory data analysis, predictive modeling, data visualization, and hypothesis testing using R & Rstudio
- work on problems and case studies inspired by and based on real-world questions and data
- learn to effectively communicate results

Course community: NC State Community Standard

Inclusive community

It is my intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that the students bring to this class be viewed as a resource, strength, and benefit. It is my intent to present materials and activities that are respectful of diversity and in alignment with [NC State's Commitment to Diversity and](#)

[Inclusion](#). Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally, or for other students or student groups.

Furthermore, I would like to create a learning environment for my students that supports a diversity of thoughts, perspectives and experiences, and honors your identities. To help accomplish this:

If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me.

Accessibility & Accommodations

If there is any portion of the course that is not accessible to you due to challenges with technology or the course format, please let me know so we can make appropriate accommodations.

The [Office for Institutional Equity and Diversity](#) is available to ensure reasonable accommodations based on disability, religion and pregnancy.

The [Disability Resources Office](#) helps to ensure that students with disabilities are provided an inclusive experience and equal opportunity to participate in courses and programs by determining eligibility for accommodations and serving as a resource to faculty in helping them understand their obligation in providing equal access.

Communication

All slides, assignment instructions, an up-to-date schedule, and other course materials may be found on the course website.

Announcements will be posted on Moodle & on Slack periodically.

Where to get help

- If you have a question during lecture, feel free to ask it! There are likely other students with the same question, so by asking you will create a learning opportunity for everyone.
- The TA and I are here to help you be successful in the course. You are encouraged to attend office hours to ask questions about the course content and assignments. Many questions are most effectively answered as you discuss them with others, so office hours are a valuable resource. Please use them!

Email

If there is a question that's not appropriate for the public forum, you are welcome to email me directly. **If you email me, please include "ST 511-section#" in the subject line.** Barring extenuating circumstances, I will respond to ST 511 emails within 24 hours Monday - Friday. Response time may be slower for emails sent Friday evening - Sunday.

Activities & Assessment

The activities and assessments in this course are designed to help you successfully achieve the course learning objectives. They are designed to follow the **Build, Train, Create** format.

- **Build:** We have designed material to help build up an initial foundation of topics in data science. These materials include short videos, reading assignments, and lectures to introduce new concepts and ensure a basic comprehension of the material. The goal is to help you prepare for the in-class activities during lecture.
- **Train:** During class, you will train your brain using in-class application exercises. These exercises are to help develop both the skills to accomplish data science tasks, as well as the ability to problem solve and extend your knowledge to new situations.
- **Create:** We have designed assessments for you to create material that demonstrates your understanding of the covered content. These assessments extend upon the build and train aspects of this course, are the opportunity for you to demonstrate your understanding of the course material, and how it is applied to analyze real-world data.

Prepare (Build)

Prior to the start of class, the expectation is to have read / watched the prepare material assigned. These materials will help prepare you to learn in a hands on environment during class. These can be found in the *prepare* column of our schedule on the website. Building a strong foundation of knowledge (keeping up with the prepare material) to continue building upon is essential to the success in this course.

Lectures (Train)

Part of the class time will be lectures that introduce new concepts or review topics from the preparation videos. Lectures will **not** repeat everything in the videos, they will instead highlight important and known to be complex concepts and will be supplemented with live coding activities. You are expected to attend every lecture. Lectures will be recorded and made available to students with an excused absence upon request.

Application exercises (Train)

A majority of the in-class lectures will be dedicated to working on Application Exercises (AEs). These exercises which give you an opportunity to practice apply the statistical concepts and code introduced in the prepare assignment.

Because these AEs are for practice, they will be graded based on completion, i.e., a good-faith effort has been made in attempting all parts.

Homework (Create)

In homework, you will apply what you've learned during lecture and lab to complete data analysis tasks. You may discuss homework assignments with other students; however, homework should be completed and submitted individually. Homework must be typed up using Quarto and GitHub and submitted as a PDF in Gradescope.

Quizzes (Create)

Quizzes will be weekly/bi-weekly. Quizzes will largely be made up of questions from the application exercises. Quizzes will be located in Moodle.

The lowest quiz grade will be dropped at the end of the semester.

Exams (Create)

There will be two exams in this course (one midterm and one final). The midterm will have both an in-class and take home portion. The final exam will just be in-class. Through these exams you have the opportunity to demonstrate what you've learned in the course. The exams will focus on both conceptual understanding of the content and application through analysis and computational tasks. More details about the content and structure of the exams will be discussed during the semester.

Grading

The final course grade will be calculated as follows:

Category	Percentage
Homework	35%
Quizzes	10%
Exam 01	35%
Final Exam	20%

The final letter grade will be determined based on the following thresholds:

Letter Grade	Final Course Grade
A+	≥ 97
A	90 - 96.99
B+	87 - 89.99
B	80 - 86.99
C+	77 - 79.99
C	70 - 76.99
D+	67 - 69.99
D	60 - 66.99

Letter Grade	Final Course Grade
F	< 60

Course policies

Academic honesty

TL;DR: Don't cheat!

Please abide by the following as you work on assignments in this course:

- You may discuss individual homework with other students; however, you may not directly share (or copy) code or write up with other students. Unauthorized sharing (or copying) of the code or write up will be considered a violation for all students involved.
- You may not discuss or otherwise work with others on the exams. Unauthorized collaboration or using unauthorized materials will be considered a violation for all students involved. More details will be given closer to the exam date.
- **Reusing code:** Unless explicitly stated otherwise, you may make use of online resources (e.g. StackOverflow) for coding examples on assignments. If you directly use code from an outside source (or use it as inspiration), you must explicitly cite where you obtained the code. Any recycled code that is discovered and is not explicitly cited will be treated as plagiarism.

Any violations in academic honesty standards will automatically result in a 0 for the assignment and will be reported to the [Office of Student Conduct](#) for further action.

AI & Assessments

The use of generative AI (such as ChatGPT) is not permitted on assessments for ST511.

I acknowledge that ChatGPT can be a powerful learning tool, but the use of it can rob you from building a foundational understanding of coding, statistics, and data science concepts. We build this foundation by critically thinking and working hands-on with the class material, not by asking AI to think for us.

If you were learning a new language, would you practice or would you type everything into Google translate?

Further, generative AI may be (and is often) not entirely accurate. Especially with R code, as it is a complex coding language. In many cases, generative AI suggests code outside the scope of this course, or suggests wrong code that may be hard to distinguish from something that is correct. **Given that we are seeing and learning R for the first time, this type of workflow is not recommended and unproductive to you as a learner of data science.**

Late work & extensions

The due dates for assignments are there to help you keep up with the course material and to ensure the teaching team can provide feedback within a timely manner. We understand that things come up

periodically that could make it difficult to submit an assignment by the deadline.

Late work

- Homework may be submitted up to 1 day (24 hours) late. There will be a 10% deduction for a late assignment.
- **Take home exams cannot be turned in late and can only be excused under exceptional circumstances.**
- The late work policy for the project will be provided with the project instructions.

Waiver for extenuating circumstances

A last-minute technical issue, being gone for vacation, or forgetting a deadline is not an extenuating circumstances. Start early.

If there are circumstances that are having a longer-term impact on your academic performance, please let your academic dean know, as they can be a resource. Please let Dr. Elijah Meyer know if you need help contacting your academic dean.

Class recording requests

Lectures will be recorded on Panopto and will be made available to students with an excused absence upon request. Videos shared with such students will be available for a week. To request a particular lecture's video, please email me (*your professor*). Please also make sure that any official documentation are also uploaded and provided in the email.