Syllabus

Click here to download a PDF copy of the syllabus.

Teaching team & office hours

Instructor

Name	Contact	Office hours	
Prof. Maria Tackett		TBD	Old Chem 118B

Teaching Assistants

Name	Contact	Office hours	
Meredith Brown		TBD	
Carson Garcia		TBD	
Rob Kravec		TBD	
Shirley Mathur		TBD	
Manny Mokel		TBD	
Margaret Reed		TBD	
Camilla Yu		TBD	

Course info

	Day	Time	Location
Lectures	Mon & Wed	1:45p - 3p	Soc Sci 136

Lab 07	Thu	12p - 1:15p	Soc Sci 311
Lab 08	Thu	3:30p - 4:45p	Perkins 071 (Link #5)
Lab 09	Thu	5:15p - 6:30p	Perkins 071 (Link #5)

Textbooks

Texts

All books are freely available online. Hardcopies are also available for purchase.

R for Data Science	Grolemund, Wickham	O'Reilly, 1st edition, 2016
Introduction to Modern Statistics	Çetinkaya-Rundel, Hardin	OpenIntro Inc., 1st Edition, 2021

Course Learning Objectives

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

- learn to explore, visualize, and analyze data in a reproducible and shareable manner
- gain experience in data wrangling and munging, exploratory data analysis, predictive modeling, and data visualization
- work on problems and case studies inspired by and based on real-world questions and data
- learn to effectively communicate results through written

assignments and final project presentation

Course community

Duke Community Standard

As a student in this course, you have agreed to uphold the Duke Community Standard as well as the practices specific to this course.

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 Duke'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. If you prefer to speak with someone outside of the course, your academic dean is an excellent resource.
- I (like many people) am still in the process of learning about diverse perspectives and identities. If something was said in class (by anyone) that made you feel uncomfortable, please let me or a member of the teaching team know.

Accessibility

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 Student Disability Access Office (SDAO) is available to ensure that students are able to engage with their courses and related assignments. Students should be in touch with the Student Disability Access Office to request or update accommodations under these circumstances.

Communication

All lecture notes, assignment instructions, an up-to-date schedule, and other course materials may be found on the

course website, https://www.sta210-fa21-003.netlify.app .

Announcements will be emailed through Sakai Announcements periodically. Please check your email regularly to ensure you have the latest announcements for the course.

Where to get help

- If you have a question during lecture or lab, 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 teaching team is 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!
- Outside of class and office hours, any general questions about course content or assignments should be posted on Ed Discussion. There is a chance another student has already asked a similar question, so please check the other posts in Ed Discussion before adding a new question. If you know the answer to a question posted in the discussion forum, I encourage you to respond!

Check out the Help tab for more resources.

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 "STA 199" in the subject line.** Barring extenuating circumstances, I will respond to STA 199 emails within 48 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 **Prepare, Practice, Perform** format.

- **Prepare**: Includes short videos, reading assignments, and a short quiz 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.

- **Practice**: Includes in-class application exercises where you will begin to the concepts and methods introduced in the prepare assignment. the activities will graded for completion, as they are designed for you to gain experience with the statistical and computing techniques before working on graded assignments.

- **Perform**: Includes labs, homework, exams, and the final project. These assignments build upon the prepare and practice assignments and are the opportunity for you to demonstrate your understanding of the course material and how it is applied to analyze real-world data.

Prep quizzes (Prepare)

These are low-stakes quizzes that will be completed at the beginning of each unit (about once per week) as part of the preparation for lecture. These quizzes include multiple choice and fill-in-the-blank questions. Each quiz will be administered in Sakai and may be taken up to three times. The quiz is due by the beginning of lecture on the specified due date. An overall score of 80% on all quizzes will result in full credit for prep quizzes in the final course grade.

Application Exercises (Practice)

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. These AEs are due within three days of the corresponding lecture period. Specifically, AEs from Monday lectures are due Thursday by 11:59p ET, and AEs from Wednesday lectures are due Saturday by 11:59p ET.

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. Successful on-time completion of at least 80% of AEs will result in full credit for AEs in the final course grade.

In addition to AEs will be periodic activities help build a learning community. These will be short, fun activities that will help everyone in the class connect throughout the semester.

Labs (Perform)

In labs, you will apply the concepts discussed in lecture to various data analysis scenarios, with a focus on the computation. Most lab assignments will be completed in teams, and all team members are expected to contribute equally to the completion of each assignment. You are expected to use the team's Git repository on the course's GitHub page as the central platform for collaboration. Commits to this repository will be used as a metric of each team member's relative contribution for each lab, and there will be periodic peer evaluation on the team collaboration. Lab assignments will be completed using R Markdown, correspond to an appropriate GitHub repository, and submitted for grading in Gradescope.

The lowest lab grade will be dropped at the end of the

semester.

Homework (Perform)

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. Similar to lab assignments, homework must be typed up using R Markdown and GitHub and submitted as a PDF in Gradescope.

One homework assignment will be dedicated to a *statistics experience*. The statistics experience is an opportunity to engage with statistics and data science outside of the classroom through podcasts, books, seminars, data analysis competitions, and other activities. As you complete these experiences, the goal is to consider how the material you're learning in the course connects with society more broadly.

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

Exams (Perform)

There will be two, take-home, open-note exams. Through these exams you have the opportunity to demonstrate what you've learned in the course thus far. Each exam will include

small analysis and computational tasks related to the content in the prepare, practice, and perform assignments. More details about the content and structure of the exams will be discussed during the semester.

Final Project (Perform)

The purpose of the final project is to apply what you've learned throughout the semester to analyze an interesting data-driven research question. The project will be completed with your lab teams, and each team will present their work in video and in writing during the final exam period. More information about the project will be provided during the semester.

Grading

The final course grade will be calculated as follows:

Category	Percentage
Homework	25%
Labs	15%
Final Project	15%
Exam 01	17.5%
Exam 02	17.5%
Prep quizzes	5%
Application Exercises	2.5%

Teamwork	2.5%

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

Letter Grade	Final Course Grade
A	>= 93
A-	90 - 92.99
B+	87 - 89.99
B	83 - 86.99
B-	80 - 82.99
C+	77 - 79.99
C	73 - 76.99
C-	70 - 72.99
D+	67 - 69.99
D	63 - 66.99
D-	60 - 62.99
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 and lab assignments with other students; however, you may not directly share (or copy) code or write up with other students. For team assignments, you may collaborate freely within your team. You may discuss the assignment with other teams; however, you may not directly share (or copy) code or write up with another team. 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 as outlined in the Duke Community Standard and those specific to this

course will automatically result in a 0 for the assignment and will be reported to the Office of Student Conduct for further action.

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. Note that the lowest homework and lab assignment will be dropped to accommodate such circumstances.

Late work policy

- Homework and labs may be submitted up to 3 days late. There will be a 5% deduction for each 24-hour period the assignment is late.
- There is no late work accepted for prep quizzes or application exercises, since these are designed to help you prepare for labs and homework.
- The late work policy for exams will be provided with the exam instructions.
- The late work policy for the project will be provided with

the project instructions.

Waiver for extenuating circumstances

If there are circumstances that prevent you from completing a lab or homework assignment by the stated due date, you may email Professor Tackett before the deadline to waive the late penalty. In your email, you only need to request the waiver; you do not need to provide explanation. This waiver may only be used for once in the semester, so only use it for a truly extenuating circumstance.

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 Professor Tackett know if you need help contacting your academic dean.

Regrade Requests

Regrade requests must be submitted on Gradescope within a week of when an assignment is returned. Regrade requests will be considered if there was an error in the grade calculation or if you feel a correct answer was mistakenly marked as incorrect. Requests to dispute the number of points deducted for an incorrect response will not be considered. Note that by submitting a regrade request, the entire question will be graded which could potentially result

in losing points.

No grades will be changed after the final project presentations.

Additional resources

Academic Resource Center

There are times may need help with the class that is beyond what can be provided by the teaching team. In those instances, I encourage you to visit the Academic Resource Center. The Academic Resource Center (ARC) offers free services to all students during their undergraduate careers at Duke. Services include Learning Consultations, Peer Tutoring and Study Groups, ADHD/LD Coaching, Outreach Workshops, and more. Because learning is a process unique to every individual, they work with each student to discover and develop their own academic strategy for success at Duke. Contact the ARC to schedule an appointment. Undergraduates in any year, studying any discipline can benefit! Contact ARC@duke.edu, 919-684-5917.

CAPS

Duke Counseling & Pyschological Services (CAPS) helps Duke Students enhance strengths and develop abilities to successfully live, grow and learn in their personal and

academic lives. CAPS recognizes that we are living in unprecedented times and that the changes, challenges and stressors brought on by the COVID-19 pandemic have impacted everyone, often in ways that are tax our well-being. CAPS offers many services to Duke undergraduate students, including brief individual and group counseling, couples counseling and more. CAPS staff also provides outreach to student groups, particularly programs supportive of at-risk populations, on a wide range of issues impacting them in various aspects of campus life. CAPS provides services to students via Telehealth. To initiate services, you can contact their front desk at 919-660-1000.

Important dates

- **Aug 23:** Classes begin
- **Sep 3**: Drop/add ends
- **Oct 4-5**: Fall break
- **Nov 5**: Last day to withdraw with W
- **Nov 24-26:** Thanksgiving recess
- **Dec 3**: Classes end
- **Dec 4-7**: Reading period
- **Dec 8-13**: Final exams

Click here for the full Duke academic calendar.