

Policies

dashboard Click the icon to download a PDF copy of the course policies.

Course Learning Objectives

- 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

Units

- Unit 1: Collecting, wrangling, & visualizing data
- Unit 2: Making rigorous conclusions
- Unit 3: Introductory modeling techniques

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.

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 accommodations.

In addition to accessibility issues experienced during the typical academic year, I recognize that remote learning may present additional challenges. Students may be experiencing unreliable wi-fi, lack of access to quiet study spaces, varied time-zones, or additional responsibilities while studying at home. If you are experiencing these or other difficulties, please contact me to discuss possible accommodations.

Duke University is committed to providing equal access to students with documented disabilities. Students with disabilities may contact the Student Disability Access Office (SDAO) to ensure your access to this course and to the program. Students are encouraged to register with the SDAO as soon as they begin the program.

Please note that accommodations are not provided retroactively. More information can be found online at access.duke.edu.

Academic Honesty

By enrolling in this course, you have agreed to abide by and uphold the provisions of the Duke Community Standard as well as the policies specific to this course. Any violations will automatically result in a grade of 0 on the assignment and will be reported to Office of Student Conduct for further action.

- 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. Stack-Overflow) for coding examples on assignments. If you directly use code from an outside source (or use it as inspiration), you must or explicitly cite where you obtained the code. Any recycled code that is discovered and is not explicitly cited will be treated as plagiarism.
- On individual assignments, you may not directly share code or write up with other students. On team assignments, you may not directly share code or write up with another team. Unauthorized sharing of the code or write up will be considered a violation for all students involved.

Where to find 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 any of the office hours posted on the home page to ask questions as you study the course content and work through assignments. A lot of questions are most effectively answered in-person, 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 Piazza since there are likely other students with the same questions. The questions you post will be visible to the entire class, so please email the instructor directly with any specific questions about grades or personal matters.

Sometimes you may need help with the class that is beyond what can be provided by the teaching team. In that instance, 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!

Communication

All assignments and course materials may be found on the course website and GitHub page. There is also an up-to-date course schedule where you can find the lecture notes discussed in each class meeting, assignment deadlines, and reading assignments to help you prepare for each class.

Announcements may also be sent to the class by email, so please check your email regularly.

Activities & Assessments

The following activities and assessments will help you successfully achieve the course learning objectives. By experiencing the course content in different ways, you will not only gain a better understanding of data science, but you will also get experiences that can guide you as you apply what you've learned in future academic and professional projects.

Homework

There will be three individual homework assignments in this course, one corresponding to each unit. 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 R Markdown and GitHub and submitted as a PDF in Gradescope.

Individual homework extensions will only be given for extenuating circumstances. Please contact me directly if you have an extenuating circumstance that prohibits you from completing the homework by the stated due date.

Labs

In labs, you will apply the concepts discussed in lecture to various data analysis scenarios, with a focus on the computation. You will complete lab assignments individually, but can discuss with your classmates. You are expected to use your Git repository on the course's GitHub page as the central platform for work. Commits to this repository will be used as a component of the lab grade. Lab assignments will be completed using R Markdown, correspond to an appropriate GitHub repository, and submitted as a .pdf file to Gradescope.

To accommodate unexpected events, the lowest lab grade will be dropped at the end of the course for all students.

Exams

The exams are an opportunity to assess the knowledge and skills you've learned. Both exams will be take-home assignments that you are expected to complete individually. Each exam will include small analysis and computational tasks related to the content discussed in lectures, application exercises, homework assignments, and labs. More details about the content and structure of the exams will be discussed during the semester.

Final Project

The purpose of the project is to apply what you've learned throughout the semester to analyze an interesting data-based research question. The project will be completed in teams, and each team will present their results during the lecture on Wednesday, July 21. *You must complete the final project and present your work in class to pass the course.*

Participation & Application Exercises

Application exercises (AEs) give you an opportunity to practice using the statistical concepts and/or code discussed in lecture on short data analyses. They will typically be started during class and may be assigned to be completed by the next class meeting. If so, these AEs are due by the end of the next day; for instance, an AE associated with a lecture on Monday will be due Tuesday at 11:59p. AEs will be graded based on a good-faith effort has been made in attempting all parts. Successful on-time completion of at least 90% of AE will result in full points for that AE; anything lower than that will be assigned points accordingly. In general, these assignments are shorter than homework assignments. *To accommodate unexpected events, the two lowest Application Exercise grades will be dropped at the end of the course for all students.*

Data Visualization Examples

Everyone will sign up to share a data visualization that they find meaningful and believe does a good job at presenting a story. These will be accompanied by a short written submission. The goal of this activities is for you to think about how the material you're learning in the course can connect with your experiences and society at large. More details will be provided before the first presentation.

Grade Calculation

The final grade will be calculated as follows:

Homework	17.5%
Labs	15%
Exam 1	17.5%
Exam 2	17.5%
Final Project	17.5%
Participation & Application Exercises	10%
Data Visualization Examples	5%

Class attendance in lecture and lab is a firm expectation; frequent absences or tardiness will be considered a legitimate cause for grade reduction.

If you have a cumulative numerical average of 90 - 100, you are guaranteed at least an A-, 80 - 89 at least a B-, and 70 - 79 at least a C-. The exact ranges for letter grades will be determined after Exam 2.

Students are required to enroll in both Summer Sessions I and II in order to obtain credit for the course.

Regrade Requests

Regrade requests should be submitted through the regrade request form on Gradescope. **Requests for a regrade must be made within a week of when the assignment is returned.** Due to the time consuming nature of regrades, requests submitted later will not be regraded. Requests will be honored if there is an error in the grade calculation or a correct answer was mistakenly marked as incorrect. Please note that by submitting a regrade request, your entire assignment may be regraded and you may potentially lose points. Therefore, you should attend office hours to ask a member of the teaching team about your grading feedback before submitting a regrade request.

No grades will be changed after the final project presentations.

Note: Grades can only be changed by the instructor. Teaching Assistants cannot change grades on returned assignments.

Make-up Policy

Students who miss a class due to a scheduled varsity trip, religious holiday, or short-term illness should fill out an online NOVAP, Religious Observance Notification, or Incapacitation Form, respectively. These excused absences do not excuse you from assigned homework. It will still be your responsibility to submit relevant assignments in accordance with the deadline.

If you have a personal or family emergency or health condition that affects your ability to participate in class, you should contact your academic dean's office. More information about this procedure may be found on the Personal Emergencies page or provided by your academic dean.

Exam dates cannot be changed and no make-up exams will be given. If you must miss an exam, your absence must be officially excused before the exam due date. If your absence is excused, the missing exam grade will be imputed at the end of the semester based on your performance on other relevant course assignments.

The final project presentations will be held during lecture on Wednesday-Thursday July 21-22. **You must complete the final project and present your work during this period in order to pass the course.**

Late Work

To accomodate different time zones, homework or lab assignments submitted late but within 12 hours of the deadline may be accepted with no penalty. After the 12 hours, there is a 20% penalty for each day the assignment is late.

If there are extenuating circumstances that prevent you from completing an assignment by the stated due date, please let me know as soon as possible.

Late work will not be accepted for the exams or the final project.