

# Syllabus

## Course Information

- **Course Name:** Data Manipulation and Visualization
- **Course Code:** CSCI-2025

## Class meetings

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Meeting	Location	Time
Lecture	Cruzen-Murray Library, 208	Mon-Thurs 1 - 3 pm
Office Hours	Boone 126B	Mon-Thurs 10 - 11 am

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Office hours are also available by appointment, just email me!

## Instructor Information

- **Instructor:** Professor Eric Friedlander
- **Office:** Boone 126B
- **Email:** [efriedlander@collegeofidaho.edu](mailto:efriedlander@collegeofidaho.edu)

## Catalog Description

Methods for cleaning and manipulating data, including grouping, split-apply-combine, and moving between long and wide formats, will be covered. These techniques will be combined with visualization techniques to produce readable, informative graphics of complex, high-dimensional datasets. Formerly CSC-285.

## Pre-requisites

MATH-2025 or CSCI-1040, grade of C or better

## Course Learning Objectives

By the end of the semester, you will be able to...

- Manipulate and clean data using R and the tidyverse.
- Create informative visualizations of complex datasets using ggplot2.
- Understand the principles of designing and creating effective data visualizations.
- Communicate data analysis results effectively through written reports, dashboards, and presentations.

## Course community

### Communication

All lecture notes, assignment instructions, an up-to-date schedule, and other course materials may be found on the course website, [csci2025wi26.netlify.app](https://csci2025wi26.netlify.app).

Periodic announcements will be sent via email and will also be available through Canvas and grades will be stored in the Canvas gradebook. Please check your email regularly to ensure you have the latest announcements for the course.

### In class agreements

If we discuss/agree to something in class or office hours which requires action from me (e.g. “you may turn in your homework late due to a sporting event”), you **MUST** send me a follow-up message. If you don’t, I will almost certainly forget, and our agreement will be considered null and void.

### Getting help in the course

- 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.
- I am 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. You are encouraged to use them!

## Email

If you have questions about assignment extensions or accommodations, please email [efriedlander@collegeofidaho.edu](mailto:efriedlander@collegeofidaho.edu). Please see [Late work policy](#) for more information. Barring extenuating circumstances, I will respond to CSCI 2025 emails within 48 hours Monday - Friday. Response time may be slower for emails sent Friday evening - Sunday.

Check out the [Support](#) page for more resources.

## Textbook

There is no official textbook for this course. However, readings may be assigned from the following texts (all freely available online).

- [R for Data Science](#) by Garret Golemund and Hadley Wickham

## Lectures

This will be a flipped classroom. Before each lecture, you will be assigned readings and videos to prepare you for the material we will cover in class. During class time, we will focus on applying the concepts you learned in the readings through a variety of activities, including coding exercises, discussions, and group work.

You are expected to bring a laptop to each class so that you can participate in the in-class exercises. Please make sure your device is fully charged before you come to class, as the number of outlets in the classroom may not be sufficient to accommodate everyone.

## Activities & Assessment

You will be assessed based on four components: participation and self-evaluation, quizzes, a class project, and an individual project.

This course will be largely “ungraded”. That is, you will be completing many low-stakes activities that will not be graded. Instead, you will self-assess what you have learned and how well you understand the material. The purpose of this approach is to help you focus on learning the material rather than on earning a grade.

At the end of the semester, Dr. Friedlander will first determine whether you deserve a passing grade. This will be largely determined by looking at your quiz scores and projects. If you pass this hurdle, then your final grade will be determined based on your own assessment of the overall quality of your work throughout the semester.

## **Participation and Self-Evaluation**

After each class period, you will be expected to complete a brief self-evaluation reflecting on your understanding of the material covered in class. These self-evaluations will help you identify areas where you need to improve and will also help me understand how well the class is grasping the material. After each class period you will be asked to respond to the following questions:

1. How well do I understand the material covered in lectures and readings for today's class?
2. Did I put in a good faith effort to prepare for and participate in today's class?
3. How would I rate my level of engagement during today's class?
4. How well did I perform on the in-class activities?
5. How did I learn and grow from the readings, lectures, and in-class activities today?
6. What overall grade would I give myself for the work I completed since the end of the last class period?

## **Group Project**

In the group project the course will work together to develop a data dashboard for an external client. More information on this to come.

## **Individual Project**

The purpose of the individual project is to apply what you've learned throughout the semester to analyze an interesting data-driven research question or to tell an interesting story using data. The project will be completed individually, and each student will present their work through a written report and in-class presentation. More information about the project will be provided during the semester.

## **Quizzes**

Dr. Friedlander will administer short quizzes periodically throughout the semester to assess your understanding of the course material. These quizzes will take place at the beginning of class, will not be announced in advance, and will cover the readings and lectures. The purpose of these quizzes is to encourage you to keep up with the course material and to provide me with feedback on how well the class is grasping the material and to ensure that all students are coming to class ready to participate. If you are late to class or absent on a quiz day, you will not be able to make up the quiz unless you notify me beforehand that you will be missing class for a valid reason (e.g., illness, family emergency, school-sponsored event).

**At the end of the semester, if you receive less than a 60% average on the quizzes, you will not pass the course regardless of your performance on other assignments.**

### **Ways to fail this course (or get a D)**

- Receiving less than a 60% (D) or 50% (F) average on the quizzes.
- Failing to achieve a minimum level of quality on either of your projects.
- Missing more than 3 class periods without a valid excuse.
  - Arriving more than 15-minutes late to class will be considered an absence.
- Failing to turn in more than 3 self-evaluations.

### **Five tips for success**

Your success in this course depends very much on you and the effort you put into it. The course has been organized so that the burden of learning is on you. I will help you by providing you with materials and answering questions and setting a pace, but for this to work you must do the following:

1. Complete all the preparation work before class.
2. Ask questions. As often as you can. In class, out of class. Ask me, ask your friends, ask the person sitting next to you. This will help you more than anything else. If you get a question wrong on an assessment, ask why. If you're not sure about the homework, ask. If you hear something on the news that sounds related to what we discussed, ask. If the reading is confusing, ask.
3. Do the readings and work outside of class.
4. Don't procrastinate. The content builds upon what was taught in previous weeks, so if something is confusing to you on Day 2, Day 3 will become more confusing, Day 4 even worse, etc. Don't let the week end with unanswered questions. But if you find yourself falling behind and not knowing where to begin asking, come to office hours and I can help you identify a good (re)starting point.

### **Course policies**

#### **Academic honesty**

**TL;DR: Don't cheat!**

- For the projects, collaboration within teams is not only allowed, but expected. Communication between teams at a high level is also allowed however you may not share code or components of the project across teams.
- I typically have a very long section about academic honesty in my syllabi. However, since this course is largely ungraded, I will simply say that I expect you to adhere to the College of Idaho Honor Code in all your work for this course. If you have any questions about what constitutes academic dishonesty in this course, please ask me.
- **You are responsible for everything you turn in.** For the most part, you are welcome to use any resources you like to help you complete assignments. However, you are responsible for ensuring that you can not only understand, but explain everything that you turn in. If you can't, you will not receive credit for the assignment.

### **Late work policy**

Late quizzes will not be eligible for a re-take unless you have a valid excuse (see below). The due dates for projects are there to help you keep up with the course material and to ensure I can provide feedback within a timely manner. Turning in any checkpoints or intermediate assignments late, means that I will not be able to give you feedback on them.

- **School-Sponsored Events/Illness:** If a deadline must be missed due to a school-sponsored event, you must let me know at least a week ahead of time so that we can schedule a time for you to make up the work before you leave. If you must miss an exam or a project presentation due to illness, you must let me know before class that day so that we can schedule a time for you to take a make-up quiz or exam. Failure to adhere to this policy will result in a 35% penalty on the corresponding assignment.

### **College of Idaho Honor Code**

The College of Idaho maintains that academic honesty and integrity are essential values in the educational process. Operating under an Honor Code philosophy, the College expects conduct rooted in honesty, integrity, and understanding, allowing members of a diverse student body to live together and interact and learn from one another in ways that protect both personal freedom and community standards. Violations of academic honesty are addressed primarily by the instructor and may be referred to the [Student Judicial Board](#).

By participating in this course, you are agreeing that all your work and conduct will be in accordance with the College of Idaho Honor Code.

## **Disability Accommodation Statement**

The College of Idaho seeks to provide an educational environment that is accessible to the needs of students with disabilities. The College provides reasonable services to enrolled students who have a documented permanent or temporary physical, psychological, learning, intellectual, or sensory disability that qualifies the student for accommodations under the Americans with Disabilities Act or section 504 of the Rehabilitation Act of 1973. If you have, or think you may have, a disability that impacts your performance as a student in this class, you are encouraged to arrange support services and/or accommodations through the Department of Accessibility and Learning Excellence located in McCain 201B and available via email at [accessibility@collegeofidaho.edu](mailto:accessibility@collegeofidaho.edu). Reasonable academic accommodations may be provided to students who submit appropriate and current documentation of their disability. Accommodations can be arranged only through this process and are not retroactively applied. More information can be found on the DALE webpage (<https://www.collegeofidaho.edu/accessibility>).