

DRAFT Instructions for 431 Quiz 1 for Fall 2025

Deadline: Wednesday 2025-10-22 at Noon

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Instructions for Students

There are **27** questions on this Quiz and the full PDF is **32** pages long. Be sure you have all **32** pages when you get the full PDF on Thursday. It is to your advantage to answer all **27** questions. Your score is based on the number of correct responses, so there's no chance a blank response will be correct, and a guess might be, so you should definitely answer all of the questions.

This is an open book, open notes quiz. You are welcome to consult the materials provided on the course website and that we've been reading in the class, but you are not allowed to discuss the questions on this quiz with anyone other than Dr. Love (not even the teaching assistants.) You will be required to complete a short affirmation that you have obeyed these rules as part of submitting the Quiz.

0.1 The Google Form Answer Sheet

All of your answers should be placed in the Google Form Answer Sheet, located at...

- <https://bit.ly/431-quiz-1-answer-sheet-2025>

All of your answers must be submitted through the Google Form by noon on Wednesday 2025-10-22, without exception. The form will close at 12:30 PM on that date, and no extensions will be available, so do not wait until late in the morning on Wednesday to submit your work. We will only accept responses through the Google Form.

The Google Form contains places to provide your responses to each question, and a final affirmation where you'll type in your name to tell us that you followed the rules for the Quiz. You must complete that affirmation before you can submit your responses. When you submit your results (in the same way you submit a Minute Paper) you will receive an email copy of your submission, with a link that will allow you to edit your work.

If you wish to work on some of the quiz and then return later, you can do this by [1] completing the final question (the affirmation) which asks you to type in your full name, and then [2] submitting the quiz. You will then receive a link at your CWRU email which will allow you to return to the quiz as often as you like without losing your progress.

0.2 The Data Sets

Along with the other materials, I will provide **four** simulated data sets (called **q05.Rds**, **q09.csv**, **q13.xlsx** and **q18.csv**) that are mentioned in the Quiz. In addition, Question 27 uses data from [our 431-data page](#) that you've actually had for some time. These data sets may be helpful to you.

0.3 Getting Help

If you need clarification on a Quiz question, you have exactly one way of getting help:

- Ask your quiz question via email to **Thomas dot Love at case dot edu**.

During the Quiz period (3 PM 2025-10-16 through 12:30 PM 2025-10-22) we will not answer questions about the Quiz in TA office hours or in person. Instead, I will respond to questions sent before 9 AM on 2025-10-22 in a timely fashion. Some cautions:

- Specific questions are more likely to get helpful answers.
- I will not review your code or your English for you.
- I will not tell you if your answer is correct, or if it is complete.
- I will email all students if we find an error in the Quiz that needs fixing.

0.4 When Should I Ask For Help?

We recommend the following process.

- If you encounter a tough question, skip it, and build up your confidence by tackling other questions.
- When you return to the tough question, spend no more than 10-15 minutes on it. If you still don't have it, take a break (not just to do other questions) but an actual break.
- When you return to the question, it may be much clearer to you. If so, great. If not, spend 5-10 minutes on it, at most, and if you are still stuck, ask Dr. Love a question via email.
- This is not to say that you cannot ask us sooner than this, but you should **never, ever** spend more than 20 minutes on any question without asking for help.

0.5 Scoring the Quiz

Each of the 27 questions is worth 4 points yielding a total of **108 points**. The questions are not in any particular order, and range in difficulty from “things I expect everyone to get right” to “things that are deliberately tricky”.

0.6 How long should this take?

The Quiz is meant to take 5 hours. I expect most students will take 4-6 hours, and some will take as little as 2 or as many as 9. I think 12 of the questions (3, 5, 7, 10, 11, 13, 14, 18, 21, 22, 25 and 27) will take a little longer to answer (not necessarily because they are harder) than the other 15. It is **NOT** a good idea to spend a long time on any one question.

Again, you should **NEVER** spend more than 20 minutes on any question without asking for help¹.

On the other hand...



Source: <https://phdcomics.com/comics/archive.php?comicaid=1093>

0.7 Writing Code into the Google Form

Occasionally, we ask you to provide a single line of code. If not otherwise specified, a single line of code in response can contain **at most** two pipes, although you may or may not need the pipe in any particular setting. Note that I exclusively used the `|>` pipe, and not the `%>%` pipe, in developing this Quiz, but you may use either in your responses.

¹If you ignore that advice, that's your decision, but you'll have to live with it. I won't be sympathetic about how long the Quiz took you.

You should not include the `library` command at any time for your responses on the Quiz that ask for code. Assume in all questions that all of the packages listed below have been loaded in R.

0.8 R Packages and Love-431.R script

Here is a list of packages in R. This doesn't mean you need to use all of these packages, and it also doesn't mean that I actually used all of them in building the Quiz and its answer sketch. It means only that I didn't use any other packages, other than **xfun** for session information, so you can do the entire Quiz without using any other packages.

Dr. Love will also provide this listing to you [digitally at this link](#), so you can easily copy and paste it into your own RStudio session.

```
library(car)
library(DescTools)
library(Epi)
library(ggdist)
library(ggpubr)
library(glue)
library(infer)
library(janitor)
library(knitr)
library(MKinfer)
library(mosaic)
library(naniar)
library(patchwork)
library(readxl)
library(rstanarm)
library(easystats)
library(tidyverse)

source("data/Love-431.R")

theme_set(theme_bw())
knitr::opts_chunk$set(comment = NA)
```