

431 Quiz 1 for Fall 2023

Deadline: Tuesday 2023-10-10 at Noon

Thomas E. Love

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Instructions for Students

There are 26 questions on this Quiz and this PDF is 32 pages long. Be sure you have all 32 pages. It is to your advantage to answer all 26 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 Professor Love and 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/431-2023-quiz1-form>

All of your answers must be submitted through the Google Form by noon on Tuesday 2023-10-10, without exception. The form will close at 1 PM on that date, and no extensions will be made available, so do not wait until late in the morning on Tuesday 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

I have provided three data sets (called `algae.csv`, `newborn.csv`, and `sleep.csv`) that are mentioned in the Quiz. They may be helpful to you.

In Question 10, I refer to a data set (`nnyfs.Rds`) which you have access to on [our 431-data page](#), and that file will also be useful.

0.3 Getting Help

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

1. Ask your quiz question via email to **431-help at case dot edu**.

During the Quiz period (5 PM 2023-10-05 through noon 2023-10-10) we will not answer questions about the Quiz through Campuswire or in TA office hours. Instead, we will only answer them through the email address listed above. We promise to respond to all questions received before 9 AM on 2023-10-10 in a timely fashion.

A few cautions:

- Specific questions are more likely to get helpful answers.
- We will not review your code or your English for you.
- We will not tell you if your answer is correct, or if it is complete.
- We 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 us for help.
- 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 and Timing

All questions are worth either 3 or 4 points, adding to a total of 100 points. The four questions which are worth 3 points each (specifically, Questions 5, 12, 21 and 25) are marked as such in the Quiz. 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”.

The Quiz is meant to take 4 hours. I expect most students will take 3-5 hours, and some will take as little as 2 or as many as 8. It is not a good idea to spend a long time on any one question.

0.6 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.

Moreover, you need not include the `library` command at any time for any of your code. Assume in all questions that all of the packages listed below have been loaded in R.

R Packages and Love-boost.R script

This doesn't mean you need to use all of these packages, or indeed, that I did in building the Quiz and its answer sketch.

```
library(broom)
library(Epi)
library(ggrepel)
library(glue)
library(gt)
library(gtExtras)
library(Hmisc)
library(janitor)
library(mosaic)
library(naniar)
library(patchwork)
library(simputation)
library(xfun)
library(tidyverse)

source("Love-boost.R")

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