

# 431 Quiz 1

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## Instructions for Students

There are 25 questions on this Quiz, and the complete PDF will be 20 pages long. You will want to be sure you have all 20 pages when the final version of the PDF is available.

It is to your advantage to answer all 25 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.

## The Google Form Answer Sheet

All of your answers should be placed in the Google Form Answer Sheet, located at **the link I will provide for you**. All of your answers must be submitted through the Google Form by 9 PM on Monday 2021-10-04, without exception. The form will close at that time, and no extensions will be made available, so do not wait until Monday evening to submit. We will not accept any responses except through the Google Form.

The Google Form will contain 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 and then submit your results. 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 results.

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.

## Getting Help

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.

If you need clarification on a Quiz question, you have exactly two ways of getting help:

1. You can ask your question in a private post on Piazza to the instructors. (This is the only kind of post you will be able to make on Piazza during the Quiz.)
2. You can ask your question via email to **431-help at case dot edu**.

While the complete Quiz is available, we will not answer questions about the Quiz except through the two approaches listed above. We promise to respond to all questions received before 5 PM on 2021-10-04 at that time, if not sooner.

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.

### 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.

### Scoring and Timing

Most questions are worth 4 points, and the rest are worth either 2, 5 or 6 (as indicated), summing to 100 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”.

The Quiz is meant to take 4-6 hours. I expect most students will take 3-8 hours, and some will take as little as 2 or as many as 10. It is not a good idea to spend a long time on any one question.

Dr. Love will grade all Quizzes, and you should have your result by class time on Thursday 2021-10-07.

### Writing Code

Occasionally, we ask you to provide a single line of code. If not otherwise specified, a single line of code in response should contain no more than one pipe, although you may or may not need the pipe in any particular setting. Moreover, you need not include the `library` command at any time for any of your code. Assume in all questions that all relevant packages have been loaded in R.

## The Data Sets

We have provided three data sets that are mentioned in the Quiz. They may be helpful to you.

- `oscar.csv`, first mentioned in Question 07
- `zips.csv`, first mentioned in Question 14
- `fastfood.csv`, first mentioned in Question 18

## Packages used in building this document

This doesn't mean you need to use all of these packages or even that I used them all, but it does mean that I did not add any additional packages to this list in building the quiz or the answer sketch. You will note that the `mosaic` package is not listed here, but I did use the `favstats` function from that package using the `mosaic::favstats()` approach in preparing this material.

```
library(broom)
library(Epi)
library(equationomatic)
library(glue)
library(ggrepel)
library(janitor)
library(knitr)
library(magrittr)
library(naniar)
library(NHANES)
library(patchwork)
library(tidyverse)

theme_set(theme_bw())
```