

## Portfolio Review for Stat 495

This activity will allow you to reflect on your experiences in statistics looking through the materials in your portfolio. You will look at two pieces in depth, and could replicate the process for as many pieces as you like.

Please complete this form, submit it on Gradescope, and bring it to class as directed on Moodle. We will spend that class day on a related discussion. You will then be writing a reflection and setting goals for future work for homework. Note that I'm not grading the content here – but participation is VERY important.

### Portfolio Piece #1

Consider your earliest portfolio piece (or earliest you want to look at). Review it briefly / skim over it.

1. What year were you in when you generated this piece? How much statistical experience did you have?

I was in my sophomore year when I generated my STAT-231 Calendar Query project. Prior to this, I had taken AP Statistics and STAT-135, so I would say that I had basic statistical experience and very little coding experience.

2. Which of the following statistical skills are you practicing, applying, and/or demonstrating in this portfolio piece?

Descriptive Statistics

Exploratory Data Analysis

Design

Model Assessment (Comparison)

Estimation

Other Statistical Methods

Working with Statistical Notation / Writing Models

Appropriate Graphical Displays

Regression (of any kind)

Resampling Methods (Bootstrap, Randomization Tests)

Hypothesis Testing (and Sampling Distributions)

Understanding Variability

Understanding Probability

3. If you have a technical appendix or code associated with the piece, which of the following skills are you practicing and/or demonstrating in this portfolio piece? (Skip if not present).

Data wrangling

Reproducible workflow

Good programming practices (comments, organization)

Understanding code syntax

4. Now let's consider communication skills in relation to this portfolio piece. Which of the following are you practicing and/or demonstrating?

Using writing to demonstrate and help develop my understanding of new concepts

Use writing to communicate statistical knowledge and understanding to:

A teacher

My classmates / peers

A non-expert audience

The ability to make a clear, convincing, coherent, well-organized argument

Present ideas in a logical order with an appropriate narrative thread  
Provide sufficient interpretation/explanation of figures/graphics  
Provide an appropriate amount of supporting evidence without too much extraneous information  
Provide a conclusion that summarizes your findings, their importance and implications, and sets forth proposals for future work

5. What do you consider as the strengths of this portfolio piece?

This portfolio piece is in-depth and well-organized. The motivation, plots, results, and conclusions are connected and don't leave any holes for confusion. There is also some variation of statistical visualization methods (different types of bar charts, table).

6. What do you consider as the weaknesses of this portfolio piece?

In the piece, I made conclusions about how I should proceed in distributing my time based on the results of the study, but I should also have put thought into proposing future directions for the statistical work. This report included code, most of which was not annotated with comments. Besides the section titles and flow of the report, there is no easy way of telling what the lines and chunks of code do.

7. Does this portfolio piece show proper citation of the data set and other sources? Yes

No

## Portfolio Piece #2

Consider another portfolio piece – we'll call it the second piece for purposes of this activity, but it doesn't need to be your second piece (in time order). Review it briefly / skim over it.

1. What year were you in when you generated this piece? How much statistical experience did you have?

I was in junior year when I generated the technical appendix for my STAT-320 final project. I had taken STAT-135, 230, 231, and 360, so I had intermediate coding experience and a strong grasp on intermediate statistical knowledge as well.

2. Which of the following statistical skills are you practicing, applying, and/or demonstrating in this portfolio piece?

Descriptive Statistics  
Exploratory Data Analysis  
Design  
Model Assessment (Comparison)

Appropriate Graphical Displays  
Regression (of any kind)  
Resampling Methods (Bootstrap, Randomization Tests)  
Hypothesis Testing (and Sampling Distributions)

Estimation

Other Statistical Methods

Working with Statistical Notation / Writing Models

Understanding Variability

Understanding Probability

3. If you have a technical appendix or code associated with the piece, which of the following skills are you practicing and/or demonstrating in this portfolio piece? (Skip if not present).

Data wrangling

Reproducible workflow

Good programming practices (comments, organization)

Understanding code syntax

4. Now let's consider communication skills in relation to this portfolio piece. Which of the following are you practicing and/or demonstrating?

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Provide sufficient interpretation/explanation of figures/graphics

Provide an appropriate amount of supporting evidence without too much extraneous information

Provide a conclusion that summarizes your findings, their importance and implications, and sets forth proposals for future work

5. What do you consider as the strengths of this portfolio piece?

This portfolio piece was very detailed and the analysis was extensive. We considered multiple methods and performed analysis to check our regression approaches. We also annotated all of our code chunks.

6. What do you consider as the weaknesses of this portfolio piece?

We did not include future steps for the study and we did not cite our sources properly. We also included all of our analytical efforts when not all of them contributed to our results. This may not have been necessary.

7. Does this portfolio piece show proper citation of the data set and other sources? Yes

No

Feel free to copy/paste and fill this out for more portfolio pieces if you like.

## Combined

1. Are any of the portfolio pieces you looked through in application areas of interest to you? Do these application areas elicit passion in you? If not, what application areas would? What makes you passionate about these application areas?

In STAT-320, we did a case study of factors associated with the recurrence frequency of urethral obstruction in cats. Biological or environmental studies like this interest me, because I find that I can easily enough get a good grasp of the background content to think of possible questions and answers and statistical methods to find these.

2. Are there any additional skills (in any category), beyond those listed above, that you believe you were practicing or mastering in these pieces? If so, what are those skills?

The skills listed above captured what I learned through producing these pieces.

3. Consider the skills you observed in your portfolio pieces.

a. What skills do you think you have improved the most over time, given your submissions?

Over time, I think I've come to understand much better what my R code is actually doing. I also consider and incorporate more analysis methods, and I see that performing EDA can give a lot of insight into the data before any analysis.

b. What activities, classes, or other learning opportunities do you think most contributed to the growth of these skills?

I think I strengthened these skills the most through the statistics classes in which we use a lot of R and did projects with other students. It gave everyone great exposure to different ideas and skills, sometimes technical and sometimes conceptual. I've learned about a few methods of statistical analysis this way that I would feel comfortable using in the future.