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Preface

This is test of my macros: Inline examples (should be colored): - The variable is *x*. - The defined term is *standard deviation*. - The descriptor is Frequency. - The dataset is *Cars*. - The dropdown selection is *Mean*. - The function is *lm*. - The dialog name is **Descriptive Statistics**. - The repository is ***Rguroo Datasets***. - The answer is **42**.

I hope you find this book useful in teaching statistics. When writing this book, I tried to follow the GAISE Standards (GAISE recommendations.

- Teach statistical thinking.
- Focus on conceptual understanding.
- Integrate real data with a context and a purpose.
- Foster active learning.
- Use technology to explore concepts and analyze data.
- Use assessments to improve and evaluate student learning

To this end, I ask students to interpret the results of their calculations. I incorporated the use of technology (R Studio) for most calculations. Because of that you will not find me using any of the computational formulas for standard deviations or correlation and regression since I prefer students understand the concept of these quantities. Also, because I utilize technology you will not find the standard normal table, Student's t-table, binomial table, chi-square distribution table, and F-distribution table in the book. Another difference between this book and other statistics books is the order of hypothesis testing and confidence intervals. Most books present confidence intervals first and then hypothesis tests. I find that presenting hypothesis testing first and then confidence intervals is more understandable for students. Lastly, I have de-emphasized the use of the z-test. In fact, I only use it to introduce hypothesis testing, and never utilize it again. Two samples should be emphasized over one sample test. Lastly, to aid student understanding and interest, most of the homework and examples utilize real data with multiple variables. The beauty of multiple variables, is that you can ask the students to investigate different analysis with different variables. This way students can work with data and come up with connections

of asking questions and using data to answer the questions. Again, I hope you find this book useful for your introductory statistics class.

Mathematical Knowledge Assumed

I want to make a comment about the mathematical knowledge that I assumed the students possess. The course for which I wrote this book has a higher prerequisite than most introductory statistics books. However, I do feel that students can read and understand this book as long as they can read critically. I do not show how to create most of the graphs, but all graphs are created with R Studio. So I hope the mathematical level is appropriate for your course.

Technology Used

The technology that I utilized for creating the graphs and statistical analysis is R Studio. This is a statistical software that are used by statisticians and so using it gives students skills they may need in the future. Please feel free to use any other technology that is more appropriate for your students. Do make sure that you use some technology. I worked on the StatPREP project and there are Little Apps that can be used to explore data. There are also activities that can be used in your classes that utilize the Little Apps on the website.

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New to the Fourth Edition

The additions to this edition mostly involve format changes and other edits to make the textbook more accessible for students with visual disabilities. Have a textbook that is accessible to all is very important to me, so please let me know if more changes need to be made. Minor changes and corrections were also made. One change is that every hypothesis test and confidence interval has assumptions that must be true to make the inference valid. Instead of calling them assumptions though, I decided to call them conditions to remove confusion about other assumptions.

Packages Needed for r studio

You will need the following packages installed and loaded in r Studio: arm, HNANES, MASS, mosaic, Weighted.Desc.Stat.

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