

## Intro Stats in the 21<sup>st</sup> Century

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USCOTS 15  
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## WHAT KEEPS ME UP AT NIGHT



- Data Scientists teaching our course
- Students think that Statistics is irrelevant for their lives and work
- Students think that Statistics is essentially univariate
- We continue to change the course around the edges
  - With Resampling the exception

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## THE PROBLEM

- We teach the wrong stuff
- We teach it the wrong way
- We teach it in the wrong order
- I don't have any answers – but I'll keep asking the questions

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## WHAT DO I WANT THEM TO TAKE AWAY?

- The Idea that Statistics is
  - Relevant
  - Intuitive
  - Cool
  - A Powerful Method for Solving Problems in the World
- Armed with a Healthy (and Informed) Skepticism for
  - Data Quality
  - Models
  - Inference and Conclusions

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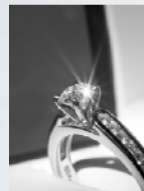
## HOW TO GET TO THE COOL STUFF?

- Start with it
- Introduce models early
  - Motivate univariate questions from more complex models
  - Socratic method
- What to leave out
  - Mathematics of Sampling distributions
    - We just need the concept
  - Getting too under the hood with methods
  - They don't need to "produce" everything – especially in the first course

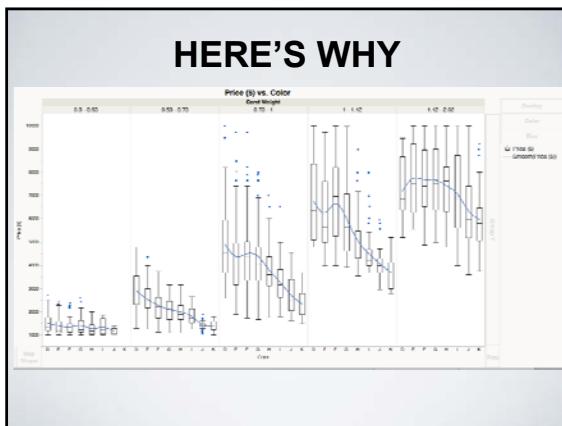
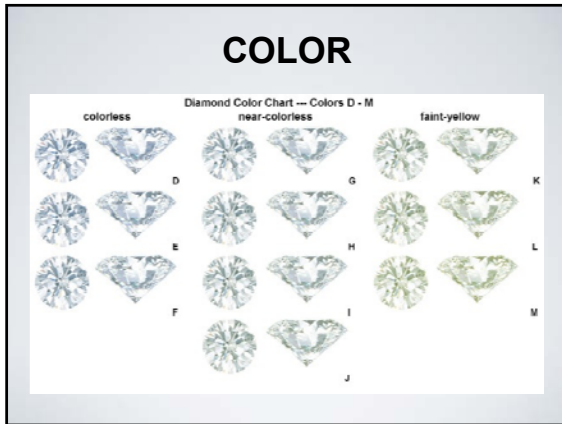
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## DIAMONDS

- Four C's:
  - Carat, Color, Cut, Clarity



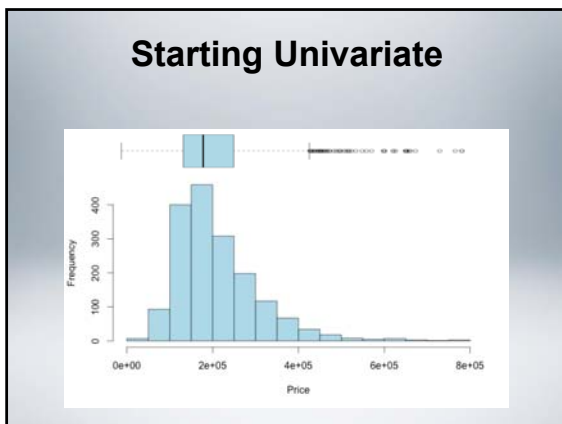
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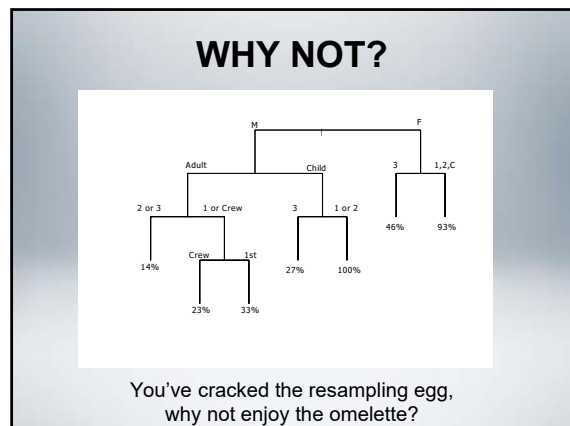
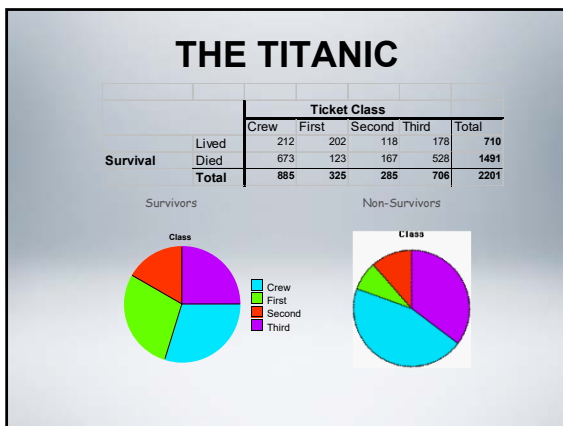
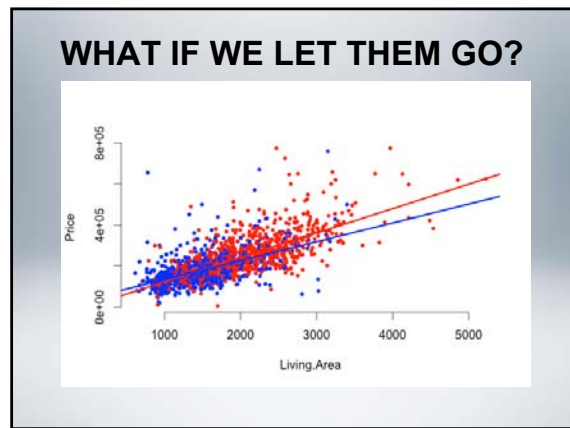
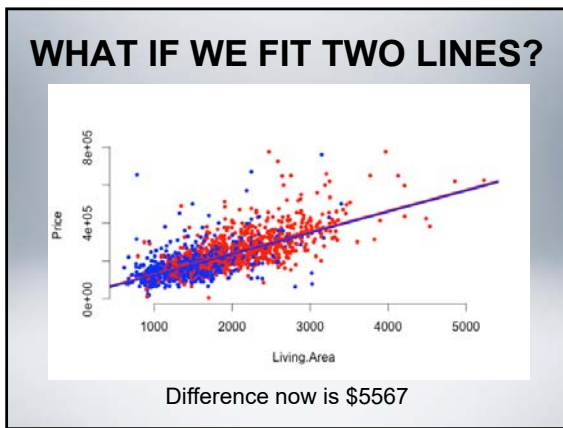
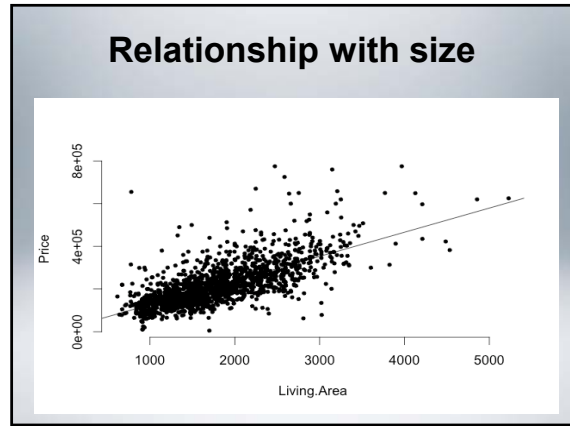
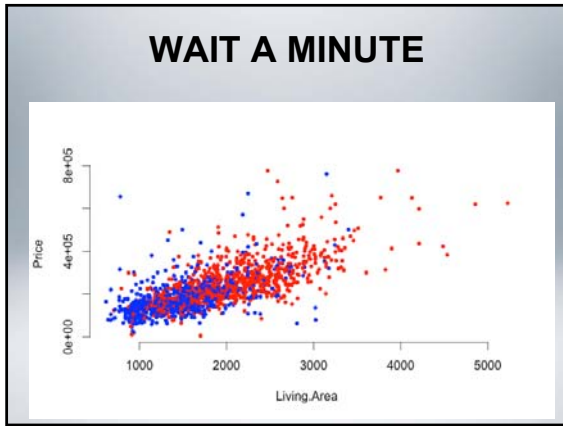


### HOW MUCH IS A FIREPLACE WORTH?

The Data

- 1729 randomly selected homes from the county records of Saratoga New York about 2005.
- Conclusions are only about the Northeast...





## WHERE ARE WE?

- Introduce models early
  - Motivate univariate questions from more complex models
  - Not the other way around!
- Use complex questions and models to drive topics
- Statistics is more than a collection of tools
  - Which ones are really important?
- How much should we ask them to “produce”?