


How do statisticians view the world?

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1. "Variables"

- Statisticians take things that are whole and tear them into pieces (or variables).
 - e.g., If we want to understand how Jane was so successful in college, we care about the individual pieces that make Jane Jane -- What high school did she go to? Did she receive a Pell grant? etc.
- Statisticians compare variables.




How do statisticians view the world?

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2. Approximations

- Statisticians try to measure concepts that you cannot directly "see"
 - How do you "see" *academic success or readiness or socio-economic status*?
- Instead, statisticians must measure indicators that approximate these concepts.
 - College readiness can be measured with Regents scores.
 - Therefore statistics is a way to test whether our concepts and theories matter, and they are always approximate.




Can you generalize based on your results?

The problem of selection bias

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What is bias?

- Any systematic deviation from the truth that affects the conclusions you make based on your data.
- It is critical to any study to have an adequate and representative sample of the population to make correct conclusions.



We will find the average height of Americans based on a sample of NBA players.

Selection Bias?

