

CHANGING HEADLINES

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Allan's Two Instructions

- ▶ Make it personal.
 - Okay, but not too personal!
- ▶ Include “Change” in the title.
 - Does “Changing” count?



The Start of My Career

- ▶ The Year was 1978
- ▶ I was an assistant professor at the University of California
- ▶ In a small, new Statistics Department



Charter Members of the UC Davis Intercollege Division of Statistics, 1979



Fenech



Glaser



Matloff



Samaniego



Utts

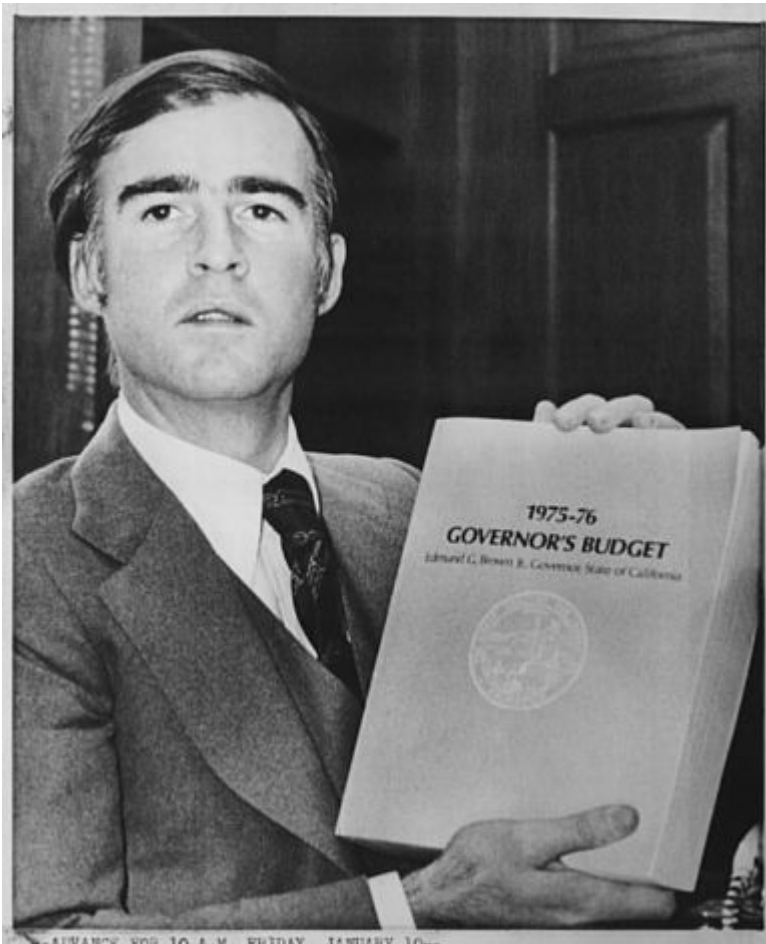


Blum



Wiggins

Jerry Brown was Governor of California



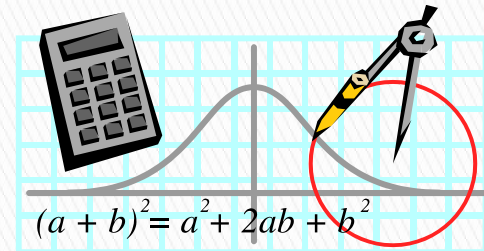
“Professors don’t need raises, they get psychic income from their jobs.”

The biggest change I wanted to see in the introductory statistics course in the early 80s

More focus on concepts



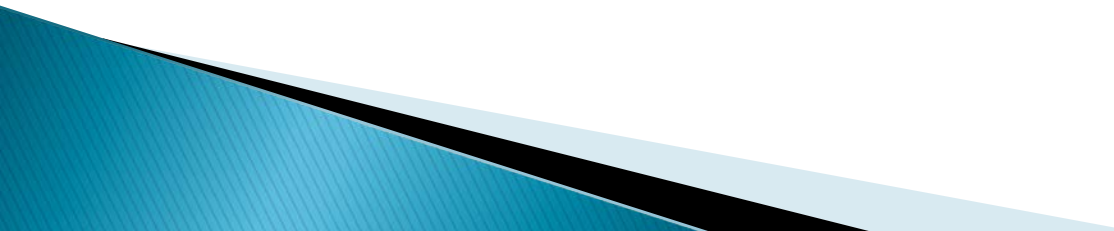
Less focus on technical stuff



$$(a + b)^2 = a^2 + 2ab + b^2$$

$$s^2 = \frac{\sum(x_i - \bar{x})^2}{n - 1}$$

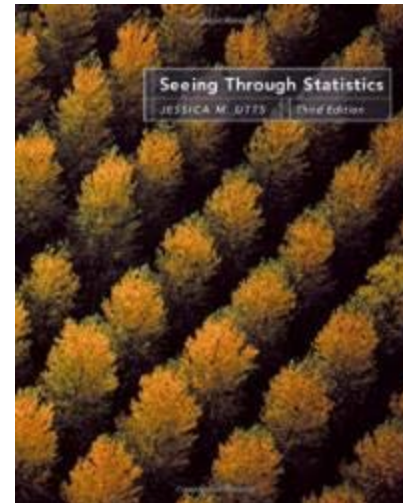
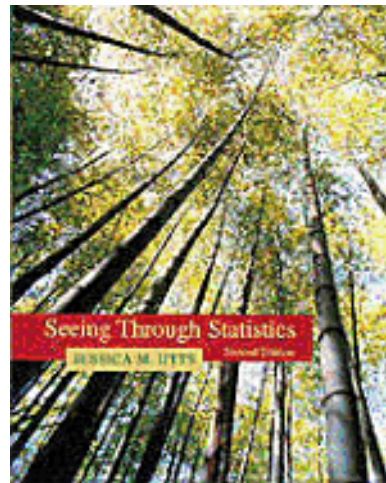
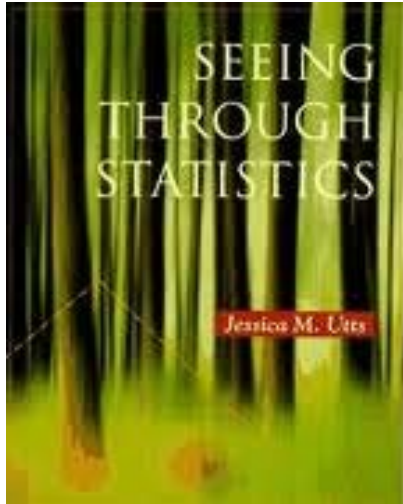
How do I remember what changes I wanted to see 30 years ago?

- ▶ I don't!
 - ▶ But my mother found a letter in her attic that I wrote to her in 1980.
 - ▶ What did it say?
- 

Letter to my mother, 1980:

“When I get tenure, I’m going to write a book with no formulas that shows the beauty and usefulness of statistics.”

And so I did!



Fast Forward 30 Years

- ▶ The Year is 2013
- ▶ I'm a professor at the University of California
- ▶ In a small, new Statistics Department



Members of the UC Irvine Department of Statistics, 2013



Gillen



Hancock



Johnson

Ombao



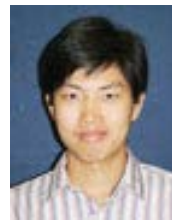
Shahbaba



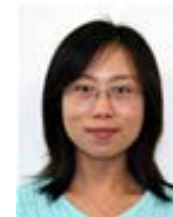
Stern



Utts

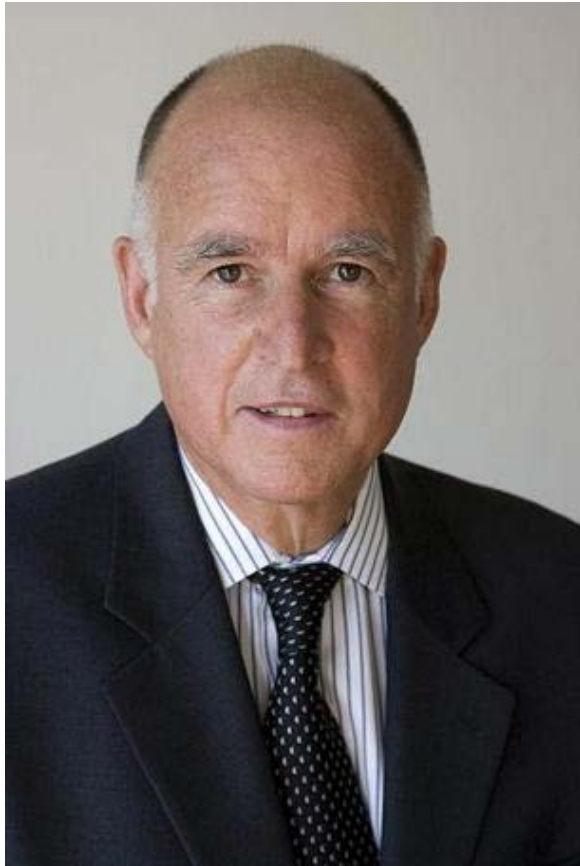


Y. Yu

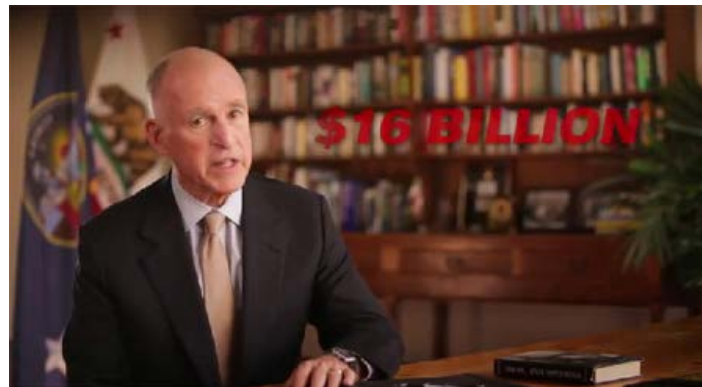


Z. Yu

Jerry Brown is Governor of California



“UC Professors should teach more and do less research.”

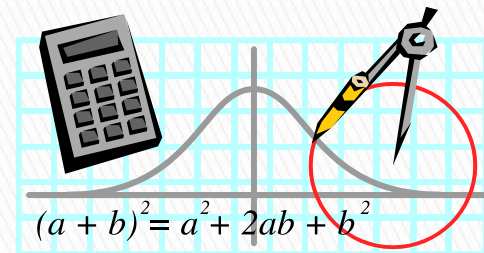


The biggest change I want to see in the introductory statistics course in 2013

More focus on concepts

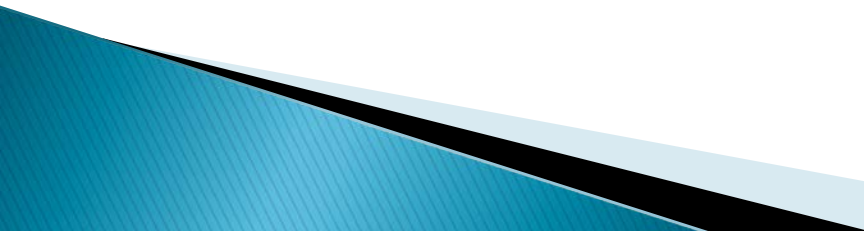


Less focus on technical stuff



$$s^2 = \frac{\sum(x_i - \bar{x})^2}{n - 1}$$

Why do I still think this is true?

- ▶ Most students will only take one statistics class in their careers.
 - ▶ That includes your future doctor, senator, lawyer, juror, ...
 - ▶ You might be the one teaching them that one statistics class.
 - ▶ When they finish your class, I want them to understand what's *wrong* with the following headlines.
- 

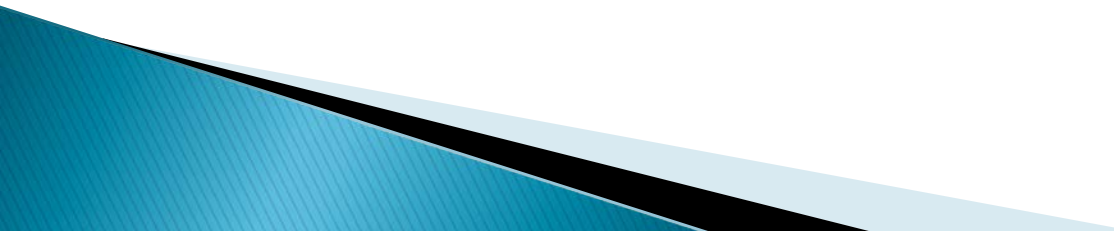
6 cups a day? Coffee lovers less likely to die, study finds *(NBC News website)*

Coffee Gives Jolt to Lifespan *(Science News website)*

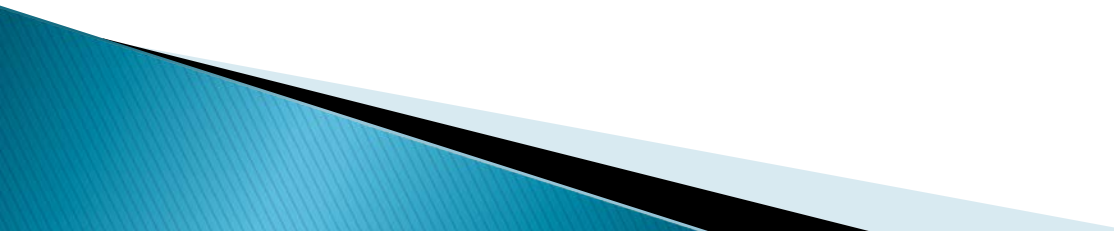
- ▶ Observational study – can't conclude causal relationship!
- ▶ Study excluded people already sick with cancer, heart disease and stroke – but maybe coffee contributed to those!
- ▶ Huge sample size, over 400,000 people; small effect.

Breakfast Cereals Prevent Overweight in Children

“Regularly eating cereal for breakfast is tied to healthy weight for kids, according to a new study that **endorses making breakfast cereal accessible to low-income kids to help fight childhood obesity.**”



Ideas we need to teach, illustrated by those headlines

- ▶ No cause and effect from observational studies.
 - ▶ When testing multiple foods, need multiplicity adjustment
 - ▶ Practical vs statistical significance, relation to sample size (2% reduction in BMI)
- 

New York Times Science Section, March 12, 2013

*“A p -value higher than .05 usually indicates that the results of the study, however good or bad, **were probably only due to chance.**”*

YIKES!!!



Fast forward 10 more years

I will be either here:



Or here:



So,...

CHANGING HEADLINES

Is up to all of you!!

