

Three Kinds of Statistical Literacy

1

Which Kind Will We Teach?

MILO SCHIELD

Augsburg College Department of Business Administration

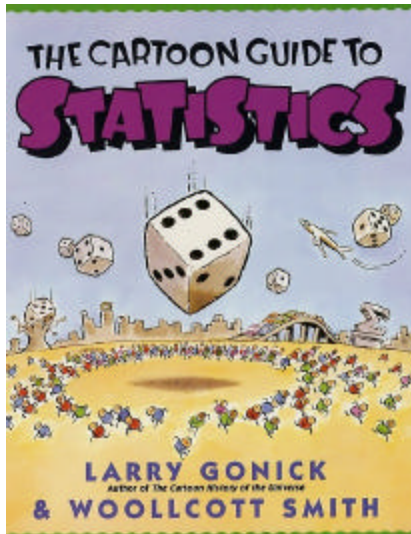
Director, W. M. Keck Statistical Literacy Project

www.augsburg.edu/ppages/~schield

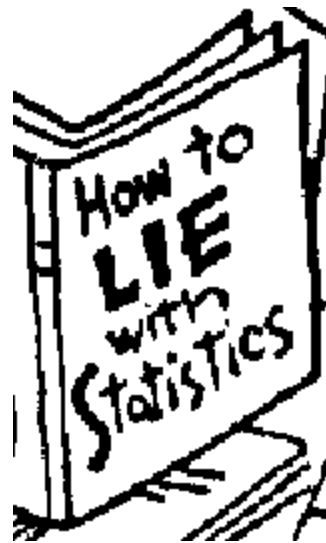
schield@augburg.edu

Statistical Literacy: Three Kinds To Teach

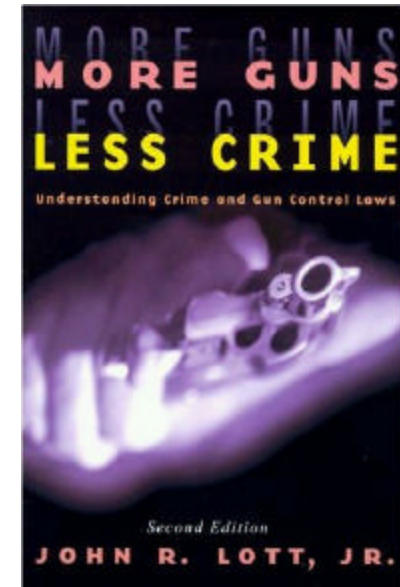
2



Chance
based



Fallacy
based



Association
based

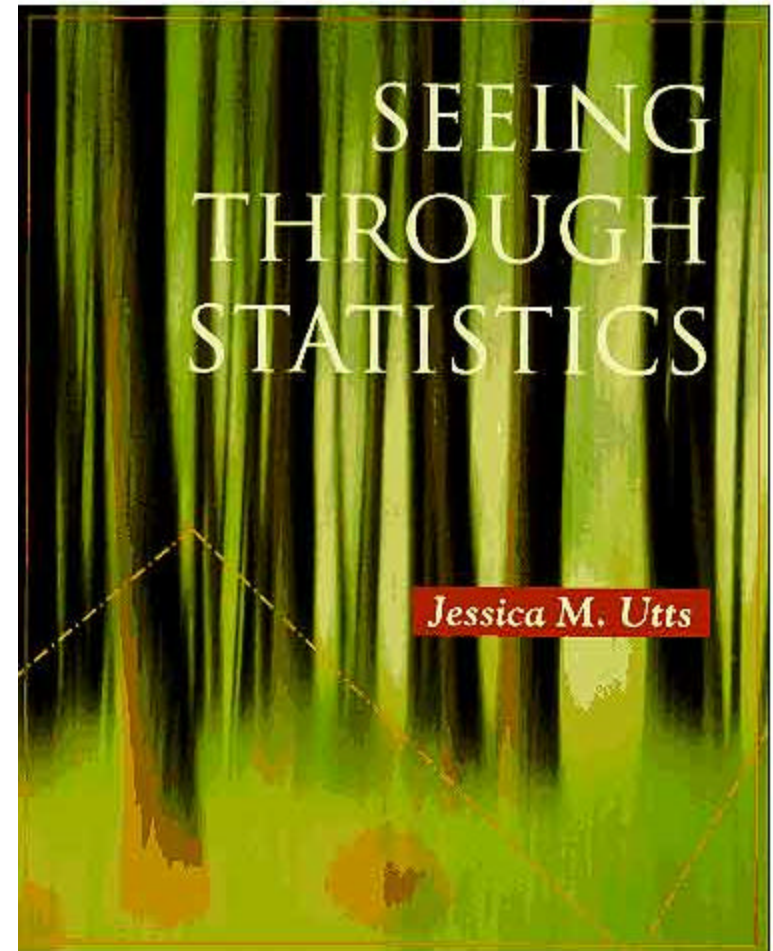
STATISTICAL Literacy CHANCE-Based

3

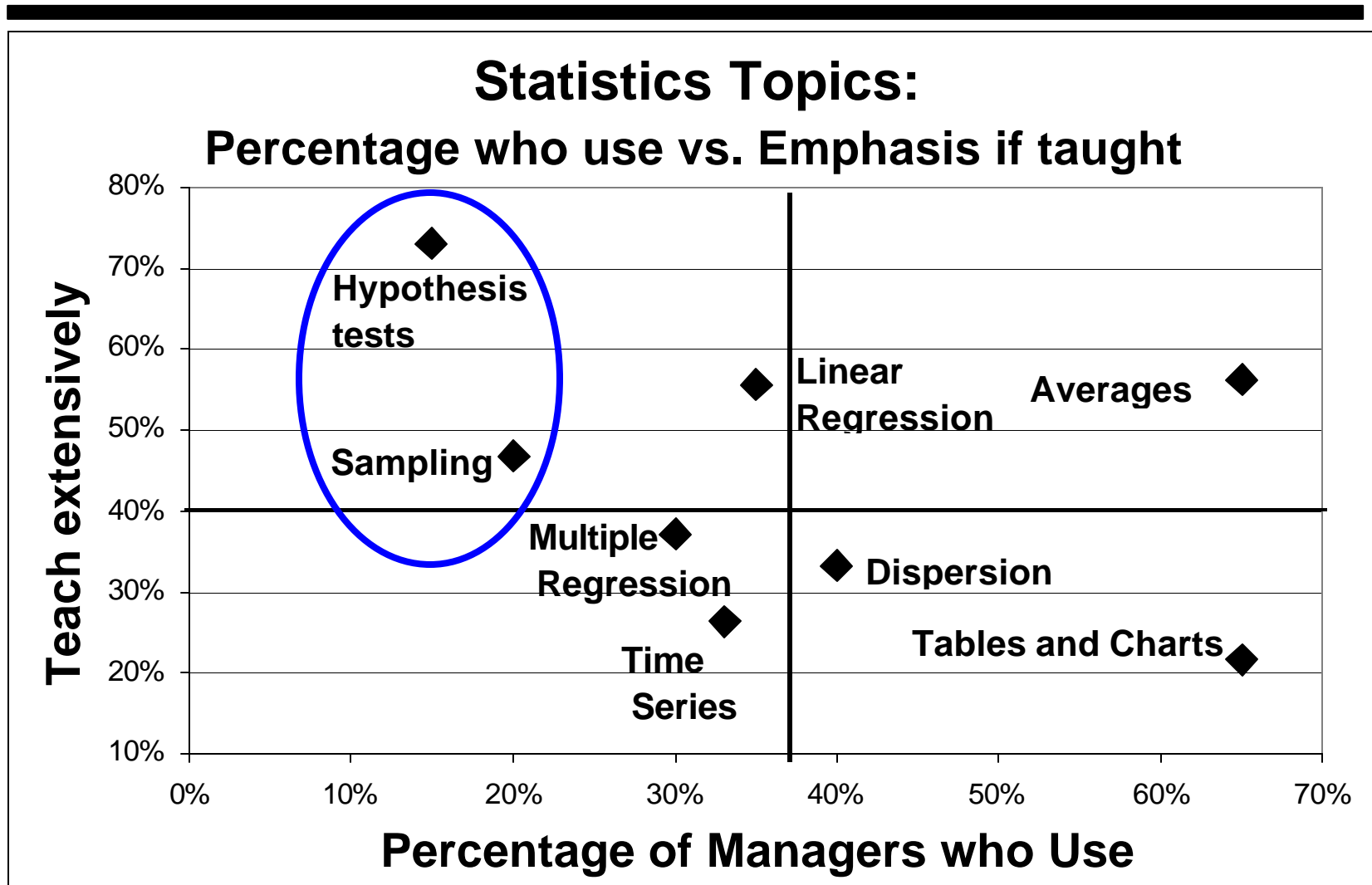
Approximately 60% of US college students take chance-based statistics.

Are these students statistically literate?

Does “95% confidence” mean “a 95% chance that **this** 95% confidence interval includes the population parameter”?



STATISTICAL Literacy CHANCE-Based



Statistical Literacy

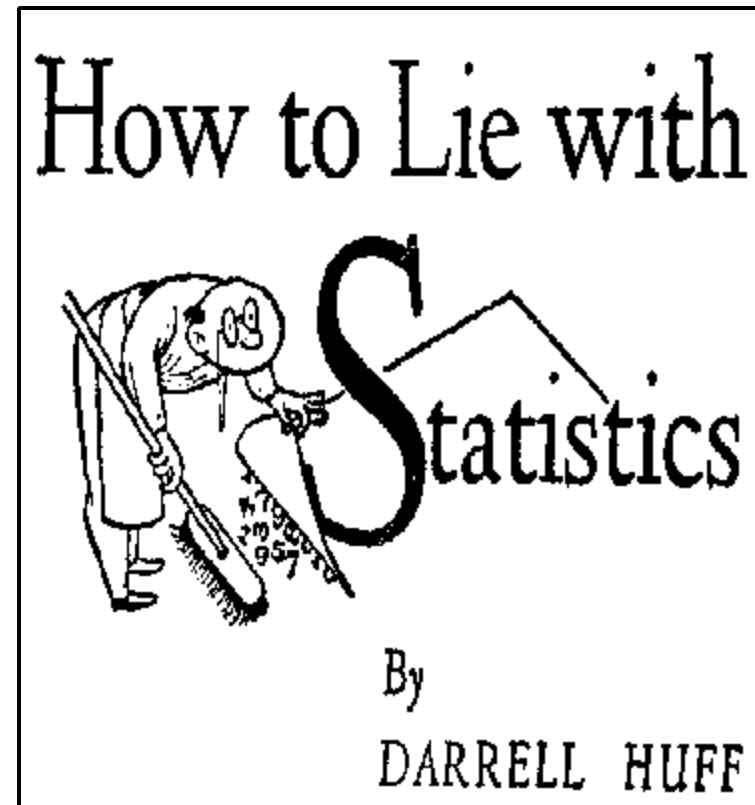
FALLACY-Based

5

Huff (1954)

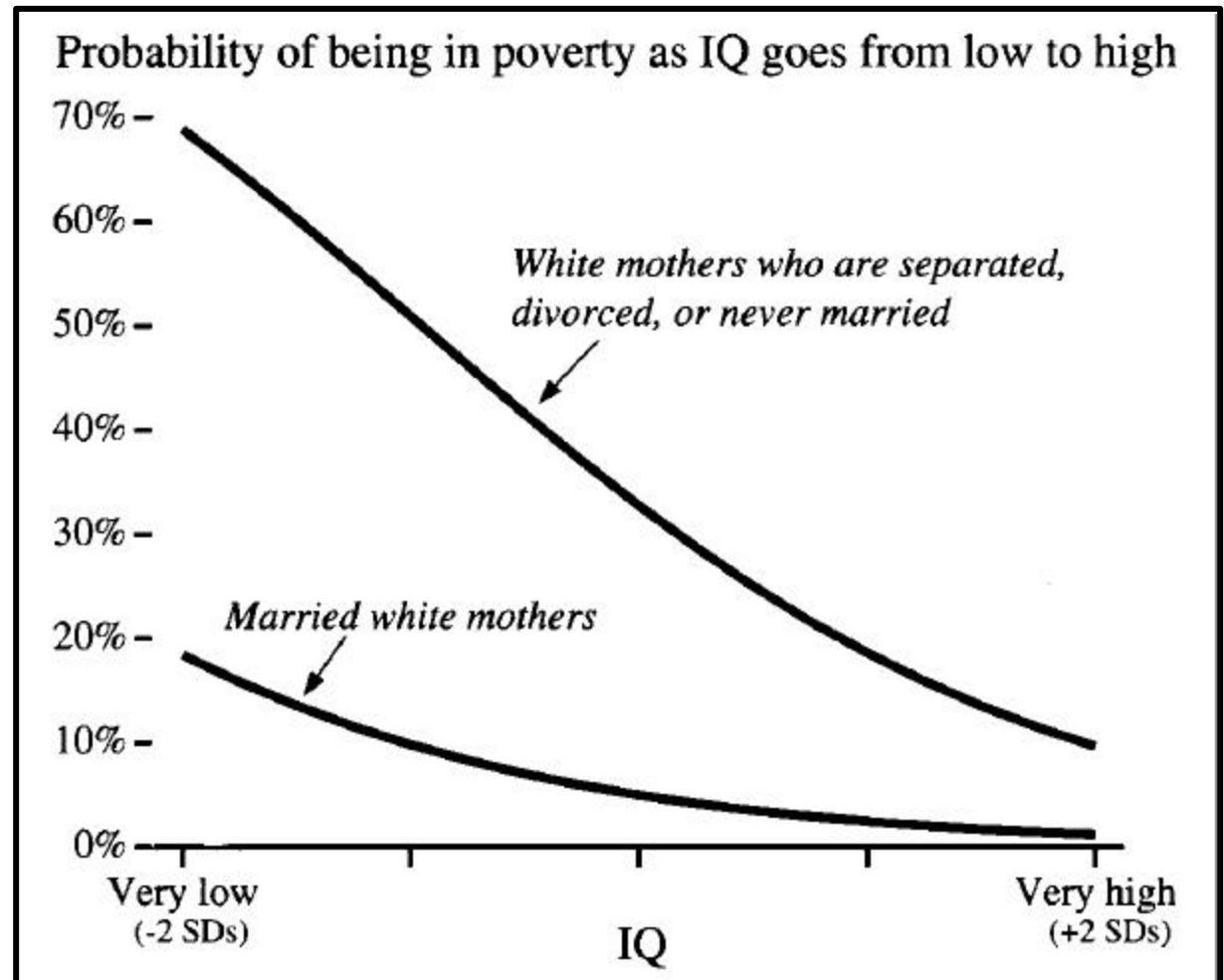
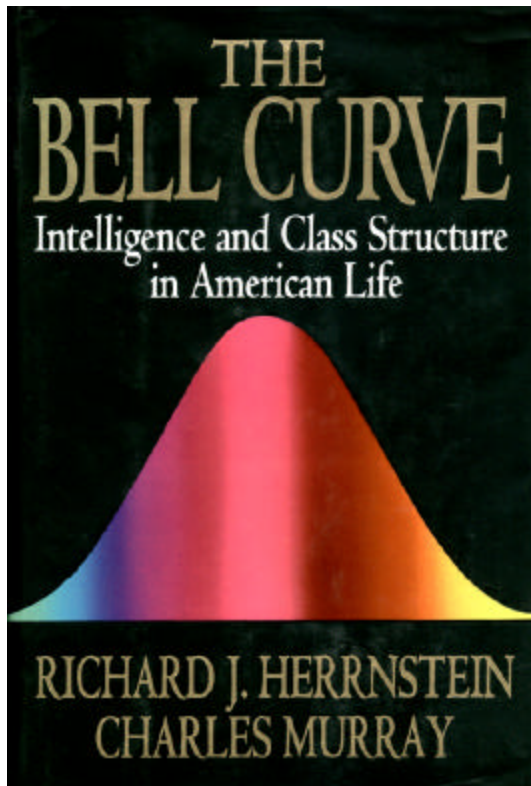
- 81 stories
- *none* on inference

NO stories on
confidence intervals or
hypothesis tests.



Statistical LITERACY

Focuses on Associations



Statistical LITERACY

Focuses on Social Arguments

7

Florence Nightingale

*“Seven times as many
died after the battle
as died in the battle.”*

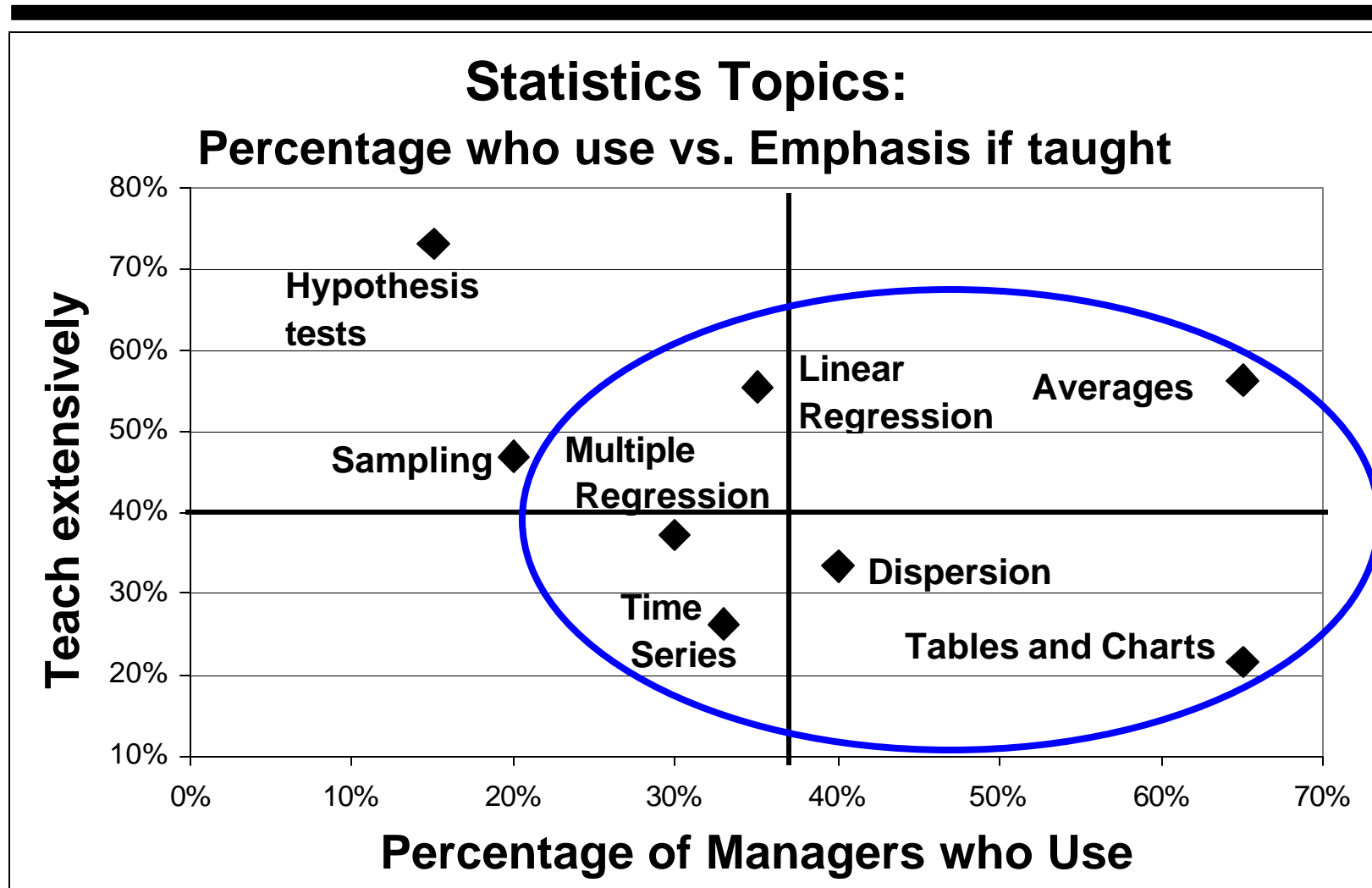
Nurses save lives;
We need more nurses!



Statistical LITERACY

Focuses Heavily on What is Used

8



Statistical LITERACY

Focuses Heavily on Words

9

*Q: Which sex is more able
to withstand the loss of their spouse?*

**Suicide statistics “show” that
men (widowers) are more able!**

*“Among those committing suicide,
widows (women) are more likely
than widowers (men).”*



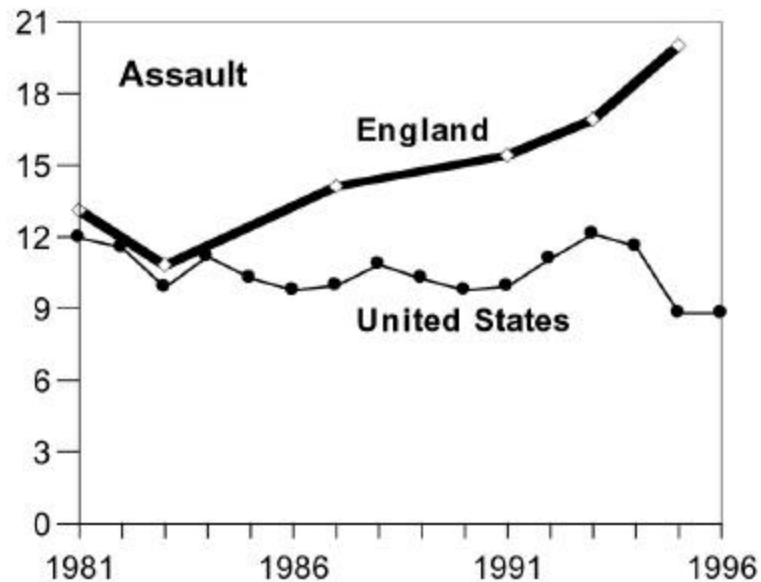
Statistical LITERACY

at Augsburg College

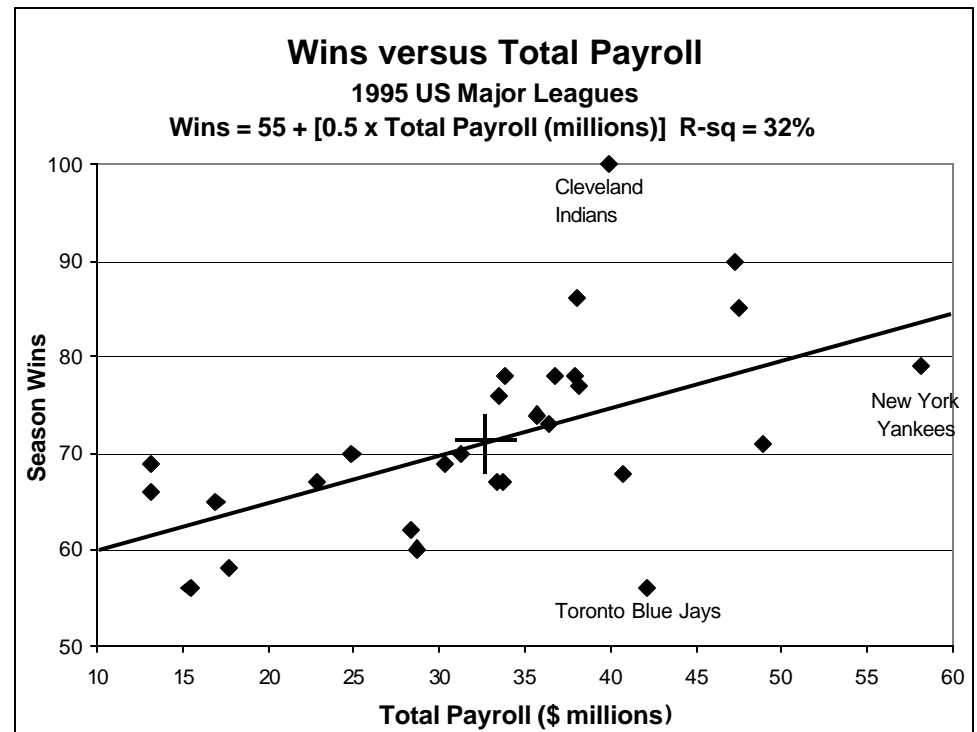
10

Graph-based FOR HUMANITIES

Survey crime rate per 1,000 population



Modeling-based FOR BUSINESS





Statistical LITERACY

Adds More Perceived Value

Percentage of Statistical Literacy students*
who strongly agree that this course

- helped my critical thinking skills..... **44%**
- is relevant to my major or work..... **39%**
- is relevant to my personal or civic life.. **33%**
- should be *required* for graduation..... **22%**

* Preliminary results (18 students in graph-based course)



Statistical LITERACY

Needs YOU!

12

-
- Take the **Statistical LITERACY** survey.
Tuesday/Thursday noon. Multiple choice on tables and graphs.
 - Explore www.StatLit.org
 - Read relevant books and articles.
 - Participate (review, edit or teach) in the
W. M. Keck Statistical Literacy Project.