



# Course wrap-up

Jeffrey Leek, Assistant Professor of Biostatistics  
Johns Hopkins Bloomberg School of Public Health

# Why we do applied statistics

"It is not the critic who counts: not the man who points out how the strong man stumbles or where the doer of deeds could have done better. The credit belongs to the man who is actually in the arena, whose face is marred by dust and sweat and blood, who strives valiantly, who errs and comes up short again and again, because there is no effort without error or shortcoming, but who knows the great enthusiasms, the great devotions, who spends himself for a worthy cause; who, at the best, knows, in the end, the triumph of high achievement, and who, at the worst, if he fails, at least he fails while daring greatly, so that his place shall never be with those cold and timid souls who knew neither victory nor defeat."

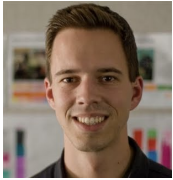


*Theodore Roosevelt, 26th President of the United States*

[Statistics and the science game](#)

# The key challenge in applied statistics

"Ask yourselves, what problem have you solved, ever, that was worth solving, where you knew knew all of the given information in advance? Where you didn't have a surplus of information and have to filter it out, or you didn't have insufficient information and have to go find some?"



[Dan Myer, Mathematics Educator](#)

# Why applied statistics?



# Why applied statistics?


## The New York Times


### For Today's Graduate, Just One Word: Statistics


By [STEVE LOHR](#)


Published: August 5, 2009

MOUNTAIN VIEW, Calif. — At Harvard, Carrie Grimes majored in anthropology and archaeology and ventured to places like Honduras, where she studied Mayan settlement patterns by mapping where artifacts were found. But she was drawn to what she calls “all the computer and math stuff” that was part of the job.

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# Why applied statistics?

McKinsey Global Institute



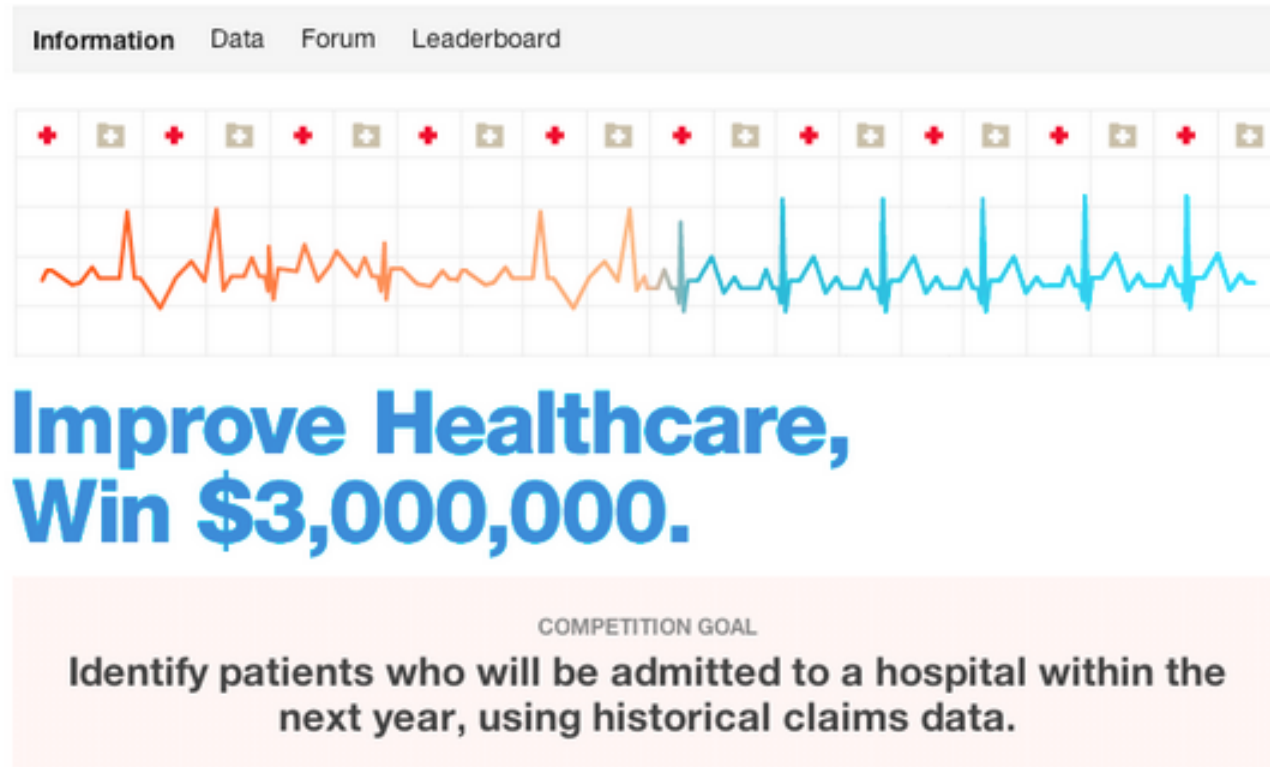
June 2011

Big data: The next frontier  
for innovation, competition,  
and productivity

# Why are you lucky?



# Why are you lucky



[Heritage Health Prize](#)



# New data drives new statistical ideas

- How do we make better beer?
  - **Data:** Measures of beer quality
  - **Statistic:** The [t-statistic](#)
- What characteristics of field lead to better crops?
  - **Data:** Field characteristics, crop yields
  - **Statistic:** [Analysis of variance \(ANOVA\)](#)
- How long do people live?
  - **Data:** Survival times of people (censored)
  - **Statistic:** [Kaplan-Meier Estimator](#)
- What movies will you like?
  - **Data:** Lots of other peoples movie ratings
  - **Statistic(s):** [Recommender systems](#)

# Who is an applied statistician?

Daryl Morey



Hilary Mason



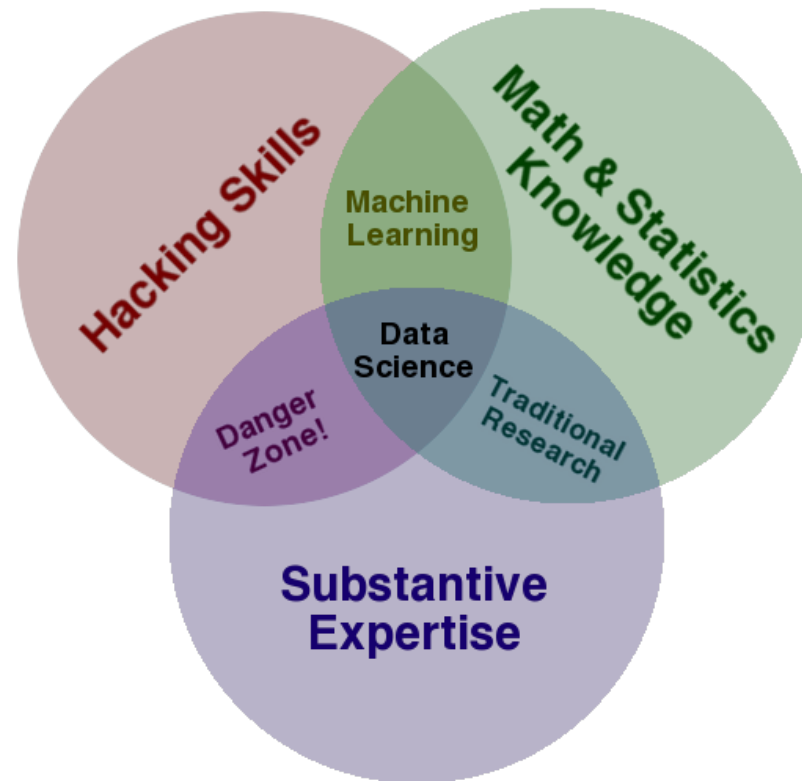
Daphne Koller



Nate Silver

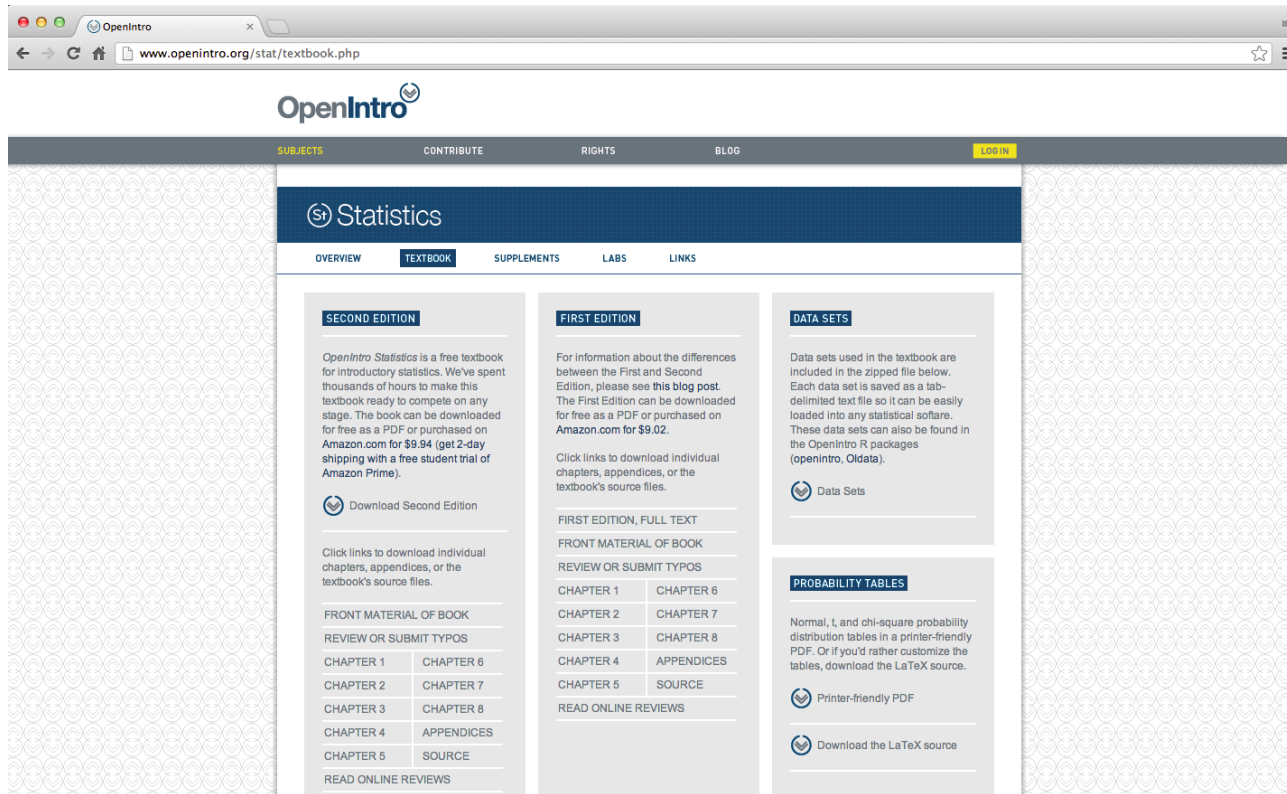


# An important goal



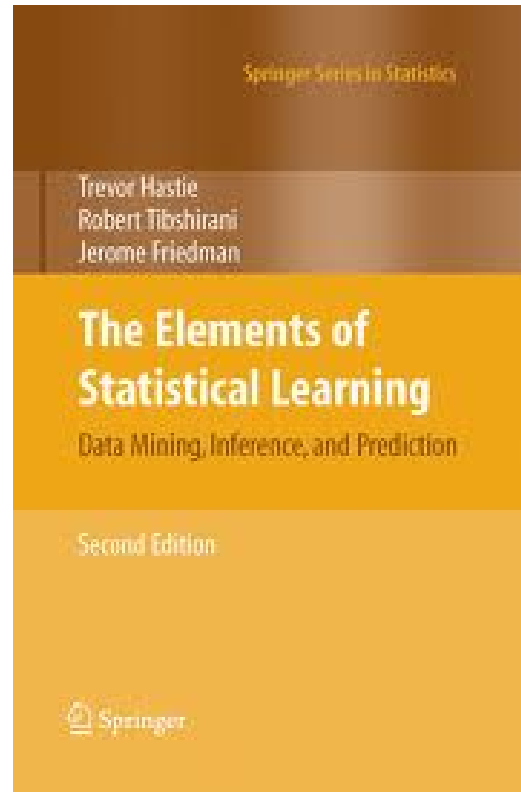
[Drew Conway](#)

# These might be useful



<http://www.openintro.org/>

# These might be useful



<http://www-stat.stanford.edu/~tibs/ElemStatLearn/>

# These might be useful

Advanced Data Analysis  
from an Elementary Point of View

Cosma Rohilla Shalizi

Spring 2013  
Last L<sup>A</sup>T<sub>E</sub>X'd Friday 18<sup>th</sup> January, 2013

[Advanced Data Analysis from An Elementary Point of View](#)

# Also check out

- [Andrew Gelman's blog](#)
- [Larry Wasserman's blog](#)
- [Statsblogs](#)
- [Flowing Data](#)
- [junkcharts](#)
- [Hilary Mason's Blog](#) and [@hmason](#)
- [Cosma Shalizi's Blog](#)
- [Some other guys' blog](#)

[The top Biostatistics Department in the World](#) - No bias here :-)

# It has been my exteme pleasure

Thank you so much for all of your dedication, time, and enthusiasm. This has been a wonderful experience for me and I hope it has been for you too.