

TEACHING PUBLIC SERVICE- ORIENTED DATA SCIENCE

Andrew Heiss, PhD
Georgia State University
October 18, 2019
@andrewheiss

andhs.co/naspaa

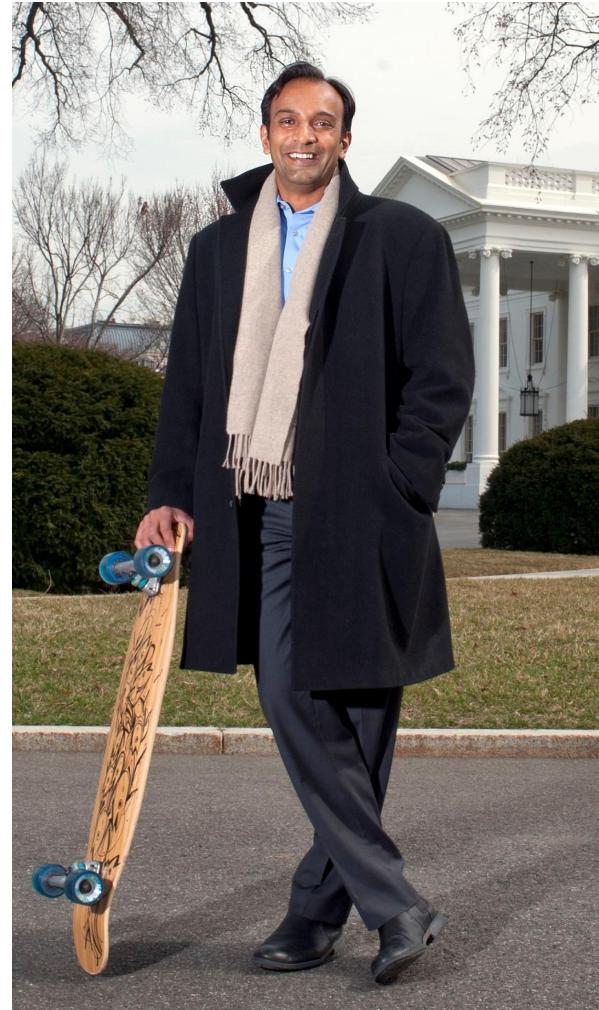
DATA, DATA SCIENCE, & PUBLIC SERVICE

WHY UNIVERSITIES NEED 'PUBLIC INTEREST TECHNOLOGY' COURSES

POLICYMAKERS AT ALL levels of government are struggling to thoughtfully harness data in the service of public values. Many public servants grew up in an era of firmly separate disciplines: You were either an engineer or an economist, either a programmer or a social worker, but never both. In an era in which data is everything, the risks to core democratic principles—equity, fairness, support for the most vulnerable, delivery of effective government services—caused by technological illiteracy in policymakers, and policy illiteracy in computer scientists, are staggering.

field aimed at addressing precisely this gap in interdisciplinary opportunities. This new area, "public interest technology," is still being defined; it encompasses designing public policy and laws with an awareness of how technology actually works, as well as ensuring that technology is being used to serve public values of fairness and equity. It means consciously thinking about the welfare of society in general, rather than the incentives of a single company.

DATA AND GOVERNMENT



“To responsibly
unleash the power
of data to benefit
all Americans”



WHAT IS “DATA SCIENCE”?

Big data

Algorithms

Machine
learning

Data mining

Neural
networks

Cloud computing

Artificial
intelligence

PR-speak for
“statistics”

WHAT IS “DATA SCIENCE”?

Turning raw data into
understanding, insight,
and knowledge

The process of creating
insights using data

THE ETHOS OF SHARING

**“Technology is neither
radical nor revolutionary
unless it benefits every
single person”**

DJ Patil, forum at Brigham Young University, February 13, 2018



®
open source
initiative





```
strike_damages_month <- bird_strikes %>%
  group_by(Month) %>%
  summarize(total_damages = sum(Cost, na.rm = TRUE),
            average_damages = mean(Cost, na.rm = TRUE))

ggplot(data = strike_damages_month,
        mapping = aes(x = Month, y = total_damages)) +
  geom_col() +
  scale_y_continuous(labels = dollar) +
  labs(x = "Month",
       y = "Total damages",
       title = "Really expensive collisions happen in the fall?",
       subtitle = "Don't fly in August or October?",
       source = "Source: FAA Wildlife Strike Database")
```

ds4ps.org







Foundations of Program Evaluation I

Regression analysis for the study of program impact.



MPA 630: DATA SCIENCE FOR PUBLIC MANAGEMENT

[SYLLABUS](#)
[SCHEDULE](#)
[ASSIGNMENTS](#)
[REFERENCE](#)
[RSTUDIO.CLOUD](#)
[CLASS CHAT](#)

DATA SCIENCE FOR PUBLIC MANAGEMENT

THIS SITE CONTAINS the syllabus, schedule, and assignments for MPA 630: Data Science and Statistics for Public Management, held during Fall 2018 at Brigham Young University.

By the end of this course, you will (1) be data literate and (2) be able to answer your own questions with statistical and data scientific tools.



PMAP 8521: PROGRAM EVALUATION FOR PUBLIC SERVICE

[SYLLABUS](#)
[SCHEDULE](#)
[ASSIGNMENTS](#)
[REFERENCE](#)
[RSTUDIO.CLOUD](#)
[SLACK](#)

PROGRAM EVALUATION FOR PUBLIC SERVICE

THIS SITE CONTAINS the syllabus, schedule, and assignments for PMAP 8521: Program Evaluation, held during Fall 2019 at the Andrew Young School of Policy Studies at Georgia State University.

By the end of this course, you (1) will be literate in the language of causal inference, (2) will communicate evaluation outcomes clearly, and (3) will be able to defend the ethics and limits of data analysis by designing, critiquing, coding, and running rigorous, valid, and feasible evaluations of public sector programs to address society's most pressing problems.

Getting started with R



Design, implementation, design, & causation

INSTRUCTORS

Dr. Andrew

639 TN

andrew

@andr

Office

Applied evaluation

Ethics of data science

Open science and collaboration

Politics and feasibility

Communicating results