

# Enhancing Pathways via Thinking with Data

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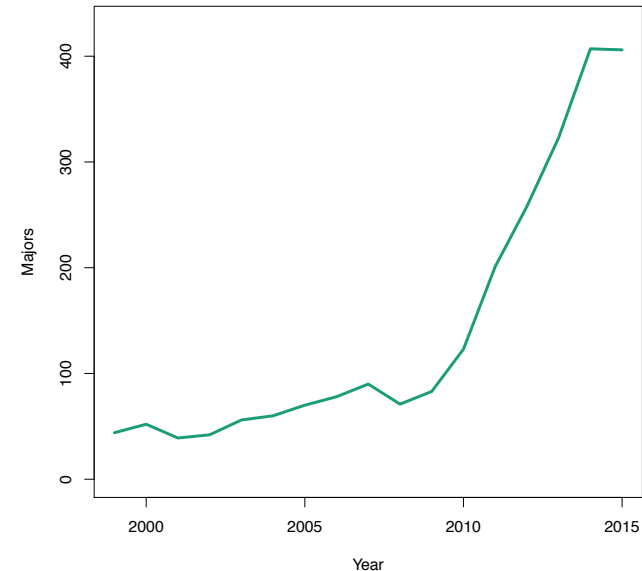
## 3 Approaches

- One new course – the ripple effect
- Campus-wide Initiative with many collaborators
- Professional Community workshop

# 1 New Course

- Motivation:
  - Students need broad computing skills to work with data
  - Students not going on to grad school don't need proof-based linear algebra
- Concepts in Computing with Data
  - No prerequisites, 1 of 3 core courses in major
  - Students prepared to work with data in many settings

Berkeley Statistics Major 1998–2015



## Impact -

Grown from 40 students a semester to 400  
More students participate in research projects

# Campus-wide Initiative

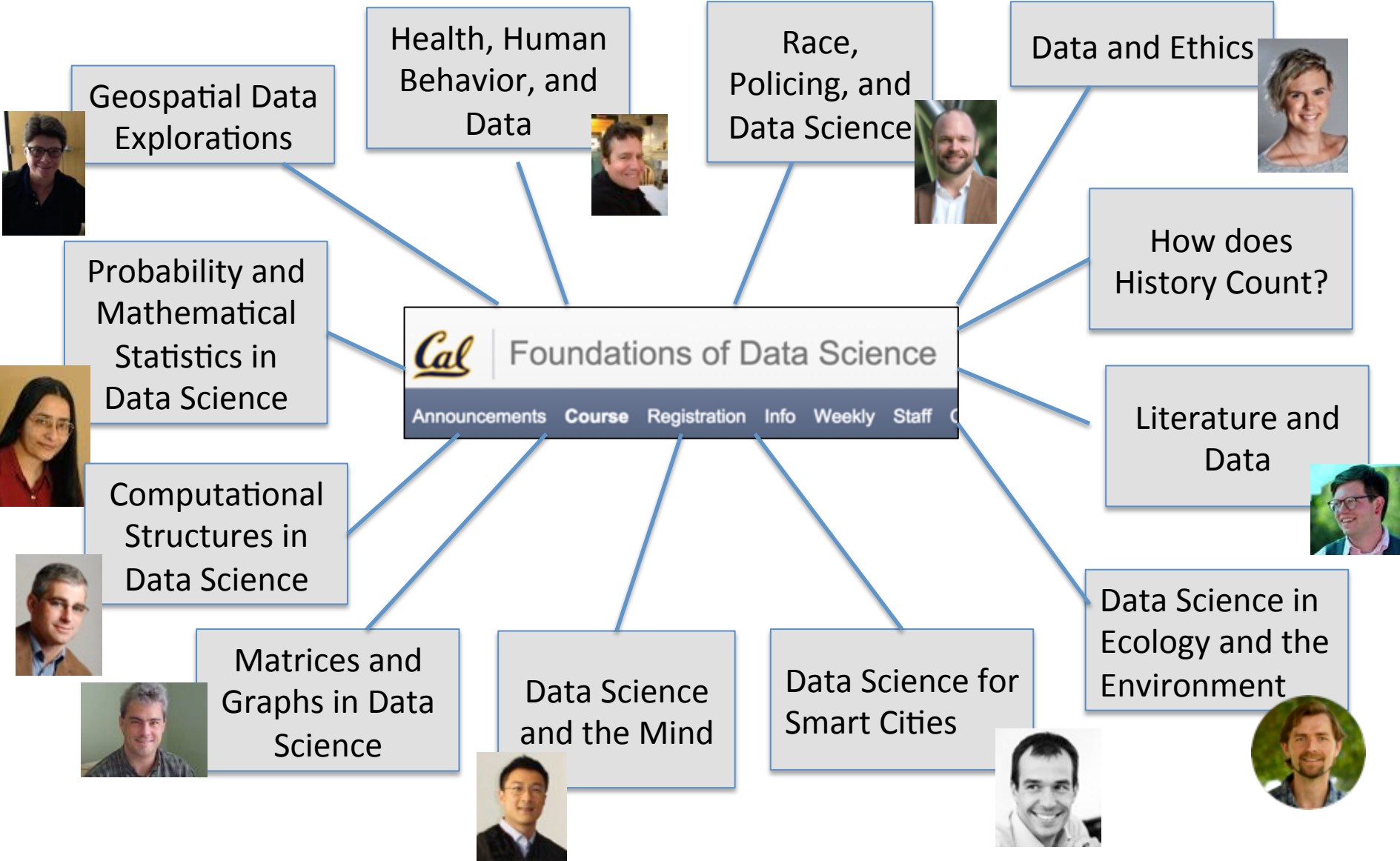
- Motivation:
  - Design data experience for ALL freshman
  - Connect with faculty across campus to understand their needs
- Intro to Data Science:
  - Jointly designed and taught by Stat and CS faculty
  - Dozens of connector courses
- Impact
  - Over 1,000 students will take it this year
  - Planning for a data science major is underway



<https://github.com/data-8>

<https://ds8.org>

# Data Science Connections (15-16)



# Professional Community

- Motivation:
  - Develop curriculum guidelines for Data Science undergraduate program
  - Support faculty and departments in creating new programs and courses
- 25 Math, Stat, CS faculty met at PCMI
  - Math faculty designed 2 courses that depart from traditional 4 course calculus sequence – core math for data science
- Impact:
  - <http://preview.tinyurl.com/DataSciCurr>  
Guidelines (and syllabi) submitted for publication

# Where are we headed?

- Definite: New Undergraduate Major Program
- Impact on existing statistics major: Imagine co-existence, but the exact form is unclear
- Possibility: Creation of a new Division of Computational and Statistical Sciences with several undergraduate tracks