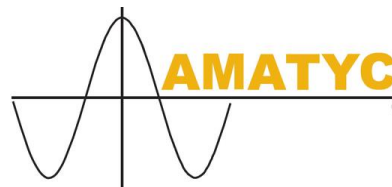# Teaching StatPREP in the Classroom

Joe Roith, St. Catherine University

Overview of StatPREP

- StatPREP (NSF Grant DUE-1626337) is designed to help college instructors develop the understanding and skills to teach introductory statistics with **large data sets**, **modern pedagogy** and emphasis on **data wrangling and data visualization techniques**.

- StatPREP is an extended professional development program for math faculty, particularly at two-year institutions, featuring data- and computationally-based curricular materials that can be used in your existing course.

- StatPREP is a collaboration between the MAA, AMATYC and ASA.
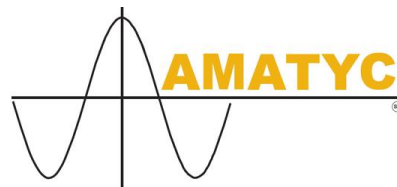
StatPREP Leadership Team

- Daniel Kaplan, Macalester College

- Jenna Carpenter, Campbell University

- Kathryn Kozak, Coconino Community College

- Michael Brilleslyper, United States Air Force Academy

- Ambika Silva, College of the Canyons

- Rachel Levy, Mathematical Association of America

- Donna LaLonde, American Statistical Association
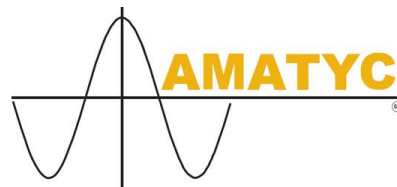
Components of StatPREP

- Summer workshops
  - Regional hub community support

- Online resources
  - Webinar series
  - Tutorials
  - Classroom lessons
  - Interactive "Little Apps"

- Individual Consulting

- Newsletters
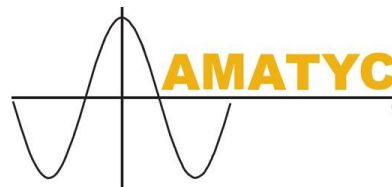
StatPREP Workshops

- 8 Hubs around the US
- Held during consecutive summers
- Outstanding Statistics Education Workshop Leaders

- Summer 2019 Workshops:
  - ➢ Hartford, CT
  - ➢ Seattle WA
  - ➢ Fort Worth, TX
  - ➢ Washington, DC

Participants-to-date:
✓ *158 College Faculty*
✓ *83 Institutions*

MAA MATHEMATICAL ASSOCIATION OF AMERICA

AMATYC

ASA

StatPREP Website

http://statprep.org/

- **Online resources**
  - Continuing webinar series
    - Past recordings available
  - Interactive tutorials and apps - ready for use
  - Developing repository of lessons for instructor use, including formal assessment
    - Available soon

The goal (as I see it)

- The goal of StatPREP is to move the introductory statistics course away from theories, formulas, and tables.

- We would like students to explore *real data*. To visualize the properties of sampling. To make inference about populations based on intuitive understanding.

- Connecting with students on this level and making concepts more accessible will reinforce the theoretical background learned in class.

Lessons and Tutorials

- **Powered by R:**
  - All analysis is performed independently in R, without the need for the student (or instructor) to have programming skills.
  - Lessons and apps are deployed through Shiny.
  - Tutorials are available for those who wish to learn more about using R.

- **Individual lessons:**
  - Completed by student at their own pace.
  - Designed with knowledge checks and interactive displays.

Demo – What's Normal?

- https://dtkaplan.shinyapps.io/Whats_normal/
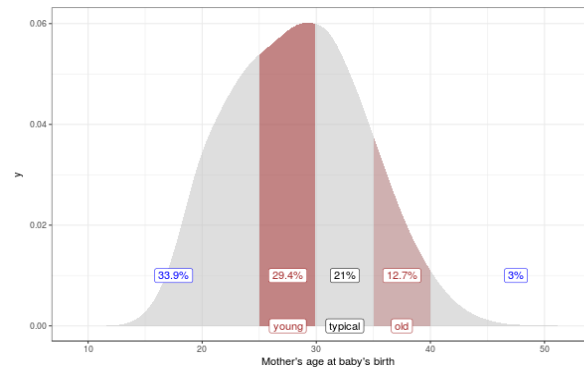
Little Apps

- To interact with data

- Learn through exploration and simulation

- **Current Little Apps:**
  - Center and Spread
  - Two-sample t
  - Proportions
  - Linear Models
  - Resampling and Bootstrapping

Demo – Comparing Two Groups

- Each Little App has several lessons to compliment it.
- The lessons include an orientation to the learning objectives and activities to complete them.
- **Open the Little App**

  https://dtkaplan.shinyapps.io/LA_t_test/

- **And the Lesson**

  https://tinyurl.com/y4t9uc4p

Going Forward

- Resources are still being developed, many of the lessons are in rough or first draft versions.

- Workshops are finished in Minnesota, but continue nationally until 2021.

- Consulting Days - meet with Little Apps creator Danny Kaplan one-on-one to ask questions about everything from using the lessons to creating your own.

Questions? Contact

- Contact me if you would like to join our regional StatPREP community.

  - jmroith@stkate.edu

- Visit http://statprep.org/ for updates on webinars, newsletters, lessons, and other developments.

Acknowledgement

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