

STATISTICS STUDENT RESEARCH OPPORTUNITIES WITH FACULTY

Winter/Spring 2021

If you are interested in any of the below projects, please contact the respective faculty advisor. This list will be updated quarterly (or more frequently) and be available on the department website:

<https://statsitcs.calpoly.edu>.

Title: **Analyzing multi-institution assessment data**
Faculty: **Beth Chance**
Description: Using R and multilevel models to explore pre/post concept and attitude data in introductory statistics courses.
Prerequisites: R

Title: **Analyzing mother-infant interactions during feeding**
Faculty: **Kevin Ross**
Description: The data were collected from video recordings in a longitudinal study of 325 mother-infant pairs when infants were 2 weeks and 2, 4, 6, 9, and 12 months. We will use statistical techniques (including Hidden Markov Models) to model infant communication of satiation and maternal responsiveness to infant cues during feeding, and to describe associations between developmental trajectories of infants' appetitive drives and weight gain.
Prerequisites: R, STAT 331
Comments: This is a collaboration with Dr. Alison Ventura in Kinesiology and Public Health.

Title: **Classroom Experiments**
Faculty: **Beth Chance**
Description: Mini experiments on different implementation strategies, especially for teaching about simulations.
Prerequisites: STAT 301
Comments: Need help designing, classroom observations, analyzing data.

Title: **Simulation-based materials for teaching probability**
Faculty: **Kevin Ross**
Description: I am working on a textbook for STAT305 and could use some help creating supplementary materials, including labs, activities, exercises, visualizations/animations, videos, and Shiny apps.
Prerequisites: R, STAT305

Title: **Bioacoustics Shiny App**
Faculty: **Maddie Schroth-Glanz and Hunter Glanz**
Description: Continue to develop and refine a shiny app geared for up and coming bioacoustics students to understand the fundamentals of acoustical analyses of wav files. Mainly utilized for marine mammal vocalizations.
Prerequisites: R
Comments: Other desirable skills include Python.

Title: **Authorship analysis of the New Testament**
Faculty: **Dennis Sun**
Description: This project will involve scraping the Greek text of the New Testament (Bible) and applying text processing to investigate the authorship of those texts. This project will also involve background research into computer-assisted textual analysis.
Prerequisites: DATA 30

Title: **Sexual Misconduct Prevalence: Case Tracking 2014 – 2021**
Faculty: **Billie-Jo Grant**
Description: This project will involve tracking google alerts of cases of school employee sexual misconduct in the United States. Student will track case characteristics such as victim and offender characteristics and case details. This database is the most comprehensive list of school employee sexual misconduct cases in the United States and is referenced often by researchers, media, and legislators.
Prerequisites: N/A

Title: **Sexual Misconduct State Certification Data**
Faculty: **Billie-Jo Grant**
Description: This project will involve developing a survey for state directors of educator credentialing to ask them about the prevalence of cases, challenges addressing these issues, and recommendations for best practices.
Prerequisites: N/A

Title: **Evaluation of SUCCEED with TRUE-SPEAK**
Faculty: **Billie-Jo Grant**
Description: SUCCEED with TRUE-SPEAK is a leadership communication program. The treatment-only study will explore pre and post data to determine changes to participant ratings over time.
Prerequisites: N/A

Title: **Interactions and Performance in Collaborative Assignments**
Faculty: **Anelise Sabbag**
Description: This is a statistics education project with the goal of exploring how data can be extracted from collaborative written assignments to measure students' interactions with each other, statistical reasoning process, and correctness.
Prerequisites: An interest in STAT education.

Title: **Attitudes Toward Statistics**
Faculty: **Anelise Sabbag**
Description: Investigate data from online and face-to-face courses regarding students' attitudes toward statistics in an introductory statistics course.
Prerequisites: R