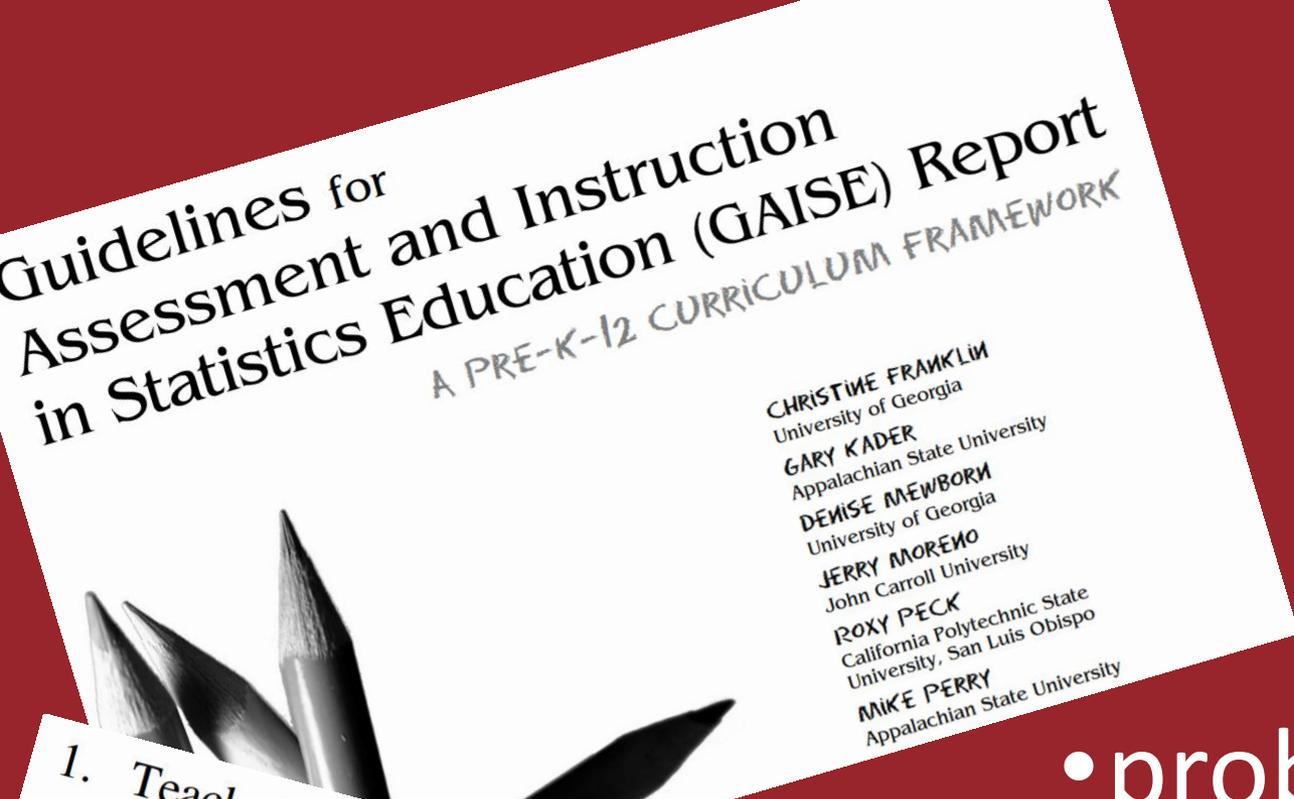


Statistical Consultancy as Service Learning in an Undergrad Statistics Course

Stacy DeRuiter - sld33@calvin.edu

ACMS, 5/30/2019



1. Teach statistical thinking.
 - Teach statistics as an investigative process of problem-solving making.
 - Give students experience with multivariable thinking.
2. Focus on conceptual understanding.
3. Integrate real data with a context and purpose.
4. Foster active learning.
5. Use technology to explore concepts and applications.
6. Use assessments to improve student learning.

- real data
- statistical software
- problem-solving
- decision-making

SERVICE-LEARNING CENTER



The mission of the Service-Learning Center at Calvin College is to engage students, faculty, staff, and the community in and for the pursuit of God's kingdom together, primarily through community-based activity, and civic participation in Grand Rapids.

ACADEMICALLY-BASED SERVICE-LEARNING

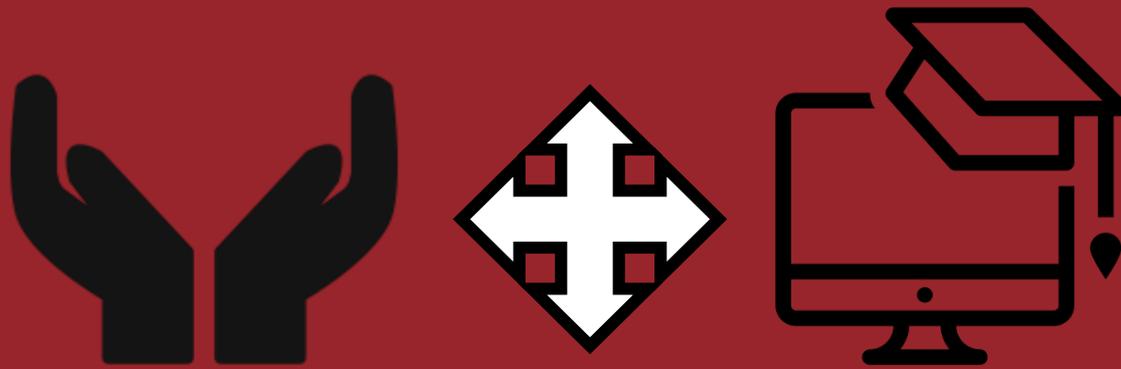


Connecting theory & practice

Faculty members in almost every department at Calvin College integrate Academically-Based Service-Learning (ABSL) with the content of courses. These courses include relevant activities that provide a connection between theory and practice.

Resources

- [Faculty](#)
- [Student](#)
- [Community partner](#)



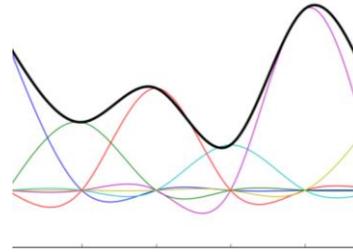
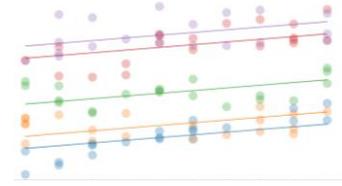
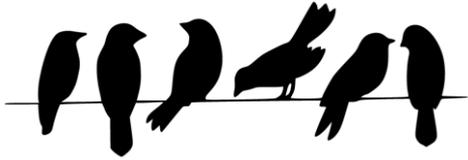
Moral & Religious Motivations & Consequences of drawing conclusions from data



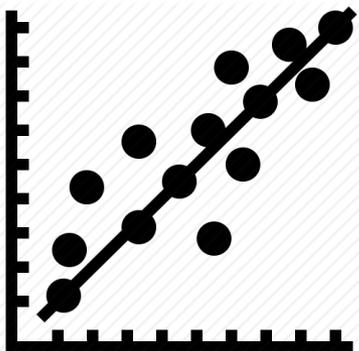
STATISTICS
WITHOUT BORDERS

Statisticians in compassionate service.

<https://community.amstat.org/statisticswithoutborders/home>



STAT 245: Advanced
Data Analysis
(Applied Regression;
GLMs & Friends)



Statistical Consultancy as Service Learning



newcityneighbors



WorldRenew™
LIVING JUSTICE • LOVING MERCY • SERVING CHRIST



CENTER FOR
SOCIAL RESEARCH
a center of Calvin College

the grand rapids
Red project

Fit Kids 360

Project Components

- Annotated Bibliography
- Tidy Dataset
- Exploratory Analysis (figures)
- Regression Model (rationale, results, figures, interpretation)
- Interactive map or app
- Written Report

Our Project Partners

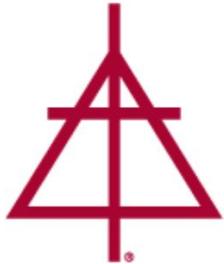
- Outcomes by demographic groups
- Shareable graphics
- Areas of success
- Areas for improvement





CENTER FOR SOCIAL RESEARCH

a center of Calvin College



Christian Reformed Church



English

Welcome to the Our Journey 2020 survey

tableau public

GALLERY

AUTHORS

BLOG

RESOURCES

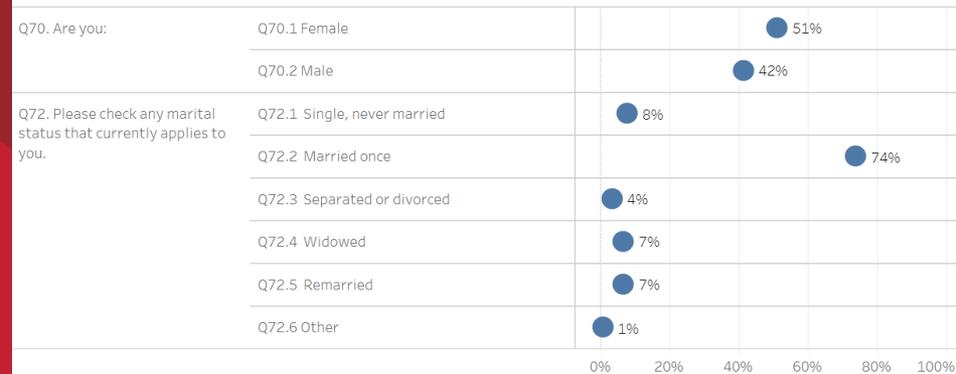
ACTIVIT

< Calvin College Center for Social Research - Profile

Introduction | Desired Futures | Individual Items | About You | Histograms | Trends Over Time | Christian Reformed means ... | Resonate Scale | Questionnaire PDF

Our Journey 2020 Report of CRCNA Members

About You: Demographics



Year of Survey

- (All)
- 2012
- 2017
- 2018
- 2019

Question Categories

Demographics

Question Filter

(All)

Crosstabulator

All

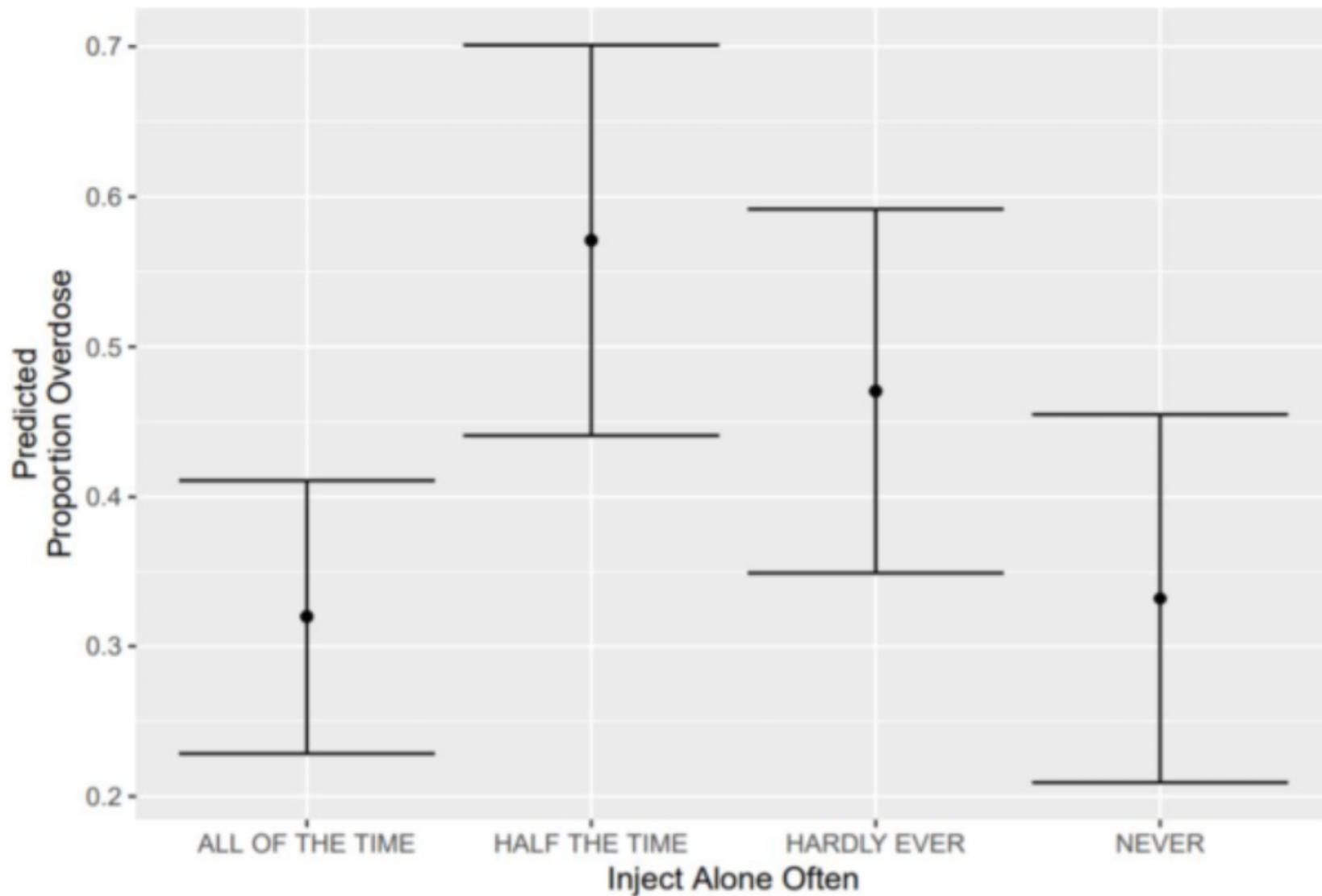


Calvin College Campus Water Quality

Prof. Mark Muyskens

Some Student Results

Overdose model



The Red Project: Overdose cases over time

Note: certain categories in gender and ethnicity have been removed to protect the privacy of individuals

Choose CSV File

Browse... No file selected

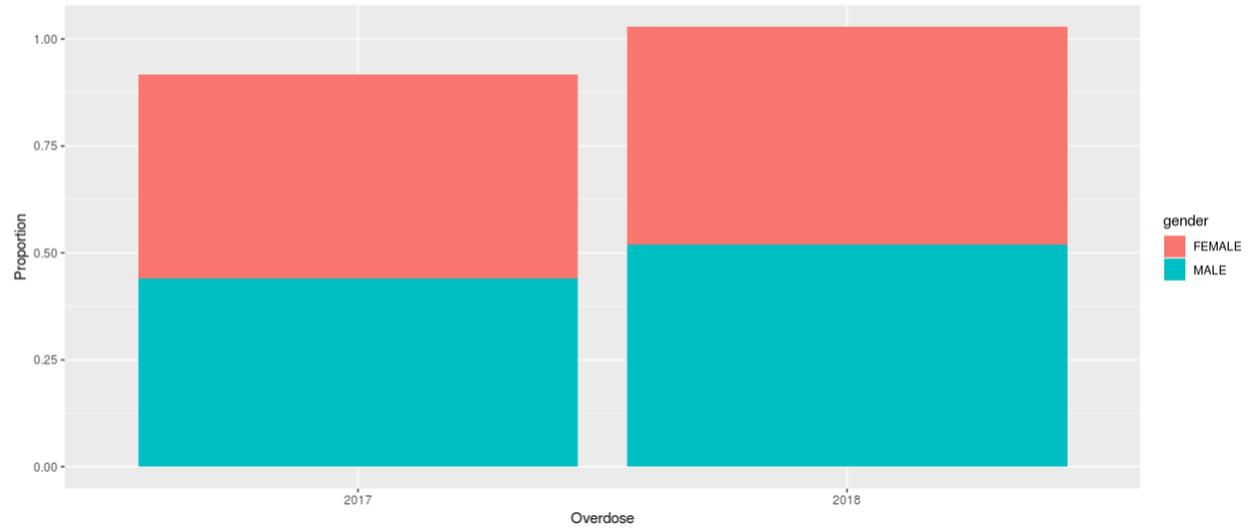
Header

Choose Subset:

gender

Select Years

- 2015
- 2016
- 2017
- 2018



Calvin Water Quality Data

Choose an Ion for the Map

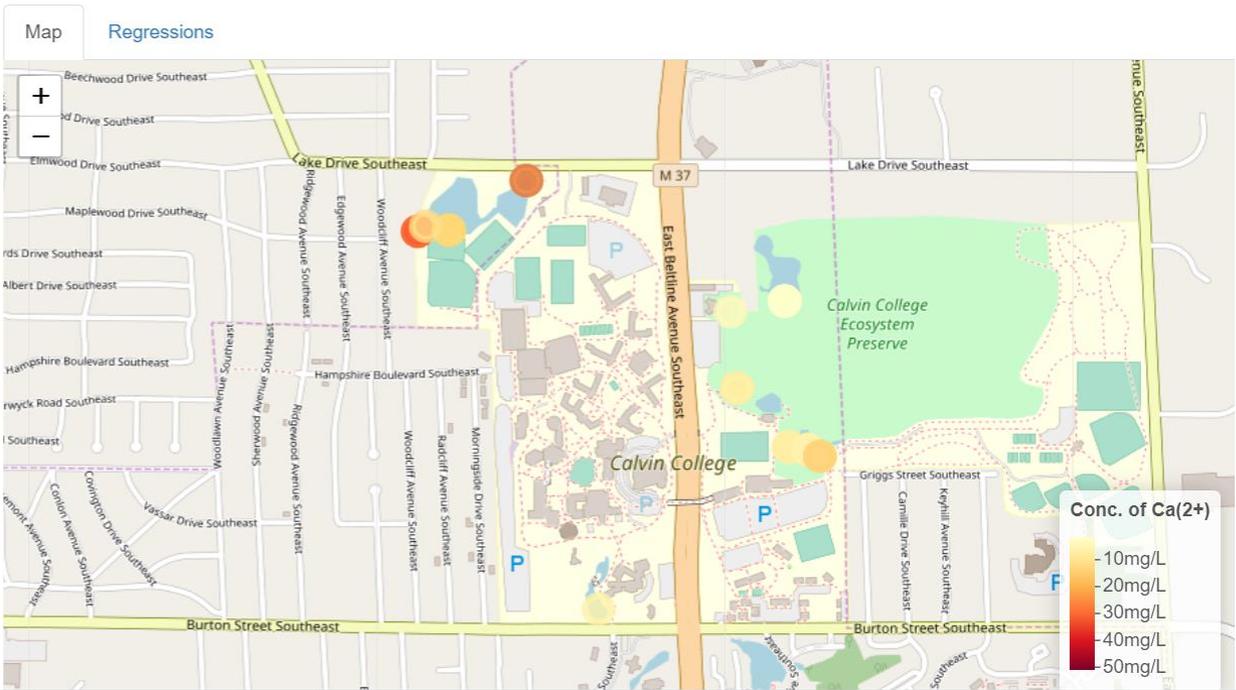
Ca(2+) ▼

Choose a Response Variable:

Change in Conductivity ▼

Choose a Predictor Variable:

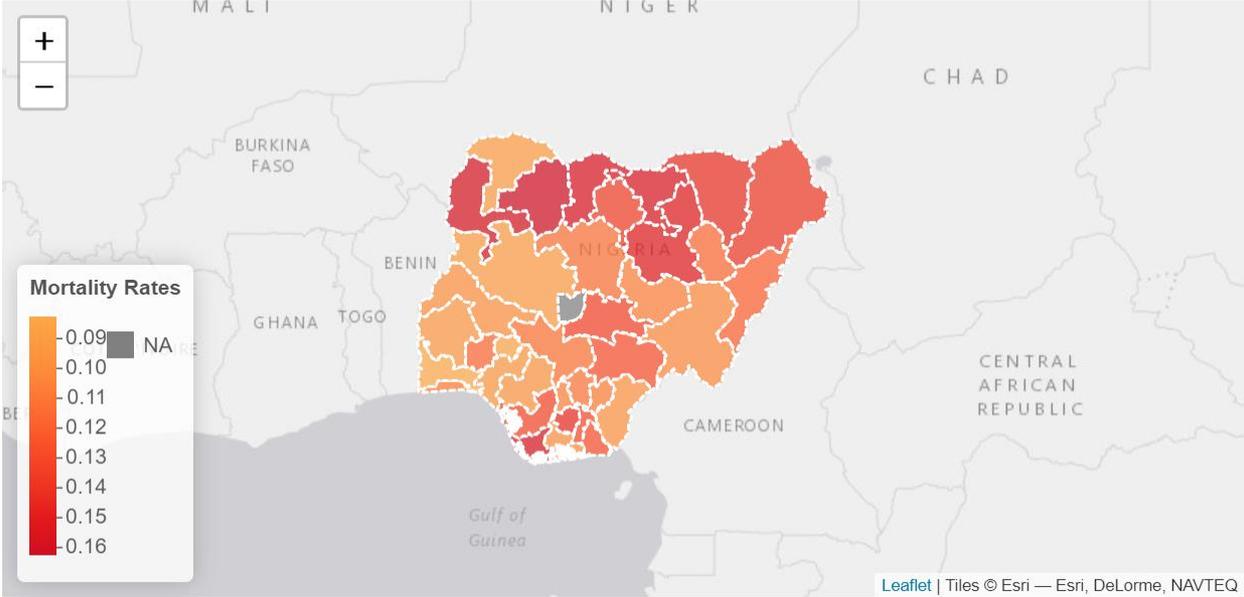
Change in Precipitation ▼



Child Mortality Rate

Choose the country of interest:

Nigeria



Student Investment & Return on Student Investment

Work Hours per Student





How can we encourage students to engage fully and do excellent projects?

Other Similar Initiatives

Comparisons
to others



Statistical Consulting Center

[Home](#) ▾ [Make an Appointment](#) ▾ [Web-Based Surveys](#) ▾ [SWS Statistics Project](#) ▾ [Department of Statistics](#) ▾



STA 419 SWS Statistics Project



the Collaboratory

for strategic partnerships
and applied research

COLLABORATORY AT MESSIAH COLLEGE



Advancement:
Promoting
and enhancing
Collaboratory
operations



**Economic
Empowerment:**
Fostering
economic
development



Infrastructure:
Developing
structures
to advance
communities



Biomedical:
Innovating
medical
technologies



Education:
Empowering
lives through
academic
engagement



Sustainability:
Caring
for the
earth



**Communications
Technology:**
Designing
systems to foster
communication



Energy:
Implementing
renewable
energy
technologies



Transportation:
Simplifying
transportation
to combat
global
complexity



**Disability
Resources:**
Empowering
persons with
physical
disabilities



Health:
Advancing
healthy
communities



Water:
Facilitating
sustainable
water
solutions

the Collaboratory

for strategic partnerships
and applied research

COLLABORATORY AT MESSIAH COLLEGE

200 ACTIVE STUDENT
MEMBERS



30+ PROFESSIONAL
ADVISORS



15 NGO/BUSINESS
PARTNERS



SERVING IN 14 COUNTRIES
WORLDWIDE



33 MULTI-DISCIPLINARY
PROJECTS



1000S OF BENEFICIARIES
IMPACTED





**Do you know of other courses, schools,
or programs doing similar service-
learning statistical consultancy?**

Conclusions and Perspectives

- Projects are wonderful
- It's not (too) hard to mastermind
- BUT
 - Student engagement
 - Real faith integration?
 - Real results for partner organizations?