

Life on an Island: Using a Virtual World to Make Statistics Real

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Stat Chat
Materials Potluck
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GAISE College Report Recommendations

1. Teach statistical thinking.
 - Teach statistics as an investigative process of problem-solving and decision-making.
 - Give students experience with multivariable thinking.
3. Integrate real data with a context and purpose.
4. Foster active learning.
5. Use technology to explore concepts and analyze data.

Islands Exploration Activity

- Time to put on your student hat!

THE ISLANDS



Welcome to the home of the Islanders, a virtual human population that has been developed to support learning and teaching in experimental design, epidemiology and statistical reasoning.

The three Islands of Ironbark, Providence and Bonne Santé were settled by the survivors of simultaneous shipwrecks around 250 years ago. The initial settlements have grown and there are now twenty-seven villages with a combined population of over forty thousand Islanders for you to study. Login below to visit them.

Email Address

Password

[Need to set or reset your password?](#)

“Fly” to the Islands via:

theislands.umn.edu

Islands Exploration Wrap-Up

- Share what you found interesting about the Islanders or Islands.

Examples of Teaching with the Islands

Biostatistical Literacy

PubH 6414 (UMN)

Class Format:

In-person



Online



&

Pedagogical Approach

THE FLIPPED CLASSROOM

Class Size:

20

to

80

Students

Student Background

- Public Health graduate students
- Physicians
- Dentists
- Nurses
- Veterinarians
- Pharmacists

Islands Project Overview

- Students work in groups to **design, conduct,** and **analyze** results of a study using the Islands.
 - Groups of ~2 to 6 students.
 - TAs serve as statistical consultants.
- Students present their findings in a **poster session** at the end of the course.
- Guidelines for reporting used:
 - CONSORT (RCTs)
 - STROBE (observational studies)

Collaborating Online

- Groups collaborate using various tools:
 - Google Hangouts, Skype, FaceTime, etc.
 - Google Drive, DropBox
 - Moodle chat rooms
 - Phone, Text, Email
- Works best if groups meet weekly (e.g., in-person lab)



Island Study Project Examples

- Effects of Methamphetamine on Cognitive Function in Young Adults
- **RE-WINE**: The Effect of Red Wine on Serotonin Release
- **YIKES!** Youth Islander Knowledge Enhancement Study [Effect of Dextroamphetamine on Arithmetic Performance]
- Effects of Smoking on Pulmonary Functioning and Exercise Tolerance
- The **DREAM** Study: The Effect of Different Exercise Assignments on Melatonin



Biostatistics I & II

PubH 6450 & 6451 (UMN)

Class Format:

In-person

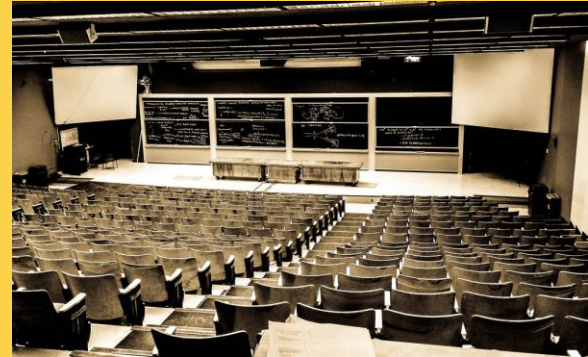


Online



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Pedagogical Approach



Class Size:

25

to

150

Students

Student Background

- Public Health graduate students
- Physicians
- Nurses
- Veterinarians
- Pharmacists

Introduction to Clinical Trials

PubH 3415/7415 (UMN)

Class Format:

Online



Class Size:

35

Students

Student Background

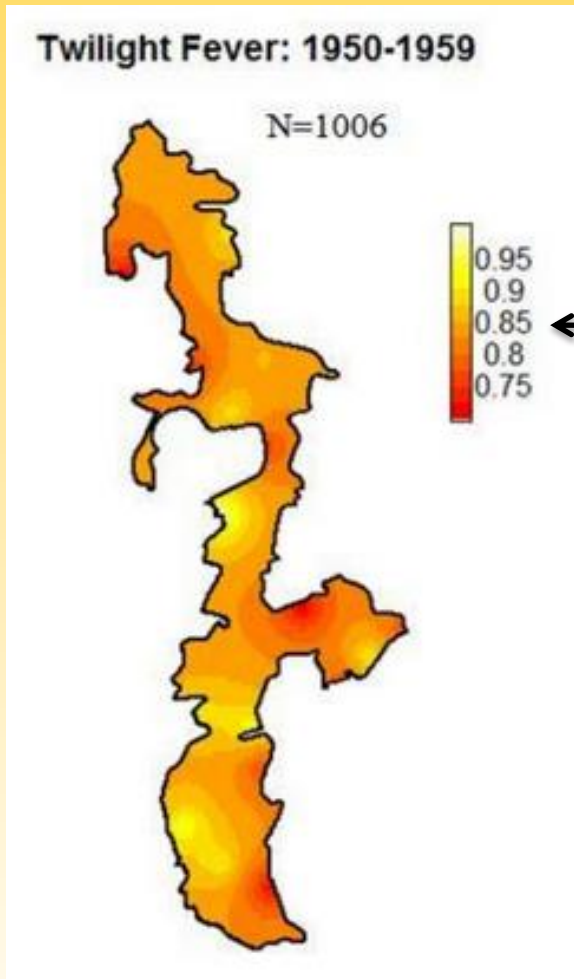
- Undergraduates
 - Public Health Minors
- Graduate Students
 - Public Health and Health Care professionals

Summer Institute in Biostatistics (SIBS)

- Six-week full-time in-person summer program
- SAS or R software
- 25 students, 2 TAs, 2 instructors
- Undergraduates, mostly juniors, potentially interested in careers in biostatistics



SIBS Island Projects



- Genetic Analysis of Summer's Pain (**GASP**)
- Comprehensive Analysis of Twilight Fever in Island Towns (**CATFIT**)
- Physical Ability from Coffee and Energy Drinks (**PACED**)
- Study and Analysis of Depression on Classical-Music Efficacy and Needle-Injected Serotonin (**SAD OCEANS**)

Questions?



Handouts...

- The materials from this Materials Potluck can be found in this Google Drive folder:
 - <https://tinyurl.com/StatChat-IslandProject>
- Contents:
 - These slides
 - The *Islands Exploration Activity* worksheet
 - An Overview of the Islands Project

References

- American Statistical Association (2016). *Guidelines for assessment and instruction in statistics education (GAISE) college report 2016*. The American Statistical Association (ASA). Retrieved November 23, 2016 from http://www.amstat.org/asa/files/pdfs/GAISE/GaiseCollege_Full.pdf.
- Bulmer, M., & Haladyn, J.K. (2011). Life on an Island.: A simulated population to support student projects in statistics. *Technology Innovations in Statistics Education*, 5(1).
- Schulz, K.F., Altman, D.G., & Moher, D, for the CONSORT Group (2010). CONSORT 2010 Statement: Updated Guidelines for Reporting Parallel Group Randomised Trials. *PLoS Med*, 7(3): e1000251.
- von Elm, E., Altman, D.G., Egger, M., Pocock, S.J., Gøtzsche, P.C., Vandenbroucke, J.P., et al. (2007). The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: Guidelines for Reporting Observational Studies. *PLoS Med*, 4(10): e296.