

CURRICULUM VITAE

W. Zane Billings

Contact Information:

- Email: wesley.billings@uga.edu
- Homepage: <https://wzbillings.com> (Connects to GitHub and LinkedIn)

Education:

- Current. PhD, Epidemiology and Biostatistics, University of Georgia.
- 2020. B.S., Biology and Mathematics, Western Carolina University.

Awards:

- GREAT Fellowship, 2020 – 2025. \$27,000 per year for 5 years. Full research funding award from the UGA Graduate School.

Publications:

- Mckay B, Ebell M, Billings WZ, Dale AP, Shen Y, Handel A. Associations between relative viral load at diagnosis and influenza A symptoms and recovery. *Open Forum Infectious Diseases*. 2020; 7(11).

Presentations:

- Billings WZ, Ge Y, Shen Y, Skarlupka AL, Ross TM, Handel A. How do pre-existing immunity and host factors interact to impact influenza vaccine response? Talk presented at the NIH CIVICs 2nd annual meeting. August 2021; virtual.
- Billings WZ, Handel A. Exploring the effect of host factors on the relationship between pre-existing immunity and influenza vaccine response. Poster presented at Ecology and Evolution of Infectious Diseases meeting; 2021; virtual.
- Billings WZ, Handel A. How does pre-existing immunity interact with other factors to impact influenza vaccine responses? Talk presented at the CIVR-HRP annual meeting; May 2021; virtual.

Teaching and mentoring:

Programming workshops

- August 2021: R and SAS primer. Organized a workshop introducing College of Public Health Students (MS, MPH, and PhD) to R and SAS statistical software. I taught the R portion of the workshop.
- June 2021: Data visualization using ‘ggplot2’, Population Biology of Infectious Disease REU Site. Led a workshop for 10 undergraduate participants, covering basic data wrangling and graphics using ‘ggplot2’.

Undergraduate Mentoring

- 2021: Co-Mentor, Population Biology of Infectious Disease REU Site, University of Georgia. Mentored two undergraduate students, leading to an in-progress manuscript.

Lab assistant

Spring 2019 - Spring 2021

- Lab assistant for MATH 340: Intro to Scientific Computing at WCU for three semesters.
- Taught \LaTeX , Excel, Mathematica, MATLAB, and R to students from diverse majors, including mathematics, computer science, engineering, biology, and chemistry.
- Developed hands-on activities for students to complete in and out of class to either facilitate understanding of course topics, or explore applications.
- Assisted students in debugging code during hands-on class time.

Course tutor

Spring 2017 - Spring 2019

- Tutored several courses at WCU's student tutoring center, including introductory biology, organic chemistry, genetics, evolutionary biology, immunology, and microscopy.
- Worked one-on-one with students to reinforce course content, including working with non-traditional students.
- Adapted course information to the individual learning styles of a diverse client body.
- Led group tutoring and review sessions where I was responsible for assisting several students at once with course material.

Service:

- President, GSEB. 2021–2022
Graduate Scholars of Epidemiology and Biostatistics is the student organization in the Department of Epidemiology & Biostatistics at UGA.
- Curriculum committee student representative. 2021–2022.

Other research:

- OEIS (On-line Encyclopedia of Integer Sequences) Contributions: All of these sequences can be viewed at <https://oeis.org>.
 - Author of sequence [A319302](#).
 - Author of sequence [A309092](#).
 - Wrote Python code and generated a b-file for sequence [A110529](#).
- Population Biology of Infectious Diseases REU participant. Worked with Andreas Handel at the University of Georgia in Summer 2019. Research resulted in McKay et al. publication in Open Forum Infectious Diseases.
- Math-Biology REU participant. Worked with Louis-Marie Bobay at the University of North Carolina at Greensboro in Summer 2018.
- Senior thesis. Worked with Heather Coan at Western Carolina University as part of obtaining my B.S. degree; this research resulted in a thesis available upon request.

Skills:

- Responsible Conduct in Research certified (CITI Program).
- Programming: R, Python, MATLAB, Git and GitHub, bash.
- R packages: base, graphics, tidyverse, tidymodels.
- Software: Mathematica (Wolfram language), Tableau, SAS.
- Presentation: \LaTeX , Markdown (R-Markdown), HTML, CSS, R Markdown (bookdown, pagedown, blogdown).

Coursework

- Statistics (and biostatistics): regression and ANOVA; generalized linear models; probability theory; mathematical statistics; longitudinal data analysis; modern applied data analysis; visual data storytelling.
- Epidemiology: cohort study design; case-control study design.
- Mathematics: multivariate calculus; linear algebra; optimization; numerical analysis; combinatorics; graph theory; differential equations; modeling.
- Biology: cell and molecular biology; biochemistry; microscopy; immunology.
- Other: teaching seminar; peer tutoring.