

# Alexandria N. Hughes, PhD, MS

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## Education

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Sep 2020 | **PhD, Neuroscience** *University of Colorado, Anschutz Medical Campus*

Aug 2023 | **MS, Statistics** *Texas A&M University*

Dec 2014 | **BS, Biology; Mathematics minor** *Boise State University*

## Work Experience

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2025 - | **Biostatistician** *Virginia Commonwealth University, Pauley Heart Center*

2021 - 2025 | **Federal Data Scientist/Statistician (Staff & Contract)**

- Data Scientist, National Institutes of Health (NIH) Clinical Center (Oct 2023 - Apr 2025)
- Statistician, National Science Foundation (NSF) (Dec 2022 - Oct 2023)
- Senior Biostatistician, NIH & CDC contractor via Westat (Oct 2021 - Nov 2022)

2015 - 2021 | **Graduate & Postdoctoral Research**

- IRTA Postdoctoral Fellow, Behavioral Neurogenetics, NIH/NICHHD (2020 - 2021)
- NSF-GRFP-funded Graduate Fellowship in Neuroscience, University of Colorado (2016 - 2020)

2011 - 2015 | **Mathematics Adjunct Faculty & Tutor (30 h/wk)** *Boise State University, Dept of Mathematics*

## Technical Skills & Expertise

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**Programming:** R (2016 - current), Python, SAS

**Statistics:** Regression modeling, biostatistics (survival methods, mixed models), survey methods, machine learning (ensemble methods, clustering), multiple imputation

**Clinical & Epi:** EHR data, observational/real-world data, clinical trials, REDCap, CITI Good Clinical Practice, NHANES, All of Us Research Program

**Bioinformatics:** Bioconductor, microbiome analysis, RNA- and scRNA-seq analysis, genomic tools (UCSC Genome Browser, NCBI, Ensembl)

**Visualization:** Shiny, ggplot2, Inkscape vector illustration

**Teaching:** Teaching/TA undergraduate mathematics, mentoring students

**Other:** Version control (Git, GitHub), Quarto, Jupyter, HPC, cloud, command line

## Professional Development, Certifications, and Awards

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- National Science Foundation Graduate Research Fellowship Program (NSF-GRFP) awardee: project and tuition funding for the entirety of my PhD (\$138,000)
- University of Colorado School of Medicine Dean's Outstanding Dissertation Award: Dean's selected dissertation of the 2020-2021 doctoral graduating classes
- COR (Contracting Officer's Representative) I certification
- SAS 9.4 Certified Associate
- Member, American Statistical Association
- Road Runners Club of America (RRCA)-certified Run Coach

## Publications

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1. **Hughes AN**, Barb J, Wallen GR (2024). Evaluating the Role of Circadian Rhythm Dysregulation in Alcohol Use Disorder (AUD) Relapse Probability, *Sleep*, 47, Supplement\_1, A144.

2. Stone M, Spencer BR, Warden DE, Fink RV, Saa P, Leddy J, Mulach-Vannoy J, Townsend R, Krysztof D, **Hughes AN**, Di Germanio C, ..., Norris PJ (2024). Patient and immunological factors associated with delayed clearance of mucosal SARS-CoV-2 RNA and symptom persistence. *The Journal of Infectious Diseases*, 230, 2, 357–362.
3. DeSilva MB, Knowlton G, Rai NK, Bodurtha P, Essien I, Riddles J, Mehari L, Muscoplat M, Lynfield R, Rowley EAK, Chamberlain AM, Patel P, **Hughes A**, ..., Drawz PE (2023). Vaccine Effectiveness Against SARS-CoV-2 Related Hospitalizations in People who had Experienced Homelessness or Incarceration—Findings from the Minnesota EHR Consortium. *Journal of Community Health*, 1-10.
4. Stone M, Fink R, Saa P, **Hughes A**, Di Germanio C, Spencer B, ..., Norris P (2023). RNA Persistence, Antibody Dynamics and Symptom Outcomes in a Longitudinal Cohort of Persons Infected with SARS-CoV-2. *Transfusion*, 63, 64A-65A.
5. Adams K, Riddles JJ, Rowley EAK, Grannis SJ, Gaglani M, Fireman B, Hartman E, Naleway A, Stenehjem E, **Hughes A**, ..., Tenforde MW (2023). Number needed to vaccinate with a COVID-19 booster to prevent a COVID-19-associated hospitalization during SARS-CoV-2 Omicron BA.1 variant predominance, December 2021–February 2022, VISION Network: a retrospective cohort study. *The Lancet, Regional Health - Americas* 23, 100530.
6. Andreev A, Komatsu V, Almiron P, Rose K, **Hughes AN**, Lee MY (2022). Research Culture: Welcome to the lab. *eLife*, 11:e79627.
7. **Hughes AN** (2022). In search of a backup career plan, I found a perfect fit. *Science* (New York, NY), 376(6589), 210-210.
8. **Hughes AN** (2021). Glial cells promote myelin formation and elimination. *Frontiers in Cell and Developmental Biology*, 9, 661486.
9. **Hughes AN** & Appel B (2020). Microglia phagocytose myelin sheaths to modify developmental myelination. *Nature Neuroscience*, 23, 1055–1066.
10. **Hughes AN** & Appel B (2019). Oligodendrocytes express synaptic proteins that modulate myelin sheath formation. *Nature Communications*, 10(1), 1-15.
11. **Hughes AN**, Oxford A, Tawara K, Jorcyk C, Oxford JT (2017). Endoplasmic reticulum stress and unfolded protein response in cartilage pathophysiology; contributing factors to apoptosis and osteoarthritis. *International Journal of Molecular Sciences*, 18(3), 665.
12. **Hughes AN**, Hixon AM, Josey M (2016). A Schwanncentric View of Axon Arborization in Neuromuscular Junction (NMJ) Formation. *Journal of Neuroscience*, 36(38), 9760-9762.
13. **Hughes AN** & Oxford JT (2014). A lipid-rich gestational diet predisposes offspring to nonalcoholic fatty liver disease: a potential sequence of events. *Hepatic Medicine*, 6, 15-23.