

# CURRICULUM VITAE

## Mark R Williamson, Ph.D.

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### Education

**Ph.D., University of North Dakota,** Grand Forks, ND. 2014-2019. Department of Biology

*Dissertation: Evolutionary Ecology of Ribosomal RNA Copy Number.* Advisor: Dr. Brian Darby

**B.A., University of North Dakota,** Grand Forks, ND. 2009-2014. Biology and Physics

### Professional Experience

#### Research Assistant Professor

UND Department of Population Health

- continued support of statistician role for DaCCoTA
- director of the Radon Test Chamber
- epidemiological research

03/2023 — Present  
Grand Forks, ND

#### Statistician

UND DaCCoTA

- statistical and research design support for DaCCoTA applicants/awardees
- collaborative health-related research
- statistical training module development
- other duties as assigned (ex. Dakota Biostats Group, Annual Symposium planning, renewal draft editing, etc.)

01/2020 — 03/2023  
Grand Forks, ND

#### Graduate Teacher's Assistant

UND Biology Department

- Genetics Class (2 semesters)
- Cell Biology Lab (4-5 semesters)
- Ecology Lab (1 semester)
- Biometry Class (3 semesters)

08/2014 — 12/2019  
Grand Forks, ND

#### Biology Instructor

UND INMED Summer Institute

- taught enrichment course in general biology over five weeks to three different age groups (7-8<sup>th</sup>, 9-10<sup>th</sup>, and 11-12<sup>th</sup>) which included: creating lesson plans, slide shows, homework assignments, quizzes, tests, and visual aids; running a weekly lab for each group; serving as supervisor for student presentations; collaboration with other instructors for a variety of additional enrichment activities

Summer 2014 — 2016  
Grand Forks, ND

## Other Relevant Experience

<b>Freelance Research</b> Upwork™ website	10/2016 — 04/2019 Online
<ul style="list-style-type: none"><li>freelance work in gut microbiome data analysis, evolutionary biology, R data analysis, experimental design, and scientific article writing</li></ul>	
<b>Lab Assistant</b> UND SMHS, Biochemistry Department	09/2013 — 09/2014 Grand Forks, ND
<ul style="list-style-type: none"><li>biochemistry lab work in epigenetics and molecular techniques</li></ul>	
<b>Standardized Patient</b> UND SMHS	08/2013 — 08/2014 Grand Forks, ND
<ul style="list-style-type: none"><li>patient for medical students to practice medical history and physicals</li></ul>	
<b>Teacher's Assistant</b> UND Biology Department	08/2013 — 05/2014 Grand Forks, ND
<ul style="list-style-type: none"><li>assisted in class for two semesters of introductory biology</li></ul>	
<b>Lab Assistant</b> UND Biology Department	09/2012 — 05/2014 Grand Forks, ND
<ul style="list-style-type: none"><li>lab work in soil genomics and soil chemistry</li></ul>	
<b>Summer Research Student</b> UND Medical School, Pathology Department	06/2013 — 08/2013 Grand Forks, ND
<ul style="list-style-type: none"><li>heavy metal toxicity research project and presentation</li></ul>	
<b>Lab Assistant</b> Energy & Environmental Research Center (EERC)	06/2012 — 12/2012 Grand Forks, ND
<ul style="list-style-type: none"><li>research and development in analytical chemistry</li></ul>	

## Papers

Schwartz, G. G., Klug, M. G., **Williamson, M. R.**, & Schwartz, H. M. (2022). Criterion Validity of Radon Test Values Reported by a Commercial Laboratory versus the Environmental Protection Agency. *International Journal of Environmental Research and Public Health*, 19.

Ahmed, R., **Williamson, M. R.**, Bahri, S., Hamid, A., & Hamid, M. A. (2022). Regional and Racial Trends in US Prostate Cancer Screening. *Health Behavior & Policy Review*, 9(5): 1063-1073.

Dzananovic, B., **Williamson, M. R.**, Nwaigwe, C., & Routray, C. (2022). Clinical significance of anti-nucleocapsid-IgG sero-positivity in SARS-CoV-2 infection in hospitalized patients in North Dakota. *World Journal of Clinical Infectious Diseases*, 12(2): 50-60.

Schwartz, G. G., & **Williamson, M.R.** (2021). Lead Service Lines and Parkinson's Disease Prevalence In U.S. States. *Clinical Parkinsonism & Related Disorders* 5, 100122.

Schwartz, G. G., & **Williamson, M. R.** (2021). Acid Precipitation and the Prevalence of Parkinson's Disease: An Ecological Study in US States. *Brain Sciences* 11 (6), 779.

**Williamson, M. R.** (2021). Success Rates for the Objectives of State Cancer Control Plans: A First Look. *Cancer Control Jan-Dec*.

Ahmed, R., **Williamson, M.**, Nadeem, S., & Bahri, S. (2021). Regional and Racial Trends in US Colorectal Cancer Screening. *Health Behavior and Policy Review* 8 (6).

**Williamson, M.**, & Ahmed, R., (2021). Cancer Incidence and Research Outcomes in a Rural State. *Wisconsin Medical Journal* 120.

**Williamson, M. R.**, Klug, M. G., & Schwartz, G. G. (2021). Brain cancer incidence rates and the presence of nuclear reactors in US states: a hypothesis-generating study. *Environmental Geochemistry and Health*, 1-9.

**Williamson, M. R.**, Klug, M. G., Schwartz, G. G. J. E. G., & Health (2021). Brain cancer incidence rates and the presence of nuclear reactors in US states: a hypothesis-generating study. 1-9.

Ahmed, R., **Williamson, M.**, Hamid, M. A., & Ashraf, N. (2020) United States County-level COVID-19 Death Rates and Case Fatality Rates Vary by Region and Urban Status. *Healthcare*, 8(3), 330.

Fu, Q., Olson, P., Rasmussen, D., Keith, B., **Williamson, M.**, Zhang, K., et al. (2016). A short-term transition from a high-fat diet to a normal-fat diet before pregnancy exacerbates female mouse offspring obesity. *40*(4), 564-572.

### **Presentations**

**Williamson M.** *The Case for Public Use Datasets*-- PH 590 Seminar Guest Lecture. Grand Forks, ND (webinar, March 2023).

Ripplinger, K, and **M R Williamson.** *The Case for Public Use Datasets*---DaCCoTA Core Training Event. Grand Forks, ND (webinar, October 2022).

**Williamson M.** *Biostats Core Resources Overview*--DaCCoTA Core Training Event. Grand Forks, ND (webinar, April 2022).

**Williamson, M.**, R Crosby, S Powell, and S Wonderlich. *Dissecting the Clinical Trial Design*--DaCCoTA Annual Symposium. Grand Forks, ND (concurrent session, June 2021).

**Williamson, M.** *Brain Cancer Incidence Rates and the Presence of Nuclear Reactors in U.S. States*—DaCCoTA Annual Symposium. Grand Forks, ND (poster presentation, June 2021).

**Williamson, M.** *Ribosomal RNA copy number under natural selection*—Evolution Conference. Providence, RI (poster presentation, June 2019)

**Williamson M,** L Boldt, and B J Darby. *Nematode Life History Traits and 18S rRNA Copy Number*—ND EPSCoR Conference. Fargo, ND (poster presentation, March 2019)

**Williamson M.** *Evolutionary Ecology of Ribosomal RNA Copy Number*—UND Biology Department Annual Report. Grand Forks, ND (oral presentation, February 2019)

**Williamson M,** and B J Darby. *Microbial Community Composition of Nutrient Amended Soil*—ND EPSCoR Conference. Grand Forks, ND (poster presentation, March 2018)

**Williamson M,** and B J Darby. *Effect of Nutrient Enrichment on Soil Bacteria Communities*—UND Graduate Research Achievement Day. Grand Forks, ND (poster presentation, March 2018)

- Williamson M.** *Evolutionary Ecology of Ribosomal RNA Copy Number*—UND Biology Department Annual Report. Grand Forks, ND (oral presentation, March 2018)
- Williamson M,** and B J Darby. *Phylogenetic Autocorrelation and P-enrichment of Bacteria*—Argonne Soil Metagenomics Meeting. Argonne National Lab. Chicago, IL (poster presentation, October 2017)
- Williamson M,** and B J Darby. *Evolution of Ribosomal RNA Copy Number in Bacteria and Archaea* – Northern Plains Biological Symposium. Grand Forks, ND (poster presentation, March 2017)
- Williamson M,** and B J Darby. *Phylogenetic Autocorrelation of Bacteria and Archaea* – UND Graduate Research Achievement Day. Grand Forks, ND (poster presentation, March 2017)
- Williamson M.** *Evolutionary Ecology of Ribosomal RNA Copy Number*—UND Biology Department Annual Report. Grand Forks, ND (oral presentation, March 2017)
- Williamson M.** *Evolutionary Ecology of Ribosomal RNA Copy Number*—UND Graduate Scholarly Forum: Annual Report. Grand Forks, ND (oral presentation, March 2016)
- Williamson M.** *Evolutionary Ecology of Ribosomal RNA Copy Number in Bacteria and Nematodes*—UND Graduate Scholarly Forum: Ph.D. Topic Proposal. Grand Forks, ND (oral presentation, March 2015)
- Williamson M.** *MMP1 in MT3-Transfected and Cadmium-Treated Renal and Breast Epithelial Cells*—UND School of Medicine and Health Sciences. Grand Forks, ND (poster presentation, August 2013)

### Training Materials

- Statistical Modules
  - Survival Analysis
  - Bayesian Analysis
  - Multivariate Analysis
  - Model Gauntlet
  - Linear Regression
  - Exploratory Data Analysis
  - Power Analysis
- Special Topic Talks
  - The Statistical Software Toolkit
  - Generalized Linear Mixed Models for Everything
  - Making Magnificently Good Graphs
  - Communicating Your Data to Statisticians
  - Designing an Epidemiological Study
  - Statistical Rules to Tape to Your Forehead
  - The Wide World of Distributions
  - Sample Sizes for Cell and Animal Studies
  - Getting Your Hands Dirty with Statistics
  - Making Time for Longitudinal Data
  - Frontiers of Statistics
  - Advanced Power Analysis: Into the Woods
  - Multilevel Modeling for the Uninitiated
  - What's the Deal with Machine Learning?
  - A Survival Guide to Data Analysis
  - Idea Generation for Hypotheses and Experiments
  - Overview of Bioinformatics

- Other Resources
  - Power Analysis Basics
  - Short Topics Talks
  - Exploring R Packages
  - Animated Videos
    - Neat Tricks & Clever Quips
    - Beautiful Demos
    - Bite-Sized Statistics
  - Python in Ten
  - Introduction to Data Analysis in SPSS
- Podcasts
  - Statistics Weekly (40 episodes)
  - Science Research Weekly (successor to Statistics Weekly, 10 episodes)

### **Grant Applications/Collaborations**

#### **Sanford Research Project: 2023**

**Title:** Rural Community Paramedicine Program and Outcomes of Referred CABG Patients

**Role:** Statistician

**Status:** Approved

#### **NIH Research Project Grant (R01): 2022**

**Title:** The regulation of mTORC2-Rictor pathway by UBXN2A in obesity and Colorectal Cancer

**Role:** Statistician

**Status:** Submitted

#### **NIH NDSU COBRE: 2021**

**Title:** Center for Diagnostic and Therapeutic Strategies in Pancreatic Cancer (CDTSPC)

**Role:** Statistician Collaborator

**Status:** Renewal application submitted

#### **DaCCoTA Year 3 COVID-19 Pilot: 2020**

**Title:** Clinical outcomes and biomarker evaluation in patients with COVID-19 infection in patients with an active or recent history of malignancy

**Role:** Co-Investigator

**Status:** Submitted, not-funded

## **Other Funding/Awards**

### **DaCCoTA Equipment Purchase Proposals: 2022**

Call for proposals of up to \$200K for equipment to benefit DaCCoTA investigators

Awarded funds to construct a radon test chamber

### **NICHD Decoding Maternal Mortality Data Challenge: 2021**

Competition hosted by Freelancer and NICHD on addressing maternal health issues

Submitted three proposals for consideration, not ultimately selected

### **Three-Minute Thesis: 2019**

Competed and won first place and people's choice at UND Graduate School's 3MT, January 2019

Competed at Western Association of Graduate Schools Grad Slam, March 2019

### **ND EPSCoR Doctoral Dissertation Assistantship: 2018**

For support of graduate dissertation work for three semesters, including funding for salary, materials, and travel to conferences

### **Summer Doctoral Research Fellowship: 2018**

For support of graduate dissertation work over the summer, including funding and credits

### **Esther Wadsworth Hall Wheeler Award: 2018**

For support of graduate student research

### **APSAC Research Stipend: 2015, 2017, 2018**

Award intended to encourage and promote student research in the biological sciences at UND

## **Leadership/Volunteering**

**Mock Peer Reviewer:** served as a scientific reviewer for an NIH Mock Peer Review hosted by the DaCCoTA Professional Development Core, March 2022

**Dakota Datathon:** organizer and judge for 2021 and 2022 Datathon

**IMBRE Support:** helped construct a virtual meeting space (Gather.town) for the 2021 IMBRE undergraduate research symposium

**Dakota Biostats Group:** founded in 2020; lead monthly meetings

## Professional Activity

### Research Support (DaCCoTA):

- Dr. **Arun Singh**, USD: DaCCoTA Scholars grant application support, Fall 2022
- Dr. **Masfique Mahedi**, UND: DaCCoTA Scholars grant application support, Fall 2022
- Dr. **Harry Freeman**, USD: DaCCoTA Scholars grant application support, Fall 2022
- Dr. **Indra Chandrasekar**, Sanford: Feasibility Pilot grant application support, Fall 2022
- Dr. **Hari Subramanian**, NDSU: DaCCoTA Scholars grant application support, Fall 2022
- Dr. **Brain Burrell**, USD: grant application support, Fall 2022
- Dr. **James Foster**, UND: TREE Pilot grant application support, Spring 2022
- Dr. **Ang Guo**, NDSU: DaCCoTA Scholars grant application support, Fall 2021
- Dr. **Buddhadev Layek**, NDSU: Ready-to-Go grant application support, Fall 2021
- Dr. **Elisabetta Liverani**, NDSU: Feasibility Pilot grant application support, Fall 2021
- Dr. **Grigoriy Sereda**, USD: DaCCoTA Scholars grant application support, Fall 2021
- Dr. **Jiha Kim**, NDSU: DaCCoTA Scholars grant application support, Fall 2021
- Dr. **John Wilkinson**, NDSU: Ready-to-Go grant application support, Fall 2021
- Dr. **Pilar de la Puente**, Sanford: Ready-to-Go grant application support, Fall 2021
- Dr. **Roberto Gomes**, NDSU: Feasibility Pilot grant application support, Fall 2021
- Dr. **Ryan Nowak**, Sanford: Community Engagement Pilot grant application support, Fall 2021
- Dr. **Sabha Ganai**, Sanford: Community Engagement Pilot grant application support, Fall 2021
- Dr. **Sijo Mathew**, NDSU: Ready-to-Go grant application support, Fall 2021
- Dr. **Steven Wu**, USD: Feasibility Pilot grant application support, Fall 2021
- Dr. **Estelle Leclerc**, NDSU: DaCCoTA Scholars grant application support, Spring 2021
- Dr. **Marijo Roiko**, NDSU: DaCCoTA Scholars grant application support, Spring 2021
- Dr. **Mohiuddin Quadir**, NDSU: Clinical Research Opportunity application support, Spring 2021
- Dr. **Buddhadev Layek**, NDSU: Feasibility Pilot grant application support, Spring 2021
- Dr. **Dharmakeerthi Nawarathna**, NDSU: Ready-to-Go grant application support, Spring 2021
- Dr. **Kalpana Katti**, NDSU: Ready-to-Go grant application support, Spring 2021
- Dr. **Kevin Francis**, Sanford: Feasibility Pilot grant application support, Spring 2021
- Dr. **Sijo Mathew**, NDSU: Feasibility Pilot grant application support, Spring 2021

**Dr. Xusheng Wang**, UND: Feasibility Pilot grant application support, Spring 2021

**Dr. Victor Huber**, USD: COVID-19 Pilot grant application support, Spring 2020

**Dr. Sanku Mallik**, NDSU: COVID-19 Pilot grant application support, Spring 2020

**Dr. Archana Dhasarthy**, UND: COVID-19 Pilot grant application support, Spring 2020

**Dr. Jonathan Bleeker**, Sanford: Feasibility Pilot grant application support, Spring 2020

**Dr. Cheryl Hysjulien**, Sanford: Ready-to-Go grant application support, Spring 2020

**Dr. Tim Trung Le**, NDSU: Ready-to-Go grant application support, Spring 2020

**Dr. Reindl**, NDSU: Ready-to-Go grant application support, Spring 2020

**Dr. Grigoriy Sereda**, USD: Ready-to-Go grant application support, Spring 2020

**Dr. Dan Steventon**, Sanford: Feasibility Pilot grant application support, Spring 2020

**Dr. Dali Sun**, NDSU: DaCCoTA Scholars grant application support, Spring 2020

**Research Support (non-DaCCoTA):**

**Dr. Oxana Gorbatenko**, Black Hills State: bioinformatics support for wastewater sequencing, Fall 2022

**Dr. Mathur Ramkumar**, UND: power analysis for R01 application, Fall 2022

**Dr. Rezvani Khosrow**, USD: power analysis and collaboration for R01 application, Fall 2022

**Dr. Olayinka David Ajayi**, Essentia Health: Hyperbaric Oxygen and Concussion clinical trial data safety monitoring board, Spring 2022

**Dr. Chittaranjan Routray**, Trinity Health: statistical analysis for Covid study, Spring 2022

**Dr. Emine Ozturk**, UND: statistical support/feedback for a longitudinal psychology study, Fall 2021

**Dr. Xusheng Wang**, UND: secured collaborators for SEM study, Spring 2021

**Dr. Estelle Leclerc**, NDSU: statistical feedback for R15, Summer 2020

**Dr. Nadeem Khan**, UND: statistical feedback on IIS Clinical Concept proposal, Summer 2020

**Dr. Victor Huber**, USD: statistical feedback for R01 proposal, Summer 2020

**Dr. Melanie Nadeau**, UND: statistical references for mixed methods model study, Spring 2020

**Dr. Rashid Ahmed**, UND: statistical analysis for LLCP smoking study, Spring 2020

**Dr. John Wilkinson**, NDSU: statistical feedback on R21 proposal, Spring 2020



## **Mentoring:**

**Dr. Jeremy Holloway**, University of North Dakota Assistant Professor & Director of Geriatrics Education: statistical direction and support for K01 proposal, Spring 2023

**Dr. Ping Chen**, University of North Carolina at Chapel Hill Advanced Research Scientist: feedback on power analysis, Spring 2022

**Dr. Gabriella Licitra**, Physician in Pisa, Italy: feedback on study design and power analysis, Winter 2021

**Dipanwita Saha Dutta Choudhury**, New Zealand researcher: feedback on power analysis, Fall 2021

**Yung Peng**, Central South University Ph.D. student: feedback on experimental design, Spring 2021

**André Garcia**, University of Porto student: feedback on statistical references, Winter 2020

**Osman Gurdal**: Instructor: feedback on statistical methods, Winter 2020

**Rabi Fadil**, UND student: feedback on missing data, Summer 2020

**Leah Boldt**, REU summer student: nematode culturing and growth rate experiments, Summer 2018

**Hunter Westacott**, UND undergraduate: soil collection and microcosm experiments, molecular work; Fall 2017, Spring 2018

**Alexander Woods**, UND undergraduate: soil collection and microcosm experiments; Fall 2017

**Hannah Chaussee**, UND undergraduate: soil collection; Fall 2017

## **Workshops:**

*DaCCoTA Core Training Event: National COVID Cohort Collaborative (N3C) Data Enclave* (DaCCoTA Data Navigator), October 2022

*DaCCoTA Core Training Event: Things to Consider with Project and Applications Development* (DaCCoTA Clinical Research Resources and Facilities Core & Pilot Projects Program), August 2022

*DaCCoTA Core Training Event: Defining & Determining Human Subjects Research* (DaCCoTA Clinical Research Resources and Facilities Core), June 2022

*Innovation and Commercialization in Research Hybrid Webinar* (DaCCoTA Professional Development Core), May 2022

*Tribal IRB Workshop* (DaCCoTA Community Engagement and Outreach Core), October 2021

*DaCCoTA Professional Development Core Virtual Information Session* (DaCCoTA Professional Development Core), September 2021

*Thesis and Dissertation Writing* (University of North Dakota School of Graduate Studies. Grand Forks, ND), October 2018

*MG-RAST tutorial* (Argonne National Lab. Chicago, IL), October 2017

*Microbial community sequence data analysis tutorial* (Argonne National Lab. Chicago, IL) October 2017

*Pedagogy* (University of North Dakota School of Graduate Studies. Grand Forks, ND), August 2017

*Research Philosophy, Methods, and Ethics* (University of North Dakota School of Graduate Studies. Grand Forks, ND), September 2017

*Professional Communication* (University of North Dakota School of Graduate Studies. Grand Forks, ND), October 2017

*Career Planning (STEM)* (University of North Dakota School of Graduate Studies. Grand Forks, ND), October 2017

*Grant Writing* (University of North Dakota School of Graduate Studies. Grand Forks, ND), November 2017

*Communicating to a Broad Audience* (University of North Dakota School of Graduate Studies. Grand Forks, ND), February 2018

**Conferences:**

*DaCCoTA Annual Symposium* (Sanford Research Center, Sioux Falls, SD), August 2022

*DaCCoTA Annual Symposium* (Virtual Session. Grand Forks, ND), June 2021

*Evolution Conference* (Rhode Island Convention Center. Providence, RI), June 2019

*Higher Education Innovation Summit* (University of Minnesota Rochester. Rochester, MN), July 2018

*Epigenetics and Epigenomics Symposium* (University of North Dakota SMHS. Grand Forks, ND), May 2018

*Argonne Soil Metagenomics Meeting* (Argonne National Lab. Chicago, IL) October 2017

*Integrative Systems Biology Symposium* (Gorecki Alumni Center. Grand Forks, ND), April 2016

**Other:**

Reviewer for World Journal of Surgical Oncology, PLOS ONE, and International Journal of Environmental Research and Public Health

Past member of the Graduate Student Advisory Panel for UND