

Alyssa M. Taylor-LaPole

NCSU Campus, Raleigh, NC 27695 | (717)7017610 | amtayl25@ncsu.edu | www.linkedin.com/in/tayloram6

Education

North Carolina State University

Biomathematics PhD Candidate

January 2020 - Present

National Science Foundation Graduate Research Fellow

March 2021 - Present

Association for Women in Mathematics Secretary (2020), Treasurer (2021)

Virginia Wesleyan University, Virginia Beach, VA

Bachelor of Science in Biology

August 2016 - December 2019

Bachelor of Science in Mathematics

Cumulative GPA: 3.850

Honors and Scholars Program

Tribeta Biology Honor Society

Chi Alpha Sigma National College Honor Society

Publications

- **Taylor-LaPole, A.**, Colebank, M. J., Weigand, J. D., Olufsen, M. S., Puelz, C. (2022). A computational study of aortic reconstruction in single ventricle patients. *BMMB*.
- **Taylor-LaPole, A.**, Cunny, H. C., Shockley, K. R. (2022). Statistical Analysis of Rodent Body Weight Data is Robust to Departures from Normality in Historical NTP Studies Dated 1980-2013. *JYI* 25(7).
- Johnson, E., **Taylor-LaPole, A.**, Bavuso, M. (2022). Arabinogalactan Protein Gene Family Activity During Moss Spermatogenesis. Manuscript in progress.

Abstracts

Oral Presentations

- **Alyssa M. Taylor-LaPole**, Mitchel J. Colebank, Justin D. Weigand, Charles Puelz, Mette Olufsen (January 2023), Peripheral hemodynamics of single ventricle patients with a reconstructed aorta, *JMM*, Boston, MA
- **Alyssa M. Taylor-LaPole**, Mitchel J. Colebank, Justin D. Weigand, Charles Puelz, Mette Olufsen (November 2022), A hemodynamic comparison of single ventricle patients, *SIAM Texas-Louisiana Section*, Houston, TX
- **Alyssa M. Taylor-LaPole**, Justin D. Weigand, Charles Puelz, Mette Olufsen (June 2021), Fluid dynamics in hypoplastic left heart syndrome patients in supine and upright positions, *SMB*, online
- **Alyssa M. Taylor**, Helen C. Cunny, Keith R. Shockley (July 2019), Robustness of Normality Assumptions for Rodent Body Weight in NTP Studies Dated 1980-2013, *NIEHS DNTP*, RTP, NC
- **Alyssa M. Taylor**, Eric Johnson (May 2019), Identification of Secreted Protein-Encoding Genes Involved in Moss Spermatogenesis, Virginia Wesleyan Port Day, VA Beach, VA
- **Alyssa M. Taylor**, Anastasia Gurinovich, Paola Sebastiani (December 2018), Association of variant Apolipoprotein E (ApoE) alleles to decline in cognitive function with aging demonstrated through network modeling, Virginia Wesleyan Port Day, VA Beach, VA

Poster Presentations

- **Alyssa M. Taylor-LaPole**, Justin Weigand, Mette Olufsen, Charles Puelz (July 2021), Preliminary results of a patient-specific fluid dynamics model of a Fontan Circulation, *SIAM AN21*, online
- **Alyssa M. Taylor**, Helen C. Cunny, Keith R. Shockley (July 2019), Robustness of Normality Assumptions for Rodent Body Weight in NTP Studies Dated 1980-2013, *NIEHS Summer Internship Program Poster Session*, RTP, NC
- **Alyssa M. Taylor**, Taylor G. Coutts (May 2019), Effect of Variable Environment and Conditions on Available Oxygen to an Aquatic System, Virginia Wesleyan University, VA Beach, VA
- **Alyssa M. Taylor**, Taylor G. Coutts (May 2019), Canada Geese (*Branta canadensis*) Behavioral Response to Methods of Population Control, Virginia Wesleyan University, VA Beach, VA

Alyssa M. Taylor-LaPole

NCSU Campus, Raleigh, NC 27695 | (717)7017610 | amtayl25@ncsu.edu | www.linkedin.com/in/tayloram6

- **Alyssa M. Taylor**, Anastasia Gurinovich, Paola Sebastiani (November 2018), Association of variant Apolipoprotein E (ApoE) alleles to decline in cognitive function with aging demonstrated through network modeling, ABRCMS, Indianapolis, IN

Funding

- NSF Graduate Research Fellowship, National Science Foundation, Alexandria, VA, August 2021 - Present
- Research Training Grant NSF Fellowship, NC State University, Raleigh, NC, January - May 2020
- Intramural Research Training Award Fellow, National Institutes of Health (NIH), Bethesda, MD, May 2019-August 2020
- Lighthouse Research Grant, Virginia Wesleyan University, VA Beach, VA, November 2018-May 2019

Technical Skills: MATLAB, Maple, 3D Slicer, VMTK, SAS, Wolfram Mathematica, LaTeX, SPSS, R, R Studio, and R Markdown, Python, Microsoft Office Products

Laboratory Experience: Electrophoresis, Micropipetting, Mass Spectrometry, Chromatography, Spectrophotometry, Dissecting and Compound Microscopes, Confocal Microscopy, Titrating, PCR, q-PCR, growing and developing multiple forms of bacterial cultures

Research Experience

National Institute of Environmental Health Sciences, Research Triangle Park, NC May 2019 – December 2020

IRTA Fellow in the Division of National Toxicology Program and Biostatistics and Computational Biology Branch

- Analyzed robustness of normality assumptions for rodent body weight in National Toxicology Program (NTP) studies dated 1980-2013
- Investigated impact of non-normal distributions on parametric testing for both chronic and subchronic rodent studies
- Determined power of common parametric testing to detect difference in rodent body weights under various levels of skew
- Manuscript in preparation for publication

Boston University, Boston, MA

Summer 2018

Researcher/Intern in the Biostatistics Department

- Conducted research that focused on the impact differing alleles of ApoE have on cognitive function as one ages
- Performed statistical analysis using data from the Health and Retirement Study (HRS)
- Created network of models to demonstrate the interaction of ApoE and demographics' impact on cognitive function

Undergraduate Research, Virginia Wesleyan University, Virginia Beach, VA

August 2018 - May 2019

Non-Arabinogalactan Proteins Present During Spermatogenesis in *Physcomitrella patens*

- Studied the upregulation of non-AGPs during spermatogenesis in *Physcomitrella patens*
- Designed primers using ApE and then confirmed primers through PCR analysis
- Performed q-PCR analysis with day 0, 15, 22, and 28 tissues to determine when upregulation occurred

Study Away, Virginia Wesleyan University, Virginia Beach, VA

January 2018

Ecology of Bird Species on the Pacific and Caribbean Coasts of Costa Rica

- Traveled through the Costa Rica and resided with a host family to immerse myself in the Costa Rican culture
- Documented species and their behaviors on the Pacific and Caribbean coasts of Costa Rica
- Analyzed and compared sister species and their behaviors on opposing coasts

Work Experience

North Carolina State University

Teaching Assistant (TA)

August 2020 - May 2021

Instructor of Record: MA 242 Calculus III

July - August 2021

- Planned and delivered lectures/exams for a 5-week summer course
- Wrote material and problem sessions for a recitation leader to give to students

Alyssa M. Taylor-LaPole

NCSU Campus, Raleigh, NC 27695 | (717)7017610 | amtayl25@ncsu.edu | www.linkedin.com/in/tayloram6

- Held office hours and made myself available to students any time via email due to the unique 5-week schedule
- Recitation Leader: MA 242 Calculus III, MA 241 Calculus II** August 2020 - May 2021
- Attended lectures and held recitation to assist students with new material or to review material from lectures
 - Graded homework, quizzes, and exams
 - Held office hours for students to seek help for homework or to review concepts

Varsity Tutors

January 2020 – January 2022

Contracted Tutor/Curriculum Builder

- Meets with students virtually to tutor in subjects such as Statistics, Biology, Algebra, Calculus
- Assists with time management skills, understanding concepts, building good study habits/techniques
- Builds curriculum and generates practice quizzes for the Varsity Tutors website for the following subjects: Geometry, Trigonometry, Precalculus, Calculus AB/BC

Virginia Wesleyan University, Virginia Beach, VA

Teaching Assistant (TA): Introduction to Chemistry (Lab Section)

May 2019 - December 2020

- Assisted in the instruction, oversight, and grading of the Introduction to Chemistry lab section
- Held office hours for students to come seek help for prelab assignments and drafting lab reports
- Administered lab practicals and quizzes

Service and Outreach

- North Carolina State University, AWM outreach, 04/22
- Virginia Wesleyan University, Recreational volleyball tournament, 05/19
- Hoffer Creek Wildlife Preserve, Trail maintenance and restoration, 04/19
- Old Donation Episcopal Day School, Soccer camp for elementary school children, 10/18
- Virginia Wesleyan University, Basketball concession stand, 11/16 – 11/19

Affiliations

- NSF
- AMS
- SIAM
- AWM
- NCSU Cardiovascular Dynamics Group
- Texas Children's Hospital