

CURRICULUM VITAE OF RICHARD WILLIAMS

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🐙 github.com/rkwilli2

EDUCATION

🎓 Marshall University

Huntington, WV

M.S Mathematics (2027 Spring)

- Thesis: The Polynomial Shift Operator on Time Scales; with Dr. Tom Cuchta
- In Progress: Numerical Analysis, Functional Analysis (Ind. Study), Advanced Mathematical Statistics
- Completed: Stochastic Processes, Graph Theory & Combinatorics, Partial Differential Equations, Probability & Statistics 2, Real Variables, Modern Geometries

🎓 Marshall University

Huntington, WV

B.S. Mathematics (2025 Spring)

(2024 Fall–2025 Spring)

Computer Science

(2024 Fall–2024 Spring)

🎓 Fairmont State University

Fairmont, WV

Mathematics

(2021 Fall–2023 Spring)

Computer Science

(2021 Fall–2023 Spring)

WORK EXPERIENCE

🏛 Marshall University *Department of Mathematics and Physics*

Huntington, WV

(2026 Fall –Present) Graduate Teaching Assistant, MTH 102-102

🏛 Marshall University *MU HELP Program*

Huntington, WV

(2025 Fall –2026 Spring) Graduate Assistant Tutor

(2026 Fall –Present) Mathematics Skills Tutor

🏛 Marshall University *Department of Mechanical and Industrial Engineering*

Huntington, WV

(2023 Spring–2025 Fall) Research Assistant - Linear Programming, Seismic Modeling

🏛 Marshall University *Department of Mathematics and Physics*

Huntington, WV

(2023 Fall) Math & Stats Tutoring Lab Tutor

🏛 Fairmont State University *LEAD Center*

Fairmont, WV

(2022 Fall–2023 Spring) Mathematics & Computer Science Tutor

GRANTS

- (2024 Fall–2025 Spring) **WV NASA Space Grant Consortium**
“Numerical Solutions to the Heat Equations on Time Scales”
- (2023 Fall–2024 Spring) **WV NASA Space Grant Consortium**
“A Contour Integral Approach to Solving Generalized Heat Equations on Time Scales”
- (2022 Fall–2023 Spring) **WV NASA Space Grant Consortium**
“Linear-Quadratic Pursuit-Evasion Games on Time Scales”

PUBLICATIONS

- Sudipta Chowdhury, Richard Williams. Generating synthetic seismograms using wave equations on time scales. In progress.
- Sudipta Chowdhury, Richard Williams. Optimizing restoration time of hospitals by modeling seismic resilience of an electrical grid. Under review.
- Davis Funk, Richard Williams, Nick Wintz. Linear-quadratic pursuit-evasion games on time scales. Recent Advanced in Dynamic Equations on Time Scales (2025).
- Robert Niichel, Elizabeth Harvey, Richard Williams, Ricard Marsal-Castan, Victor Norton, Abbey Summers. A Triangle Problem on Finite Lattices. Accepted.

RESEARCH EXPERIENCE

Advised by Dr. Sudipta Chowdhury (2024-present)

- Modeling Seismic Resilience with Mixed-Integer Linear Programming
- Generating Synthetic Seismograms using Time Scales

Advised by Dr. Tom Cuchta (2022-present)

- Polynomial Shift on Time Scales
- Ergodic Plane & Frequency on Time Scales
- Heat Equation on Time Scales
- Euler-Lagrange Equations for Hadamard Differences
- Transversality Conditions for Generalized Fractional Variational Problems

REU: Discrete and Continuous Analysis in Appalachia (2022)

- Linear-Quadratic Pursuit-Evasion Games on Time Scales
- The Lewis Carroll Triangle Problem on Lattices

CONFERENCES

*** Invited**

- *(2026 May) Workshop on Dynamic Equations on Time Scales, in Honor of Martin Bohner Campinas, Brazil
- *(2026 Jan) Joint Math Meetings, Special Session on Generalized Derivatives Washington D.C.
- *(2025 Oct) AMS Fall Central Section Meeting St. Louis, MO
- (2024 Nov) Southeastern-Atlantic Regional Conference on Differential Equations Morgantown, WV
- (2024 Apr) Marshall University College of Science Research Expo Huntington, WV
- (2024 Apr) MAA Allegheny Mountain Section Spring 2024 Conference Fairmont, WV
- (2023 Nov) Undergraduate Mathematics Days Dayton, OH
- (2023 Apr) Fairmont State University Celebration of Student Scholarship Fairmont, WV
- (2023 Mar) MAA Allegheny Mountain Section Spring 2023 Conference Edinboro, PA
- (2023 Feb) Pi Mu Epsilon Student Paper Meeting Youngstown, OH
- (2023 Jan) Joint Math Meetings, AMS-PME Poster Session Boston, MA
- (2022 Jul) WVU Summer Undergraduate Research Symposium Morgantown, WV

EXTRACURRICULAR ACTIVITIES

Fairmont State Masquers (2021 Fall–2023 Spring)

- *All in the Timing* actor (2023 Fall)
- *Us and Them* actor (2022 Spring)

REFERENCES

Dr. Tom Cuchta

- Assistant Professor of Mathematics
- Marshall University
- cuchta@marshall.edu

Dr. Sudipta Chowdhury

- Assistant Professor of Industrial Engineering
- Marshall University
- chowdhurys@marshall.edu

Dr. Nick Wintz

- Assistant Professor of Mathematics
- Radford University
- nwintz@radford.edu

Dr. Robert Niichel

- Associate Professor of Mathematics
- Fairmont State University
- rniichel@fairmontstate.edu