Seth Thomas Cowall

Curriculum Vitae

Personal Data

Current Address: Department of Mathematics, Boyd Research and Education Center 526, University of Georgia, Athens, GA 30602

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Education

2019 (August): *Doctor of Philosophy*, Applied Mathematics. Advisor: Professor L. Pamela Cook. Co-advisor: Professor Matthew J. Oliver. University of Delaware, Newark DE.

2015 (May): *Master of Science*, Applied Mathematics. University of Delaware, Newark DE.

2011 (May): *Bachelor of Science, Summa Cum Laude*, Mathematics. Salisbury University, Salisbury MD.

2000 (December): *Bachelor of Fine Arts*. James Madison University, Harrisonburg VA.

Positions

August 2023-present: *Postdoctoral Research and Teaching Associate/Limited-Term Assistant Professor*. University of Georgia. Athens, GA.

August 2020-June 2023: *Visiting Assistant Professor*. St. Mary's College of Maryland. St. Mary's City, MD.

August 2019-June 2020: *Visiting Assistant Professor*. Mercer University. Macon, GA.

July 2013-July 2019: *Graduate Teaching Assistant*. University of Delaware. Newark, DE.

August 2011-June 2012: *High School Mathematics Teacher*. Pocomoke High School. Pocomoke, MD.

Peer Reviewed Publications

Cowall, S. T., Oliver, M. J., and Cook, L. P. "Data driven dynamics of phytoplankton blooms in a reaction-diffusion NPZ model." *Journal of Plankton Research*, 43 (2021): 642–657.

Cowall, S. T., Oliver, M. J., and Cook, L. P. "Effects of solar radiation, vertical diffusion, and mixed layer depth on the dynamics of a reaction-diffusion NPZ model." *Journal of Plankton Research*, 41 (2019): 879-–892.

Preprints

Black, K., Adams, M., Al Basheer, A., Kazanci, C., Whipple, S., Zaytseva, S., Cowall, S. "A continuous model of behavioural phenotype: An example of interaction between the butterfly *Pieris brasicae* and *Trichogramma* wasps." *In Revision.*

Cowall, S., Kazanci, C. "Dynamical Storage Analysis: A Computational Approach to Continuous Systems" *In Preparation.*

Other Publications

Cowall, S. T., Oliver, M. J., and Cook, L. P. "Seasonal Marine Phytoplankton Blooms: Understanding the Phenomenon's Dynamics." *SIAM News*, (2020).

Selected Presentations

S. Cowall. *Dynamical Storage Analysis: A Computational Approach to Continuous Systems* (Talk). Mathematics and Climate Research Network Colloquium. Online. September 2025.

S. Cowall. *A Computational Analysis of Behavioural Phenotype: Modeling the Interaction Between the Butterfly Pieris brasicae and Trichogramma Wasps* (Talk). 2025 SIAM (Society of Industrial and Applied Mathematics) Annual Meeting. Montreal, QC, Canada. July-August 2025.

S. Cowall. *A Computational Analysis of Behavioural Phenotype: Modeling the Interaction Between the Butterfly Pieris brasicae and Trichogramma Wasps* (Talk). SIAM (Society of Industrial and Applied Mathematics) Conference on the Life Sciences. Portland, OR. June 2024.

S. Cowall. *Data-Driven Models of Phytoplankton Blooms and Opportunities for Undergraduate Research* (Invited Talk). Mathematical Biology Seminar. University of Maryland Department of Mathematics. College Park, MD. September 2022.

S. Cowall. *Modeling Phytoplankton Blooms with a Reaction-Diffusion Predator-Prey Model* (Invited Talk). Mathematical Biology Seminar. Georgia Institute of Technology School of Mathematics. Atlanta, GA. March 2020.

S. Cowall. *Data-Driven Modeling of Phytoplankton Blooms in the Ocean* (Talk). 2019 SIAM (Society of Industrial and Applied Mathematics) Conference on Applications of Dynamical Systems. Snowbird, UT. May 2019.

S. Cowall. *The Symmetry of Multinomial Coefficients* (Talk). 2010 Salisbury University Student Research Conference. Salisbury, MD. April 2010.

University Teaching Experience

Instructor: University of Georgia

Precalculus: Spring 2024

Calculus I: Fall 2024

Multivariable Calculus: Fall 2023

Introduction to Linear Algebra: Fall 2025

Elementary Differential Equations: Spring 2026

Introduction to Partial Differential Equations: Spring 2025

Instructor: St. Mary's College of Maryland

Calculus I: Fall 2020, Spring 2023

Calculus II: Fall 2021, Fall 2022, Spring 2023

Precalculus: Fall 2020

Survey of Mathematics/Mathematical Models without Calculus: Fall 2020, Spring 2021

Mathematics of Misinformation ("Calling BS"), course developer and instructor: Fall 2021, Spring 2022, Fall 2022

Vector Calculus: Spring 2021

Differential Equations: Spring 2022, Spring 2023

Mathematical Modeling: Fall 2021, Fall 2022

Senior Topics Seminar in Mathematics/Plankton Ecology Modeling: Spring 2022

Instructor: Mercer University

Calculus I: Fall 2019, Spring 2020

Multivariable Calculus: Spring 2020

Introductory Statistics: Fall 2019, Spring 2020

Instructor: University of Delaware

Analytic Geometry and Calculus A: Winter 2018

Teaching Assistant: University of Delaware

Business Calculus: Fall 2013, Fall 2014

Analytic Geometry and Calculus A: Spring 2018

Analytic Geometry and Calculus B: Discussion TA, Fall 2016; Mathematica Lab TA, Spring 2015

Analytic Geometry and Calculus C: Discussion TA, Spring 2016; Mathematica Lab TA, Fall 2015

Student Mentoring

Spring 2024: *The Fourier Transform And Milankovitch's Theory of Glacial Cycles.*
Razeen Kanjiani, Directed Reading Project
University of Georgia Department of Mathematics. Athens, GA. Student presentation in April 2024.

Spring 2023: *The Effects of Grazing Functions on Mixotrophic Plankton Populations During Seasonal Blooms.*
James Ripple, Senior Project in Mathematics
Student Paper Award: **Third Place**, Spring 2023 Section Meeting of the Maryland-DC-Virginia Section of the MAA (Mathematics Association of America). Ettrick, VA. April 2023.

Summer 2022: *Mathematical Modeling of Chesapeake Bay Oyster Populations*
Mathematics Research Experience for Undergraduates at St. Mary's College of MD
Students:
Tiffani Clark, University of Louisiana at Lafayette
Sophia Fogle, Centre College
Kimani Daley, St. Mary's College of MD

Winner of **Most Outstanding Oral Presentation** at the National Association of Mathematicians 2022 Undergraduate MATHFest: Morgan State University, Baltimore, MD. September 2022.

Spring 2022: *Role of Mixotrophic Zooplankton in Seasonally-Forced Plankton Blooms.*
Gillian Carr, Senior Project in Mathematics
Student Paper Award: **First Place**, Spring 2022 Section Meeting of the Maryland-DC-Virginia Section of the MAA (Mathematics Association of America). Germantown, MD. April 2022.

Awards and Honors

2022: *Early Career Travel Award.* 2022 SIAM MPE (Society of Industrial and Applied Mathematics/Mathematics of Planet Earth) Conference. Pittsburgh, PA.

2019: *Professional Development Award* (Travel Award for Graduate Students). University of Delaware.

2019: *Student Travel Award.* 2019 SIAM (Society of Industrial and Applied Mathematics) Conference on Applications of Dynamical Systems. Snowbird, UT.

2019: *Winner of $250 Travel Fund Prize.* University of Delaware Chapter of AWM (Association for Women in Mathematics) Travel Award.

2018: *University of Delaware Summer Doctoral Fellowship*

2018: *CIRTL Associate* (Center for the Integration of Research, Teaching and Learning)

2017: *University of Delaware Summer Doctoral Fellowship*

2017: *Student Travel Award.* 2017 SIAM (Society for Industrial and Applied Mathematics) Annual Meeting, Pittsburgh, PA.

2017: *Spring 2017 Unidel Graduate Fellowship.* University of Delaware.

2017: *Winner of $500 Travel Fund Prize.* Winter Research Symposium Poster Contest, University of Delaware Department of Mathematical Sciences.

2011: *Most Promising Mathematics Educator.* Salisbury University, Salisbury MD.

Service

2025: Organized minisymposium, *Mathematical Ecology*, at the 2025 SIAM (Society for Industrial and Applied Mathematics) Annual Meeting in Montreal, QC, Canada.

2024, 2025: Co-coordinator of MaLT (Mathematics Learning and Teaching) Seminar, Department of Mathematics, University of Georgia.

2022, 2023: Poster Judge at the Spring Section Meeting of the Maryland-DC-Virginia Section of the MAA (Mathematics Association of America).

2019-2020: Teaching Chat Coordinator, Mercer University Department of Mathematics.

2019: Reviewed for *ICES Journal of Marine Science.*

2019: Mercer University High School Mathematics Contest (Assisted in writing exam and conducting the competition), November 2019.

Outreach

April 2017: *Exhibition at the National Math Festival: "Climate, Math, Ice Cores, and You: Hands-On Data from Planet Earth,"* Washington, D.C.

- Co-planned the event with the Outreach Focus Group of MCRN (Mathematics and Climate Research Network).
- Hosted three "hands-on" activity stations for K-12 students: Ice Cores, Greenhouse Gasses, and Earth's Energy Balance.

Memberships

SIAM (Society for Industrial and Applied Mathematics). Activity Groups: Mathematics of Planet Earth (MPE) and Applied Mathematics Education

MCRN (Mathematics and Climate Research Network)

Section NExT (New Experiences in Teaching), Maryland/DC/Virginia Section of the Mathematical Association of America, 2022 Inductee

Pi Mu Epsilon (National Honorary Mathematics Society), 2010 Inductee

Workshops Attended

2024: *American Mathematical Society MRC (Mathematics Research Community) Conference on Climate Science at the Interface Between Topological Data Analysis and Dynamical Systems Theory.* Java Center, NY.

2022: *SIAM (Society for Industrial and Applied Mathematics) Convening on Climate Science, Sustainability, and Clean Energy.* Tysons, VA.

2021: *SIMIODE Collegial Workshop* (Systemic Initiative for Modeling Investigations and Opportunities with Differential Equations). Online

2017: *SAMSI (Statistical and Applied Mathematical Sciences Institute) Climate Workshop.* Research Triangle Park, NC.

2016: *Mathematics and Climate Summer School.* University of Kansas, Lawrence KS.

2014: *Mathematical Problems in Industry Workshop.* New Jersey Institute of Technology, Newark NJ.

2014: *Graduate Student Mathematical Modeling Camp.* Rensselaer Polytechnic Institute, Troy NY.