Shawn D. Ryan

Curriculum Vitae

Present Address
2121 Euclid Ave. RT 1538
Cleveland State University
Cleveland, OH 44115
1-(216)-687-4707
s.d.ryan@csuohio.edu
`academic.csuohio.edu/ryan_s`

Research Interests

- Mathematical Analysis, Simulations, and Modeling with Apps in Biology and Materials Science
- Applied and Computational Mathematics
- Mathematical Biology
- Collective Motion, Phase Transitions, and Pattern Formation in Active Biosystems/Biomaterials
- Scientific Machine Learning (PINNs and BINNs), Equation Learning

Employment

2021 - **Associate Professor**, *Department of Mathematics and Statistics, Cleveland State University*, Cleveland, OH

2020 - **co-Director**, *Center for Applied Data Analysis and Modeling (ADAM), Cleveland State University*, Cleveland, OH

2020 - **Affiliated Faculty Member**, *Dept. of Chemical and Biomedical Engineering*, Cleveland, OH (Courtesy Appointment)

2016 - 2021 **Assistant Professor**, *Department of Mathematics and Statistics, Cleveland State University*, Cleveland, OH

2014 - 2016 **Postdoctoral Research Scholar**, *Department of Mathematical Sciences and Liquid Crystal Institute, Kent State University*, Kent, OH
Mentors: Prof. Peter Palffy-Muhoray and Assoc. Prof. Xiaoyu Zheng

2009 - 2014 **Graduate Fellow/Teaching Associate**, *Department of Mathematics, Pennsylvania State University*, University Park, PA
Advisor: Prof. Leonid Berlyand

May - Aug. '10,'11,'12 **Research Aide**, *Materials Science Division, Argonne National Lab*, Lemont, IL
Supervisor: Prof. Igor S. Aronson

Education

2009-2014 **Ph.D. in Mathematics**, *Pennsylvania State University*, University Park, PA
Advisor: Professor Leonid Berlyand
Thesis: "Effective Properties and Collective Dynamics in Bacterial Suspensions"
Committee: L. Berlyand (Chair), R. Colby (Materials Science), X. Li, A. Mazzucato
Penn State University Pritchard Dissertation Award

2007-2009 **M.S. in Applied Mathematics**, *The University of Akron*, Akron, OH
Advisor: Professor D. Golovaty and Professor J. P. Wilber
Thesis: "Bifurcation and Boundary Layer Analysis for Graphene Sheets"

2005-2009 **Honors B.S. in Applied Mathematics, summa cum laude**, *The University of Akron*, Akron, OH
Honors Project: "Boundary Layer Analysis for Graphene Sheets"

Publications

∗ Indicates Corresponding Author, CSU Student in Ryan Research Group

1. D. Munther*, **S. D. Ryan**, C. Kothopalli, N. Zekaj, "Spatial characterizations of bacterial dynamics for food safety: Modeling for shared water processing environments", *Accepted to Applied Mathematical Modeling* (2024). Preprint on BioArXiv: `https://www.biorxiv.org/content/10.1101/2024.11.04.621859v1`
2. S. Hartman, **S. D. Ryan***, B. Karamched*, "Walk This Way: Modeling Foraging Ant Dynamics in Multiple Food Source Environments", *Journal of Mathematical Biology* **89**(41) (2024). Preprint on BioArXiv: `https://doi.org/10.1101/2024.01.20.576461`
3. A. Chriss, V. Boerner*, **S. D. Ryan*** "Agent-based modeling of nuclear chromosome ensemble identifies determinants of homolog pairing during meiosis", *PLoS Computational Biology* **20**(5), e1011416 (2024). Preprint on BioArXiv: `https://doi.org/10.1101/2023.08.09.552574`
4. O. Baloglu*, B. S. Marino, S. Q. Latifi, A. Morca, D. S. Munther, **S. D. Ryan** "External Validation of a Clinical Mathematical Model Estimating Postoperative Urine Output Following Cardiac Surgery in Children", *Pediatric Nephrology* 1-6 (2024).
5. **S. D. Ryan*** "BOOK REVIEW: Mathematical Modeling in Biology, A Research Methods Approach", *SIREV: SIAM Review*, Editor: A. T. Layton, **66**(4): 795-805 (2024).
6. A. Tandon*, S. Bhattacharya, O. T. Inan, J. Lasa, S. Latifi, N. Lu, B. Marino, A. Morca, D. Munther, **S. D. Ryan**, O. Baloglu* "Noninvasive cardiac output monitoring in congenital heart disease", *Current Treatment Options in Pediatrics* (2023).
7. N. Zekaj, **S. D. Ryan**, A. Resnick* "Fluid-Structure Interaction Modelling of Neighboring Tubes with Primary cilium Analysis", *Mathematical Biosciences and Engineering* **20**(2) 3677-369 (2023).
8. R. Godin, B. Karamched*, **S. D. Ryan*** "The Space Between Us: Modeling Spatial Heterogeneity in Synthetic Microbial Consortia Dynamics", *Biophysical Reports* **2**(4) 100085 (2022).
9. O. Baloglu*, **S. D. Ryan**, A. Onder, D. Rosen, C. J. Mullett, D. Munther "A Clinical Mathematical Model Estimating Postoperative Urine Output in Children Underwent Cardiopulmonary By-pass for Congenital Heart Surgery", *Journal of Pediatric Intensive Care* (2022).
10. **S. D. Ryan***, T. M. Nawalaniec An OER Approach to Linear Algebra, *PRIMUS* 32(6) 721-737 (2022).
11. M. Kalil, N. Baumgartner, M. Issa, **S. D. Ryan**, C. Wirth* "Influence of PEG on the Clustering of Active Janus Colloid" *Colloids and Surfaces A: Physicochemical and Engineering Aspects* **627** 127191 (2021).
12. S. Peled, **S. D. Ryan**, S. Heidenreich, M. Bär, G. Ariel*, A. Be'er Heterogeneous Bacterial Swarms with Mixed Lengths, *Phys. Rev. E* **103** 032413 (2021). Preprint: `https://arxiv.org/pdf/2011.12612.pdf`
13. **S. D. Ryan**, Z. McCarthy, M. Potomkin* "Motor protein transport along inhomogeneous microtubules", *Bulletin of Mathematical Biology* **83**(9) 1-29 (2021).
14. N. Baumgartner, **S. D. Ryan*** "Model for Ant-Crab Interaction During Migration on Christmas Island", *Mathematical Biosciences* **330** 108486 (2020). DOI: `https://doi.org/10.1016/j.mbs.2020.108486`
15. N. Barron, **S. D. Ryan**, T. Heus* "Reconciling chord length distributions and area distributions for fields of fractal cumulus clouds" *Atmosphere* **11**(8) 824 (2020).Open Access Publication, DOI: `10.3390/atmos11080824`
16. A. Sulak, W. Calabrase, **S. D. Ryan**, T. Heus* "The contributions of shear and turbulence to cloud overlap for cumulus clouds" *Journal of Geophysical Research: Atmospheres* **125** (2020)., DOI: `10.1029/2019JD032017`
17. N. Praljak, **S. D. Ryan**, A. Resnick* Pulsatile Flow Through Idealized Renal Tubules: Fluid-Structure Interaction and Dynamic Pathologies, *Mathematical Biosciences and Engineering*, **17**(2) 1787-1807 (2020). Open Access Publication, DOI: `10.3934/mbe.2020094`

18. **S. D. Ryan***, "Role of hydrodynamic interactions in chemotaxis of bacterial populations", *Physical Biology*, **17** 016003 (2020).
    - **Chosen as featured article on Phys. Biology Homepage 2020**
19. M. Issa, N. Baumgartner, M. A. Kalil, **S. D. Ryan**, C. Wirth*, "Charged Nanoparticles Quench the Propulsion of Active Janus Colloids", *American Chemical Society Omega* **4**(8) 13034-13041 (2019). Open Access Publication, DOI: `10.1021/acsomega.9b00765`
20. Z. McCarthy*, B. Smith, A. Fazil, J. Wu, **S. D. Ryan**, D. Munther, "An individual-carcass model for quantifying bacterial cross-contamination in an industrial three-stage poultry scalding tank", *Journal of Food Engineering* **262** 142-153 (2019).
21. G. Ariel, M. Sidortsov, **S. D. Ryan**, S. Heidenreich, M. Bar, A. Be'er* "Collective dynamics of two-dimensional swimming bacteria: Experiments and models", *Phys. Rev. E* **98** 032415 (2018).
22. L. Berlyand, V. Mityushev, and **S. D. Ryan***, "Effect of randomness on the distribution of multiple Ginzburg-Landau vortices pinned by small holes", *IMA Journal of Applied Mathematics* **83**(6) 977-1006 (2018).
23. Z. McCarthy*, B. Smith, A. Fazil, J. Wu, **S. D. Ryan**, D. Munther, "pH dependent C. jejuni thermal inactivation models and application to poultry scalding", *Journal of Food Engineering* **223** 1-9 (2018).
24. A. Sulak, **S. D. Ryan*** "Optimal shape of water towers", *SIAM Undergraduate Research Journal (SIURO)* **10** 233-247 *(2017)*.
25. Z. McCarthy, B. Smith, A. Fazil, J. Wu, **S. D. Ryan**, D. Munther*, "Individual based modeling and analysis of pathogen levels in poultry chilling process", *Mathematical Biosciences* **294** 172-180 *(2017)*.
26. **S. D. Ryan**, G. Richards, X. Zheng, P. Palffy-Muhoray*, "A finite volume method for computing flow induced orientation of nematic liquid crystals", *Molecular Crystals and Liquid Crystals (MCLC)* **647**:(1) 207-215 *(2017)*.
27. Z. McCarthy, D. Munther*, **S. D. Ryan***, J. Wu, "Mechanisms of bacterial contamination in poultry chill tanks", *Technical Report for the Laboratory of Foodborne Zoonoses, Public Health Agency of Canada (2017)*.
28. **S. D. Ryan**, G. Ariel, A. Be'er*, "Anomalous fluctuations in the orientation and velocity of swarming bacteria" , *Biophysical Journal*, **111**(1), 247-255 *(2016)*. `http://dx.doi.org/10.1016/j.bpj.2016.05.043`
29. **S. D. Ryan***, X. Zheng, P. Palffy-Muhoray, "Curvature-driven foam coarsening on the sphere: A computer simulation", *Physical Review E*, **93**, 053301 *(2016)*. `doi:10.1103/PhysRevE.93.053301`
    - **Chosen for Phys. Rev. E Kaleidoscope** (best aesthetic images)
30. M. Potomkin*, **S. D. Ryan**, and L. Berlyand, "Effective rheological properties in semidilute bacterial suspensions", *Bulletin of Mathematical Biology*, **78**(3), 580-615,*(2016)*. `doi:10.1007/s11538-016-0156-2`
31. **S. D. Ryan*** "A model for collective dynamics in ant raids", *Journal of Mathematical Biology*, **72**(6), 1579-1606, *(2016)* `doi:10.1007/s00285-015-0929-5`.
32. **S. D. Ryan**, V. Mityushev, V. M. Vinokur*, and L. Berlyand "Rayleigh approximation for ground states of the Bose and Coulomb glasses", *Nature Scientific Reports* **5**, 7821 *(2015)*.
    - **Press: Mathematical approach provides a new step in resolving mystery of glass**
33. **S. D. Ryan***, Effective Properties and Collective Dynamics in Bacterial Suspensions", *Ph.D. Dissertation*, The Pennsylvania State University, *(2014)*.
34. **S. D. Ryan**, A. Sokolov, L. Berlyand, and I. S. Aranson*, "Correlation properties of collective motion in bacterial suspensions", *New Journal of Physics* **15**, 105021 *(2013)*.
    - **Chosen as a "Highlight of 2013" for Soft Matter and Biophysics**
35. **S. D. Ryan***, L. Berlyand, B. M. Haines, and D. A. Karpeev, "A Kinetic Model of Semi-Dilute Bacterial Suspensions", *SIAM Multiscale Modeling and Simulation* **11**(4), 1176-1196 *(2013)*.

36. **S. D. Ryan**, D. Golovaty, and J. P. Wilber*, "Buckling of a Graphene Sheet Perpendicular to a Rigid Substrate", *International Journal of Solids and Structures* **49**, 3681-3692 *(2012)*.
37. **S. D. Ryan**, B. M. Haines, L. Berlyand, F. Ziebert, and I. S. Aranson*, "Viscosity of Bacterial Suspensions: Hydrodynamic Interactions and Self-Induced Noise", *Rapid Comm. Phys. Rev. E* **83**, 050904R *(2011)*.
38. **S. D. Ryan***, "Bifurcation and Boundary Layer Analysis for Graphene Sheets", *Ohiolink*, Master of Science Thesis at the University of Akron *(2009)*.
39. J. Galagher, Y. Milman, **S. Ryan**, D. Golovaty*, J. P. Wilber*, and A. Buldum, "A Buckling Problem for Graphene Sheets", *Proceedings of the 11th International Congress on Continuum Modeling of Discrete Systems*, Les Presses de École des Mines de Paris *(2007)*.

Submitted Papers

40. C. Brown, M. Potomkin*, **S. D. Ryan**, "Boundary accumulations of active rods in microchannels with elliptical cross-section", *In Revision* (2025).
41. D. Munther*, **S. D. Ryan**, C. Kothopalli, N. Zekaj, "Space matters: a reaction-diffusion-advection model of microbial dynamics during poultry chilling", *Submitted* (2024).
42. C. Gibson, **S. D. Ryan***, "Toe Twitch or not Toe Twitch: A Frog Pursuit Model", *In Revision* (2025).

Preprints / In Progress

42. A. Brown, D. Munther, **S. D. Ryan*** "Mathematical Model for the Onset of Algae Blooms in Lake Erie", *In Preparation.*
43. V. Ciluveru, D. Munther, **S. D. Ryan**, C. Kothopalli* "Quantifying the effect of PAA on bacterial cross-contamination in poultry chilling", *In Preparation.*
44. M. Potomkin*, **S. D. Ryan*** "Dynamics of Active Rods in Arbitrarily Shaped Domains", *In Preparation.*
45. **S. D. Ryan**, G. Ariel, A. Be'er* "Dynamics of Bacterial Suspensions Near A Deformable Interface", *In Preparation.*
46. **S. D. Ryan***, "Macroscopic model for foraging ant dynamics", *In Preparation.*

Fellowships, Honors, and Awards

2023-2024 **Provost's Faculty Merit Award**, *For Outstanding Teaching and Research*

2023-2024 **CSU Distinguished Faculty Award for Teaching**, *For Outstanding Teaching and Student Mentorship, two awards for tenured/tenure-track over whole university*

2023-2024 **Jearl D. Walker Outstanding Teaching Award**, *College of Arts and Sciences*

2022-2023 **Provost's Faculty Merit Award**, *For Outstanding Teaching*

2022,2020,2018 **CSU Golden Apple Teaching Award**, *CSU Alumni Association*, Recognizes the contributions of outstanding faculty/staff members on the lives of students

2021-2022 **Faculty Champion of Teaching in OneNote Award**, *CSU Center for Faculty Excellence and IS&T*

2021 **Letter of Recognition for Work on OER and Affordable Learning Resources**, *CSU OER Committee and Affordable Learning Team*

2020-2021 **Faculty Innovator Award**, *CSU Center for Faculty Excellence*, Invited to present a webinar on keeping students engaged during remote learning.

2019-2020 **Provost's Faculty Merit Award**, *For Outstanding Teaching and Research*

2019 **Featured Manuscript on J. Physical Biology Homepage**, Given free open access for two months

2017-2018 **Provost's Faculty Merit Award**, *For Outstanding Teaching and Research*

2017-2018 **Cleveland State Teaching Enhancement Award (TEA) Grant**

2017-Present **Level 1 University Graduate Faculty**, *Cleveland State University*

2016 **Kent State Department of Athletics Faculty Honor**, *Kent State University*, For being instrumental in student-athlete academic success

2014-2015 **Certificate for "Dedicated Service and Outstanding Contributions toward Student Success"**, *KSU Division of Diversity, Equity, and Inclusion Upward Bound*

2014 **Pritchard Dissertation Award**, *Outstanding dissertation work in Mathematics*

2014 **Nomination for Alumni Dissertation Award**, *Outstanding dissertation work at Penn State University*

2013 **Manuscript receives "Highlight of 2013" Award**, *New Journal of Physics*

2012 **Department of Mathematics Teaching Award**, *Pennsylvania State University*

- Nominated for PSU Department of Mathematics Teaching Award in 2011, 2012, and 2013

2011 **Promotion to Graduate Teaching Associate**, *Department of Mathematics, Pennsylvania State University*

2011 **Teaching With Technology Certificate**, *Graduate School, Penn State University*

2009-2014 **University Graduate Research Fellowship**, *Pennsylvania State University*

2009 **August and Ruth Homeyer Graduate Fellowship**, *Pennsylvania State University*

2009 **University of Akron Outstanding Senior**, *Top 10 graduating seniors at U. Akron*

2008 **Barry M. Goldwater Scholar**, *Outstanding undergraduate research in the STEM fields. First person at the University of Akron ever to win*

2007 **Alberta M. and William C. King Memorial Scholarship for Outstanding Jr./Sr. in Mathematics**, *The University of Akron*

2006 **Dr. Mary E. Maxwell Scholarship for Outstanding Freshman in Mathematics**, *The University of Akron*

2005 **University of Akron Honors Scholar of Excellence**, *Awarded to top incoming undergraduates of the University of Akron Honors College*

Funded Grants

External

2023-2026 **USDA NIFA Grant #2023-67017-39208**, *Improved pathogen control for poultry processing: Experimentally-validated mathematical models for scalding, chilling, and post-chilling*, co-PI w/ PI D. Munther and co-PI C. Kothapalli, $498,177.60

2023-2026 **NSF REU Grant**, *REU: Synthesis, Assembly and Characterization of Soft Matter Systems*, Senior Personnel under PIs K. Streletzky and J. Bickel (Funded Jan 2023, NCE to start in 2024), $365,000

2017-Present **Ohio Supercomputing Center Grant**, *Start-Up Computational Hours*, **PI** Grant #PFS0230-1

2017 **Public Health Agency of Canada Grant**, *Mechanisms of Bacterial Contamination in Poultry Chill Tanks*, **Co-PI** (with D. Munther) Grant #582090, Funded Jan. 2017-Mar. 2017

2015 **SIAM Young Researcher Travel Grant**, *For ICIAM 2015, Beijing, China. (Invited Minisymposium Speaker) Award Amount: $2000*

2015 **Elsevier Mathematics Sponsorship Fund**, *Award Amount: $1500*

2014 **Society of Industrial and Applied Mathematics (SIAM) Travel Grant**, *SIAM Conference on the Life Sciences 2014. (Invited Minisymposium Speaker) Award Amount: $650*

Internal

2025 **CSU USRA Grant**, *USRA: PH-Dependent Thermal Inactivation Models for Pathogen Control During Poultry Scalding*, co-PI (with PI D. Munther and co-PI C. Kothapalli, Submitted for Summer 2025)
$4750

2025 **CSU Grant**, *A& S Summer Stipend for RSCA*, For mentoring CSU students during summer
$500

2024 **CSU USRA Grant**, *USRA: Experimentally Validated Mathematical Models for Pathogen Control in Food Industry*, co-PI (with PI D. Munther, Submitted for Summer 2024)
$4410

2022 **CSU USRA Grant**, *Evaluating the mixing and precipitation of clouds as a function of size*, co-PI (with PI T. Heus, Funded for Summer 2022)

2021 **CSU Faculty Research Development Grant**, *Modeling tools to reduce pathogen cross-contamination and enhance compliance for poultry chilling*, co-PI (w/ PI D. Munther and co-PI C. Kothapalli)

2020 **CSU USRA Grant**, *Evaluating the mixing and precipitation of clouds as a function of size*, co-PI (with T. Heus, Funded for Summer 2020)

2019-2020 **CSU Textbook Affordability Grant**, *Open Text and Module-based learning for Linear Algebra*, PI

2019-2020 **Faculty Research Development (FRD) Grant**, *Swimming near deformable surfaces*, PI (with co-PI C. Wirth, funded April 2019)

2019 **CSU USRA Grant**, *Influence of interfacial properties on propulsion of active particles near an air/water interface*, co-PI (with C. Wirth, funded March 2019)

2019 **CSU USRA Grant**, *Comparing cloud size distributions from Total Sky Imaging observations with Large Eddy Simulations*, co-PI (with T. Heus, funded March 2019)

2018 **Cleveland State Undergraduate Summer Research Award**, ***Co-PI*** *(PI C. Wirth)*

2018 **Cleveland State Undergraduate Summer Research Award**, ***Co-PI*** *(PI T. Heus)*

2017-2018 **Cleveland State Teaching Enhancement Award (TEA) Grant**, (Awarded Feb. 2017)

2017 **Cleveland State Undergraduate Summer Research Award**, ***Co-PI*** *(PI T. Heus)*

Grants Under Review

2026-2029 **USDA NIFA Grant**, *Predictive bio-mapping for enhanced risk characterization of Salmonella contamination during poultry chilling*, co-PI w/ PI D. Munther and co-PI C. Kothapalli (To be Submitted August 2025, $TBD

2025-2028 **NSF Emerging Mathematics in Biology (eMB) Grant**, *Determinants of Meiotic Chromosome Pairing: Computational Modeling and Experimental Validation*, PI with co-PI V. Boerner (CSU BGES) (Submitted Mar 2025), $996,349.00

Conferences/Sessions Organized

July 2022 **Minisymposium co-Organizer**, *Mathematics of Interacting Systems with Applications to Biology and Medicine*, Society for Industrial and Applied Mathematics Annual Meeting, Pittsburgh, PA

June 2021 **Minisymposium co-Organizer**, *Mathematical modeling of emergent phenomena in cell colonies*, Society for Mathematical Biology Annual Meeting, UC Riverside, CA

Feb 2020 **International Conference co-Organizer**, *Conference on Mathematics of complex systems in biology and medicine*, Part of the Residential Month of Mathematics Issues in Biology at CIRM/University Aux-Marseille, Marseille, France

Sept. 2019-2024 **Organizer**, *NSF GRFP and Other Graduate Fellowships Workshops*, 3 Part Series, Office of Research, CSU, Cleveland, OH

July 2017 **Minisymposium Organizer**, *Kinetic Models with Applications in Biology*, 2017 SIAM Annual Meeting, Pittsburgh, PA

Apr 2017 **Chair of Scientific/Organization Committee**, *2017 Northeast Ohio Applied Mathematics Forum*, Hosted by Cleveland State University, Cleveland, OH

Nov 2014 **Co-Organizer (with B. Jaye and S. Nitzan)**, *Upward Bound Math Skills Academy*, Kent State University, Kent, OH
Low income high school students seeking to become first generation college students in STEM fields.

External Presentations

July 2025 **Contributed Talk**, *Peracetic Acid Inactivation Of Salmonella During Immersion Poultry Chilling: Mathematical Modeling Of Fundamental Dynamics*, 2025 International Association for Food Protection (IAFP) Annual Meeting, Cleveland, OH

July 2025 **Poster**, *Evaluating Free Chlorine Efficacy in Poultry Processing: Decay Kinetics, Pathogen Reduction, and Organic Matter Interactions*, 2025 Poultry Science Association Annual Meeting, Raleigh, NC

Nov 2024 **Invited Talk**, *Careers in Math + Biology*, Ellsworth Hill Elementary, Hudson, OH

July 2024 **Invited Poster**, *Improved pathogen control for poultry processing: Experimentally-validated mathematical models for scalding, chilling, and post-chilling*, USDA-NIFA Annual Meeting for Investigators, Long Beach, CA

July 2024 **Invited Poster**, *Spatial modeling of the poultry chilling process: impact of water recirculation and counterflow on E. coli and Campylobacter dynamics*, International Assoc. for Food Protection Annual Meeting, Long Beach, CA

Apr 2024 **Contributed Talk**, *Decoding Biological Complexity with Mathematical Modeling and HPC*, Ohio Supercomputing Center Research Symposium, Columbus, OH

Mar 2024 **Invited Talk**, *Agent-based Models for Applications in Mathematical Biology*, Applied Math Seminar, Kent State University, Kent, OH

Mar 2024 **Invited Talk**, *Patterns of Life: Mathematical Exploration of Self-Organization in Biological Systems*, Youngstown State University Mathematics Colloquium, Youngstown, OH

Feb 2024 **Invited Talk**, *Patterns of Life: Mathematical Exploration of Self-Organization in Biological Systems*, Kent State University Mathematics Colloquium, Kent, OH

Feb 2024 **Invited Talk**, *Patterns of Life: Mathematical Exploration of Self-Organization in Biological Systems*, University of Pittsburgh Applied Math Seminar, Pittsburgh, PA

April 2023 **Invited Talk**, *Math Modeling for Self-Organization In the Biosciences*, AMS Central Section Meeting, Cincinnati, OH -Declined due to birth of child

Mar 2023 **Invited Talk**, *Better Together: Math Gives Novel Insight Into Microscale Biology*, Computational and Applied Mathematics Seminar, Univ. of Wyoming

Feb 2023 **Invited Talk**, *Modeling identifies chromosome numbers, repulsive and attractive forces as determinants of homolog pairing during meiosis*, Rust Belt Meiosis Meeting, Cleveland, Ohio

Jul 2022 **Invited Talk**, *Role of Hydrodynamic Interactions in Collective Swimming of Bacteria*, SIAM 2022 Annual Meeting, Pittsburgh, PA

Feb 2022 **Invited Talk**, *Mathematics Provides Insight into Self-Organization in Biology*, Mathematics Colloquium, Tufts University, Virtual, COVID-19)

Jan 2022 **Invited Talk**, *Mathematics Provides Insight into Self-Organization in Biology*, Interdisciplinary Center for Quantitative Modeling in Biology Colloquium, University of California-Riverside (Virtual, COVID-19)

Aug 2021 **Contributed Talk**, *Desmos and Dynamics (w/ F. Martins and I. Rodrigues)*, Mathfest 2021, Virtual, COVID-19)

Jun 2021 **Invited Talk**, *Role of Hydrodynamic Interactions in Collective Swimming of Bacteria*, SMB 2021 Annual Meeting, UC Riverside, CA (Virtual, COVID-19)

Oct 2020 **Invited Talk**, *Interaction Between Ants and Crabs on Christmas Island*, Structural Biology/Biochemistry Seminar Series, Institute of Molecular Biophysics, Florida State University (Virtual, COVID-19)

Aug 2020 **Invited Talk**, *Mathematical Modeling for Collective Dynamics in Ant Raids*, Biomath Journal Club - Bertram Group, Florida State University (Virtual)

Aug 2020 **Invited Poster**, *Role of Hydrodynamics in Chemotaxis of Bacterial Populations*, Soc. Math Biology Annual Meeting, Heidelberg, Germany (Virtual, COVID-19)

Jul 2020 **Invited Speaker**, *Mathematics Provides Insight Into Self-Organization in Biology*, Applied Math Seminar, U. Waterloo, Canada (Virtual, COVID-19)

Jul 2020 **Contributed Speaker**, *Role of Hydrodynamics in Chemotaxis of Bacterial Populations*, 2020 SIAM Annual Meeting, Toronto, Can (Virtual, COVID-19)

Jul 2020 **Invited Speaker**, *Mathematics Provides Insight into Self-Organization in Biology*, Global Seminar on Mathematical Modeling and Applications (GSMMA), Online via Zoom hosted by UMass Amherst and U. Minnesota

Feb 2020 **Invited Plenary Speaker**, *Mathematics Provides Insight into Self-Organization in Biology*, CIRM Workshop, Marseilles, France

July 2019 **Contributed Speaker**, *Mathematics Provides Insight into Self-Organization in Biology*, 2019 Society for Mathematical Biology International Meeting, Montreal, Quebec, Canada

April 2019 **Invited Plenary Speaker**, *Mathematics Provides Insight into Self-Organization in Biology*, Spring 2019 Ohio MAA Section Meeting, The University of Akron, Akron, OH

Oct 2018 **Invited Minisymposia Speaker**, *Onset of Collective Dynamics in Active Biosystems*, Fall 2018 AMS Central Section Meeting, Ann Arbor, MI

Aug 2018 **Invited Minisymposia Speaker**, *Onset of Collective Dynamics in Active Biosystems*, 2018 SIAM Life Sciences Meeting, Minneapolis, MN

Mar 2018 **Invited Minisymposia Speaker**, *Collective Dynamics in Ant Raids*, 2018 AMS Central Section Meeting, The Ohio State University, Columbus, OH

Feb 2018 **Invited co-author with D. Munther (CSU) (Invited Speaker O. Baloglu (Cle Clinic))**, *Mathematical and Computational Modeling of Critical Illness*, Grand Rounds, Cleveland Clinic, Cleveland, OH

Sept 2017 **Invited Minisymposia Speaker**, *Kinetic PDE models for active biosystems*, 2017 AMS East Section Meeting, State University of New York at Buffalo, Buffalo, NY

July 2017 **Invited Minisymposia Speaker**, *Kinetic Models for Active Biosystems*, 2017 SIAM Annual Meeting, Pittsburgh, PA

May 2017 **Invited Poster Presenter**, *Algorithm for studying flow-induced phase transitions in nematic liquid crystals*, Non-convexity, non-locality and incompatibility: from materials to biology, University of Pittsburgh, Pittsburgh, PA

Feb 2017 **Invited Speaker**, *Collective Dynamics in Active Biological Systems*, SIAM Applied Math Seminar, University of Akron, Akron, OH

Aug 2016 **Poster Presentation**, *Computational algorithm for studying vorticity driven dynamics in nematic LCs*, 26th International Liquid Crystal Conference, Kent, OH

July 2016 **Poster Presentation and Speaker**, *Curvature driven foam coarsening on the sphere*, Recent Trends and Advances in Nonlinear Analysis, Carnegie Mellon University, Pittsburgh, PA

Jun 2016 **Participant**, *Medical Research: The Right Prescription for Economic Growth*, Research!America Workshop, Northeast Ohio Medical University, Rootstown, OH

Feb 2016 **Invited Speaker**, *Collective Dynamics in Active Biosystems*, Department of Mathematics Colloquium, Cleveland State University, Cleveland, OH

Feb 2016 **Invited Speaker**, *Curvature driven foam coarsening on the sphere*, Applied Mathematics Seminar, Kent State University, Kent, OH

Jan 2016 **Invited Speaker**, *Curvature driven foam coarsening on the sphere*, Northeast Ohio Applied Mathematics Workshop, Kent State University, Kent, OH

Oct 2015 **Invited Speaker**, *Can Mathematical Modeling Help Endangered Species?*, Choose Ohio First Scholars Seminar, Kent State University, Kent, OH

Sept 2015 **Invited Speaker**, *A Model for Collective Dynamics in Ant Raids*, Mathematics of the Life Sciences Seminar, Case Western Reserve University, Cleveland, OH

Aug 2015 **Invited Minisymposium Speaker**, *Collective Dynamics in Active Biological Systems*, The International Congress on Industrial and Applied Mathematics (ICIAM) 2015, Beijing, China

May 2015 **Participant**, *KI-Net Workshop: Groups and interactions in data, networks and biology*, Carnegie Mellon University, Pittsburgh, PA

Apr 2015 **Invited Speaker**, *A Model for Collective Dynamics in Ant Raids*, Applied Math Seminar, The Ohio State University, Columbus, OH

Apr 2015 **Invited Speaker**, *Collective Dynamics in Active Biological Systems*, Applied Math Lab Seminar, Courant Institute, New York University, New York, NY

Feb 2015 **Invited Speaker**, *A Model for Collective Dynamics in Ant Raids*, Comp. and Appl. Math Seminar, Kent State University, Kent, OH

Nov 2014 **Invited Speaker**, *Collective Motion: Why 2 is better than 1*, Choose Ohio First Scholars Seminar, Kent State University, Kent, OH

Oct 2014 **Invited Speaker**, *Effective Properties and Collective Dynamics in Bacterial Suspensions*, Applied Mathematics Seminar, Ohio State University, Columbus, OH

Sept 2014 **Invited Speaker**, *Effective Properties and Collective Dynamics in Bacterial Suspensions*, Mathematics of the Life Sciences Seminar, Case Western Reserve University, Cleveland, OH

Sept 2014 **Invited Speaker**, *Effective Properties and Collective Dynamics in Bacterial Suspensions*, Applied and Computational Mathematics Seminar, Kent State University, Kent, OH

Aug 2014 **Invited Minisymposium Speaker**, *Collective Effects and Correlations in Semi-dilute Bacterial Suspensions*, SIAM Conference on the Life Sciences, Charlotte, NC

May 2014 **Invited Speaker**, *Effective Properties and Collective Dynamics in Bacterial Suspensions*, Dissertation Defense, Pennsylvania State University, University Park, PA

Apr 2014 **Invited Speaker**, *Effective Properties and Collective Dynamics in Bacterial Suspensions*, Applied Mathematics / Liquid Crystal Institute Seminar, Kent State University, Kent, OH

Oct 2013 **Invited Speaker and Poster Presenter**, *Collective Effects and Correlations in Semi-dilute Bacterial Suspensions*, PDEs and Dynamical Systems in Biology Conference, Bar-Ilan University, Israel

Jun 2012 **Poster Presenter**, *A Force Dipole Model for Semi-dilute Bacterial Suspensions*, Workshop on Bacteria: Experiments and Modeling, Argonne and Notre Dame University, Chicago, IL

Jan 2012 **Invited Speaker**, *Coupled PDE/ODE Model for Semi-dilute Bacterial Suspensions*, Oral Comprehensive Exam, Dept. of Mathematics, Penn State University, University Park, PA

Jan 2012 **Poster Presenter**, *A Force Dipole Model for Semi-dilute Bacterial Suspensions*, MBI CTW: Free Boundary Problems in Biology, Mathematical Biosciences Institute (MBI), The Ohio State University, Columbus, OH

Jun 2011 **Invited Speaker**, *A Force Dipole Model for Semi-dilute Bacterial Suspensions*, Biomat 2011: Prospective in the Life Sciences, Granada, Spain

May 2009 **Invited Speaker**, *Bifurcation and Boundary Layer Analysis for Graphene Sheets*, Masters Thesis Oral Defense, Dept. of Mathematics, The University of Akron, Akron, OH

Mar 2008 **Invited Speaker**, *A Buckling Problem for Graphene Sheets*, Conference on Undergraduate and Graduate Student Research, The University of Akron, Akron, OH

Jan 2008 **Invited Speaker**, *A Buckling Problem for Graphene Sheets*, 2008 Joint Mathematics Meeting, San Diego, CA

Nov 2007 **Invited Speaker**, *Modeling Interacting Sheets of Graphene*, Undergraduate Mathematics Day, The University of Dayton, Dayton, OH

Internal Presentations

Mar 2025 **Invited Speaker**, *Agent-based Modeling in Biology*, Junior Seminar Spring 2025, Cleveland State University, Cleveland, OH

Feb 2025 **Invited Speaker**, *How to Find and Earn Grants as a Grad Student*, School of Graduate Studies Seminar, Cleveland State University, Cleveland, OH

Feb 2025 **Invited Speaker**, *Mathematics Provides Insight into Biology*, SPS-Choose Ohio First Seminar Spring 2025, Cleveland State University, Cleveland, OH

Feb 2025 **Invited Speaker**, *Patterns of Life: What Math Can Teach Us About Biology*, CSU Honors College Seminar: Edge of Knowledge, Cleveland State University, Cleveland, OH

Jan 2025 **Invited Speaker**, *Patterns of Life: Mathematical Exploration of Self-Organization in Biological Systems*, Junior Seminar Spring 2025, Cleveland State University, Cleveland, OH

Jan 2025 **Invited Speaker**, *PLOA Accomplishments from Spring 2024*, CSU Board of Trustees Meeting, Cleveland State University, Cleveland, OH

Sept 2024 **Invited Speaker**, *Preparing for the NSF GRFP (3-Part Workshop)*, CSU NSF GRFP Workshop, Cleveland State University, Cleveland, OH

Sept 2024 **Invited Poster**, *PAA decay modeling at different steps of poultry processing*, Fall 2024 USRA Poster Session, Cleveland State University, Cleveland, OH

Jan 2024 **Invited Speaker**, *Patterns of Life: Mathematical Exploration of Self-Organization in Biological Systems*, Junior Seminar Spring 2024, Cleveland State University, Cleveland, OH

Nov 2023 **Invited Speaker**, *Mathematics Provides Insight into Biology*, SPS-Choose Ohio First Seminar Fall 2023, Cleveland State University, Cleveland, OH

Sept 2023 **Invited Speaker**, *Preparing for the NSF GRFP (3-Part Workshop)*, CSU NSF GRFP Workshop, Cleveland State University, Cleveland, OH

Sept 2023 **Invited Speaker**, *Mathematics Provides Insight into Biology*, Junior Seminar Fall 2023, Cleveland State University, Cleveland, OH

Mar 2023 **Invited Speaker**, *How to Find and Earn Grants as a Grad Student*, School of Graduate Studies Seminar, Cleveland State University, Cleveland, OH

Jan 2023 **Invited Speaker**, *Mathematics Provides Insight into Biology*, Junior Seminar Spring 2023, Cleveland State University, Cleveland, OH

Nov 2022 **Invited Speaker**, *Mathematics Provides Insight into Biology*, SPS-Choose Ohio First Seminar Fall 2022, Cleveland State University, Cleveland, OH

Oct 2022 **Invited Speaker**, *Mathematics Provides Insight into Biology*, Junior Seminar Fall 2022, Cleveland State University, Cleveland, OH

Sept 2022 **Invited Speaker**, *Preparing for the NSF GRFP (3-Part Workshop)*, CSU NSF GRFP Workshop, Cleveland State University, Cleveland, OH

Aug 2022 **Invited Speaker**, *How To Do Great Research and Scholarship Pt. 2*, CSU USRA Student Seminar, Cleveland State University, Cleveland, OH

Aug 2022 **Invited Speaker**, *How To Do Great Research and Scholarship Pt. 1*, CSU USRA Student Seminar, Cleveland State University, Cleveland, OH

Mar 2022 **Invited Speaker**, *Mathematics Provides Insight into Biology*, Junior Seminar Spring 2022, Cleveland State University, Cleveland, OH

Sept 2021 **Invited Speaker**, *Mathematics Provides Insight into Self-Organization in Biology*, Junior Seminar Fall 2021, Cleveland State University, Cleveland, OH

Sept 2021 **Invited Speaker**, *NSF GRFP: Research Statement*, NSF GRFP Workshop, CSU Graduate School, Cleveland State University, Cleveland, OH

Sept 2021 **Invited Speaker**, *NSF GRFP: Personal Statement*, NSF GRFP Workshop, CSU Graduate School, Cleveland State University, Cleveland, OH

Sept 2021 **Invited Speaker**, *What is the NSF GRFP?*, NSF GRFP Workshop, CSU Graduate School, Cleveland State University, Cleveland, OH

Aug 2021 **Invited Speaker**, *Post Pandemic Teaching Community*, Gateway Courses Seminar Fall 2021, Cleveland State University, Cleveland, OH

Jun 2021 **Invited Speaker**, *How to Frame Your Research for the NSF GRFP Program*, RE@CSU Summer Research Experience, Cleveland State University, Cleveland, OH

Jan 2021 **Invited Speaker**, *Mathematics Provides Insight into Self-Organization in Biology*, Junior Seminar Spring 2021, Cleveland State University, Cleveland, OH

Oct 2020 **Invited Speaker**, *Mathematics Provides Insight into Biology*, SPS/Choose Ohio First Seminar, Cleveland State University, Cleveland, OH

Sept 2020 **Invited Speaker**, *Mathematics Provides Insight into Self-Organization in Biology*, Junior Seminar Fall 2020, Cleveland State University, Cleveland, OH

Sept 2020 **Invited talk**, *Mathematical Modeling of Foraging and Trail Formation in Ants*, Ecology, Evolution and Environmental Science Seminar, Cleveland State University, Cleveland, OH

Sept 2020 **Invited Speaker**, *NSF GRFP: Knowing the Reviewers*, NSF GRFP Workshop, CSU Graduate School, Cleveland State University, Cleveland, OH

Sept 2020 **Invited Speaker**, *NSF GRFP: Research Statement*, NSF GRFP Workshop, CSU Graduate School, Cleveland State University, Cleveland, OH

Sept 2020 **Invited Speaker**, *NSF GRFP: Personal Statement*, NSF GRFP Workshop, CSU Graduate School, Cleveland State University, Cleveland, OH

Sept 2020 **Invited Speaker**, *What is the NSF GRFP?*, NSF GRFP Workshop, CSU Graduate School, Cleveland State University, Cleveland, OH

Aug 2020 **Invited talk**, *All About Me: Where Math Meets biology*, OpSTEM Cohort Welcome Seminar, Cleveland State University, Cleveland, OH

May 2020 **Invited Poster Presenter**, *Module-based Learning and Open Textbooks in Linear Algebra*, 2020 Provost's Teaching Summit, Cleveland State University, Cleveland, OH

Apr 2020 **Invited Speaker**, *Big Data and Modern Society*, College of Science Research Day Panel, Cleveland State University, Cleveland, OH
*Cancelled due to COVID-19 Outbreak

Feb 2020 **Invited Speaker**, *Mathematics Provides Insight into Self-Organization in Biology*, Junior Seminar Spring 2020, Cleveland State University, Cleveland, OH

Feb 2020 **Invited Speaker**, *Mathematics Provides Insight into Self-Organization in Biology*, SPS/Choose Ohio First Seminar, Cleveland State University, Cleveland, OH

Feb 2020 **Invited Speaker**, *Mathematics Provides Insight into Self-Organization in Active Biosystems*, Biology Colloquium, Cleveland State University, Cleveland, OH

Oct 2019 **Invited Speaker**, *Effective Properties and Collective Dynamics in Bacterial Suspensions*, Chemical and Biomedical Engineering Colloquium, Cleveland State University, Cleveland, OH

Oct 2019 **Invited Speaker**, *Applying for the NSF GRFP*, Math Club, CSU, Cleveland State University, Cleveland, OH

Sept 2019 **Invited Speaker**, *Mathematics Provides Insight into Self-Organization in Biology*, Junior Seminar Fall 2019, Cleveland State University, Cleveland, OH

Sept 2019 **Invited Speaker**, *NSF GRFP: Knowing the Reviewers*, NSF GRFP Workshop, CSU Graduate School, Cleveland State University, Cleveland, OH

Sept 2019 **Invited Speaker**, *NSF GRFP: Research Statement*, NSF GRFP Workshop, CSU Graduate School, Cleveland State University, Cleveland, OH

Sept 2019 **Invited Speaker**, *Why Open Education Resources and Student Impacts*, Opener for Nicole Finkbeiner - Open Stax Resources, Library, Cleveland State University, Cleveland, OH

Sept 2019 **Invited Speaker**, *NSF GRFP: Personal Statement*, NSF GRFP Workshop, CSU Graduate School, Cleveland State University, Cleveland, OH

Sept 2019 **Invited Speaker**, *What is the NSF GRFP?*, NSF GRFP Workshop, CSU Graduate School, Cleveland State University, Cleveland, OH

Sept 2019 **USRA Poster**, *Active particles near an air/water interface*, Fall USRA Poster Session, Cleveland State University, Cleveland, OH

Sept 2019 **Invited Speaker**, *Mathematical Modeling Provides Insight to Biology*, Junior Undergraduate Seminar: CSU, Cleveland State University, Cleveland, OH

Jul 2019 **Invited Speaker**, *How To Do Great Research and Scholarship Pt. 2*, CSU USRA Student Seminar, Cleveland State University, Cleveland, OH

Jun 2019 **Invited Speaker**, *How To Do Great Research and Scholarship Pt. 1*, CSU USRA Student Seminar, Cleveland State University, Cleveland, OH

Apr 2019 **Invited Speaker**, *Applied and Computational Mathematics at CSU*, College of Engineering April 2019 Meeting, Cleveland State University, Cleveland, OH

Mar 2019 **Invited Speaker**, *Mathematics Provides Insight into Self-Organization in Biology*, Junior Seminar Spring 2019, Cleveland State University, Cleveland, OH

Mar 2019 **Invited Speaker**, *Mathematics Provides Insight Into Insecticide Effectiveness*, Math Club: Cleveland State University, Cleveland, OH

Oct 2018 **Invited Speaker**, *Open Problems in Active Biosystems*, Junior Undergraduate Seminar: Cleveland State University, Cleveland, OH

Apr 2018 **Invited Speaker**, *Results of Using OneNote to Enhance Learning in Calculus I-II*, 2018 Provost's Teaching Summit, Cleveland State University, Cleveland, OH

Mar 2018 **Invited Guest Speaker**, *Using Microsoft OneNote to Improve Outcomes in MTH 181*, EST 499: Cleveland State University, Cleveland, OH

Feb 2018 **Invited Speaker**, *Open Problems in Active Biosystems*, Junior Undergraduate Seminar: Cleveland State University, Cleveland, OH

Sept 2017 **Invited Speaker**, *Open Problems in Active Biosystems*, Junior Undergraduate Seminar: Cleveland State University, Cleveland, OH

May 2017 **Invited Speaker**, *Using OneNote to Enhance Learning in Calculus I-II*, 2017 Provost's Teaching Summit, Cleveland State University, Cleveland, OH

Feb 2017 **Invited Speaker**, *Open Problems in Active Biosystems*, Junior Undergraduate Seminar: Cleveland State University, Cleveland, OH

Nov 2016 **Invited Speaker**, *Open Problems in Active Biosystems*, Junior Undergraduate Seminar: Cleveland State University, Cleveland, OH

Oct 2016 **Invited Speaker**, *Collective Motion: Why 2 is Better Than 1*, Math Club: Cleveland State University, Cleveland, OH

Sept 2016 **Invited Speaker**, *Collective Motion: Why 2 is Better Than 1*, Choose Ohio First/STEM Cohort Seminar: Cleveland State University, Cleveland, OH

Service

National

- National Science Foundation (NSF) Panel Reviewer (2019), (2021), (2024)
- 2021-Present Ohio MAA Project NExT Mentor (K. Erdem, U. Cinci)
- 2019-Present Reviewer for Mathematical Reviews (MathSciNet)
- 2018-Present Skype a Scientist (K-12 Outreach, 2018 8th Grade, 2019 Kindergarten, 2021 7th and 8th Grade, 2023 1st Grade)
- 2017-Present Greater Cleveland STEM Foundation Volunteer Resource
- 2017 Poster Judge, Assoc. of Women in Mathematics Poster Session (SIAM Annual Meeting 2017)
- 2017-2020 Abstract Reviewer for Ohio Academy of Sciences Yearly Conference

University/College Committees

- 2024-2026, Member, Peer Review Committee (PRC), College of Arts and Sciences
- 2024-2025, Chair/Member, Distinguished Faculty Awards Committee, CSU Faculty Senate
- 2024-Present, External Member, PRC-Tenure Committee (Dept. of Physics)
- 2020-Present, co-Director, CSU Center for Applied Data Analysis and Modeling (ADAM)
- 2022-Present, Member, CSU Provost's High Performance Computing Taskforce (HPC)
- 2022-Present, Member, University Open Education Resources (OER) Committee
- 2022-2024, Member, College of Arts and Sciences e-Learning Committee (Chair in AY 23-24)
- 2021-Present, Member, B.S. in Data Science Program Committee (Advisory Board)
- 2023, Reviewer for University Graduate Student Awards
- Spring 2022 Reviewer for CSU Outstanding Doctoral Research Award in Sciences and Math

- AY21-22, AY 22-23, Launch Team Faculty Mentor for S. Froehlich and D. Gao
- 2021-2022, Member, COSHP Curriculum and Instruction Committee
- 2021-Present, Member, CSU Academic Research Multisite Taskforce (replacing Academic server)
- 2021-2022, Member, COSHP-CLASS Workload Working Group - overseeing merging of college
- Fall 2021, co-Lead, COSHP-CLASS Study Circle for book "Noise".
- 2021 Gave a Center for Faculty Excellence Presentation on Using OneNote for an Engaged Classroom
- 2021 Participant in Honors College External Review Discussion as General Honors Course Instructor
- 2021 FRD Reviewer, CSU Office of Research
- 2019-2020, Faculty Advisor, Machine Learning for Science and Engineering Club (MLSEC)
- 2019-Present Annual Fall CSU NSF Workshop to prepare 12-15 students to submit NSF Graduate Research Fellowship Applications (presented 4 talks on strategy in applying and performed internal CSU review before apps were sent out)
  - 2025 Honorable Mention Kyra Stovicek (Mech Eng. Human Machine Systems)
  - 2023 Winner Ryan Godin (Chemistry)
  - 2021 Winner Shaye Tiell (Mech. Engin.)
  - 2 CSU Winners in 2020: 1. Niksa Praljak (Math/Physics) and 2. Farid Khoury (Chemical Engineering)
- 2019-2020 CSU Graduate Student Awards for Teaching Assistants Committee
- 2019-2020 Selwin Varghese (Advisor: C. Wirth), Ph.D. Committee - discontinued Spring 2020
- 2019 Search/Hiring Committee for Chem. and BioMed Eng. Postdoc (PI Wirth) - hired Sergio Dominguez-Medina
- 2018-2019, McNair (Non-Discipline Advisor) for David Mikhail (Engineering)
- Invited Speaker for EST 499 (Education Seminar, J. Kilbane)
- Fall 2018 Math Major Discussion Panel for COSHP by CSU SGA
- 2018-2019 CSU Graduate Student Awards for Teaching Committee
- 2018-2019 Jiarui Yan (Advisor: C. Wirth), M.S. Thesis Committee ('19), Ph.D. Committee
- 2017-Present Aidin Rashidi (Advisor: C. Wirth), Ph.D. Candidate
- 2017-2022 Level 1 University Graduate Faculty
- 2017-2018 CSU Thesis and Dissertation Award committee
- 2017 CSU-Faculty Scholarship Initiative (FSI) Proposal Reviewer
- 2016-2017, 2019 Student Selection Committees for NEOMED-CSU Partnership for Urban Health
- Faculty Representative at Fall 2016, Fall 2018, Spring 2020, Spring 2022, Fall 2024 Commencement

Departmental Committees

- 2024-Present Assessment Committee for Undergraduate Program B.S. in Math
- 2024-Present Undergraduate Program Committee
- 2022-Present Applied Math Committee (Chair)
- 2021-Present Dept. Peer Review Committee (Chair '23-Present)
- 2017-Present Math Technology Coordinator
- 2017-Present Math Technology Committee (Chair)
- 2022-2024 Tenure-Track Search Committee
- 2016-2024 Graduate Program Committee (Chair '20-'23)
- 2016-Present Colloquium Committee (Chair)
- 2016-Present Social Media/Math Dept Webpage Committee (Chair of Committee/Webpage Editor)
- 2024-Present Point Person for Promotion of B.S./B.A. in Mathematics
- 2021-2022 Tenure-Track Search Committee for Applied and Computational Assistant Professor (Chair) hired A. Hoover in 2022
- 2021 Dept. of Mathematics and Statistics Chair Search Advisory Committee (Chair)
- 2018-2019 Tenure-Track Search Committee (Appointments/Hiring) hired Visiting Assistant Professor Dan Florentin in 2019

- 2016-2017, 2018-Present Calculus Committee

Referee For:
- 2025-Present IEEE Control Systems
- 2024-Present The ISME Journal (International Society of Microbial Ecology) IF: 11
- 2024-Present SIAM Multiscale Modeling and Simulation (MMS)
- 2024-Present La Mathematica (Journal of the American Association of Women in Math)
- 2024-Present SIAM Review (SIREV)
- 2022-Present Bioinspiration & Biomimetics
- 2021-Present PLoS Computational Biology
- 2021-Present Science Advances
- 2021-Present Physical Biology
- 2020-Present Transaction of the American Mathematical Society
- 2020-Present Royal Society Interface
- 2020-Present Applied Sciences, MDPI Journal
- 2019-Present Journal for Mathematical Biology, Springer
- 2019-Present Mathematics, MDPI Journal (ISSN 2227-7390)
- 2019-Present Mathematical Reviews, American Mathematical Society (2 reviews total)
- 2018-2019 Springer Book “Cell Movement: Modeling and Applications"
- 2018-Present Entropy, MDPI Journal, (ISSN 1099-4300, IF 1.947)
- 2017-2018 Book Reviewer for Mathematics & Computer Science Dept of CRC Press/ Taylor & Francis Group
- 2017-Present Journal of the Royal Society Interface
- 2017-Present Fluids, MDPI Journal, (ISSN 2311-5521, IF) (2 reviews total)
- 2017-2018 Book Reviewer for Elsevier (Mathematics, Composites and Construction Materials)
- 2014-Present SIAM Journal of Applied Mathematics (SIAP)
- 2014-Present Proceedings of the Royal Society A
- 2013-Present Mathematical Models and Methods in Applied Sciences (M3AS)
- 2013-Present Nonlinearity (IOP Publishing)

Peer Review Certificates:
- 2016 Springer Peer Review Academy Certificate - Springer Journals

External (Community) Service and Outreach:
- 2019-2025 (7x) NE Ohio Science Olympiad Event Coordinator/Judge (Codebusters Div B/Div C)
  - Made 2022 Ohio State Competition Exam
- Presented a Career as a Math Professor for 1st Grade Class (Ms. Norris) in Hudson, OH
- Skyped with 1st Grade (Ms. Silcox) Class in Hudson, OH about Math/Science Careers
- July 2017 Poster Judge for SIAM Women in Math Poster Session
- April 2016 Project Judge for Choose Ohio First Poster Exhibition
- 2015-2016 NE Ohio STEM Science Fair Project Mentor (Hudson High School, Hudson, OH)
- 2015 Oakwood Middle School STEM Math/Physics Day at Kent LCI - demonstrated exciting math and physical phenomena for middle school students to enrich science education
- 2014-2016 Akron Science Expo - Volunteer KSU Math and Science table for middle/high school children.
- Fall 2015, Fall 2014, Speaker at Choose Ohio First Seminar for students in the STEM fields who grew up in Ohio and chose to remain in Ohio for higher education.

Professional Memberships

- Pi Mu Epsilon (Math Honorary). Member since 2007.
- Society for Industrial and Applied Mathematics (SIAM). Member since 2009.

SIAM Activity Groups: Life Sciences ('09-Present), Dynamical Systems ('19-Present), Data Science ('20-Present), Material Science ('09-'19), & Partial Differential Equations ('09-'18).
- American Mathematical Society (AMS). Member since 2009.
- Society for Mathematical Biology (SMB). Subgroups: 1. Methods in Biological Modeling, 2. Education, and 3. Population Dynamics, Ecology & Evolution, Member since 2013.
- Ohio Academy of Sciences (OAS). Member since 2016.
- Ohio Supercomputing Center Principal Investigator (PI). Member since 2017.
- International Liquid Crystal Society (ILCS). Member 2016-2018.

Student Research Advising Summary (since CSU Start 2016)

- 116 Total Student Research Projects (88 undergrad, 28 grad)
- 64 Math B.S. Senior Capstone Projects
- 17 Math M.S. Exit Projects
- 8 Undergraduate Summer Research Awards (USRA)
- 14 Manuscripts with CSU student co-authors (13 CSU student lead authors)
- 15 Undergraduate Researchers Nominated for COSHP/Arts & Sciences/CLASS Valedictorian (2 won)
- 29 Students went on to Graduate Programs (12 M.S.,17 Ph.D)
- Mentored 4 NSF GRFP Winners and 1 Honorable Mention (Praljak '20, Khoury '20, Tiell '21, Godin '23, HM Stovicek '25)

Graduate Research Advising

28. 2024-Present Rosalia Motta, M.S. Exit Project, Topic: Herding Effects on Predator-Prey Systems
    - Starting as an Analyst at Progressive Insurance in May 2025
27. 2024-Present Ryhan Uddin, Ph.D. in EECS, Committee Member, Advisor: S. Kumar
26. 2024-Present Arpit Gopani, M.S. Math Exit Project, Topic: Machine Learning for Differential Eqns
    - Started position as a Data Analytics Intern at IPL Global
    - Outstanding Math/Stat Graduate Student '25
25. 2023-Present, Ph.D. in Chemical Engineering (co-advisor w/ D. Munther, C. Kothapalli), Topic: Experiments for Bacterial Contamination in Poultry Processes
24. 2023 Madison Kramig, M.S. Math Exit Project, Topic: TBA
23. 2022-2023 Melanie Wroblewski, M.S. Math Exit Project, Topic: Optimal Scheduling
22. 2022-2023 Benjamin Kovacic, M.S. Math Exit Project, Topic: PDE models for Pollution in Rivers
    - 2022-2023 Outstanding Graduate Student, Dept. of Mathematics and Statistics
    - 2023 started as a Research Data Scientist 1 at the Cleveland Clinic
21. 2022-2023 Molly Walsh, M.S. Math Exit Project, Topic: Modeling Intestinal Bacterial Growth
20. 2021-2022 Ayat Almamy, M.S. Math Exit Project, Topic: Disease Transmission with Waning Immunity
    - Starting in the Ph.D. in Mathematics Program (UAB) in Fall 2023
19. 2021-2022 Jacob Vitale, M.S. Chem Engin. Committee Member (Advisor: G. Ao)
18. 2021-2022 Neda Abdollahi Nohouji, Ph.D. Mech. Engineering, Committee Member, Research: Mechanical Stability of Knee Replacements

17. 2021-2022 Sean Doherty, M.S. in Mechanical Engineering, Committee Member, Research: Predictions of Indentation Stiffness of Musculoskeletal Regions Using Ultrasound

16. 2020-2021 Asma Alshehri, M.S. Math Exit Project, Topic: Fourier Analysis for Diffusion Equations

15. 2020-2021 Joe Khoury, M.S. Chem E, Comm. Member, Research: Fabricating Nanotube fibers

14. 2020-Present Nerion Zekaj, (w/ A. Resnick and D. Munther), Research: Modeling Kidney Tubules, Modeling Bacterial Contamination in Poultry Plants
    - Currently Ph.D. student in Applied Mathematics at UNC-Chapel Hill

13. 2019-2021 Rodney Moore, M.S. Math Exit Project, Topic: Modeling Anthrax Inhalation
    - M.S. in Mathematics at Georgetown University

12. 2019-2021 Tyler Rhoades, M.S. Math Exit Project, Topic: Medical Imaging

11. 2019-2021 Justin Simmerer, M.S. Math Exit Project, Topic: PrEP use in HIV Prevention

10. 2018-2020 Mohammed Kalil, M.S. Chem. Engin. (w/ C. Wirth), Topic: Clustering Janus Cells

9. 2018-2020 Nick Baumgartner, M.S. Math Exit Project, Topic: Modeling Interacting Janus Particles
    - 2024 Started as Assistant Professor, Slippery Rock Univ.
    - Ph.D. Student, Dept. of Mathematics, Univ. of Wyoming starting 2020-2024
    - 2019-2020 CSU Excellent Graduate Student Teaching Award
    - Publication in *ACS Omega*, Two others submitted

8. 2018-2019 Ibtisam Alsharari, M.S. Math Exit Project, Topic: Modeling with Laplace Equation

7. 2018-2019 Majidah Alshammari, M.S. Math Exit Project, Topic: Numerical Analysis of Physical Waves

6. 2017-2018 Sabah Almazariqah, M.S. Math Exit Project, Topic: Fluid Dynamics at Low Reynolds Number

5. 2017-2018 Hamdah Alsharari, M.S. Math Exit Project, Topic: Fluid Dynamics at High Reynolds Number

4. 2017 Justin Flaherty, Summer Research, Topic: Boundary Layer Formation in Earth's Atmosphere
    - Ph.D. Student at Ohio State University (Physics) start Fall 2018 (Ph.D. 2024)

3. 2016-2017 Zach McCarthy, Topics: Microtubule Jamming and Poultry Chilling Process Models
    - Won Graduate Student of the Year for all of CSU
    - Ph.D. Student at York University (Canada) starting Fall 2017

2. 2015 B. Green (Physics Ph.D. student at Penn State), Topic: G-L Superconductivity
    - NSF Graduate Research Fellowship (PSU Physics), Ph.D. Candidate

1. 2014 M. Mizuhara (Math Ph.D. student at Penn State), Topic: Cell Motility
    - Assistant Professor (Math and Stat) at The College of New Jersey

Undergraduate Research Advising

88. 2025-Present Simon Richard, B.S. in Math/CS, Topic: Learning in LLM Models for AI Development
    - Starting Ph.D. in Computer Science at Purdue Univ. in Fall '25
    - Outstanding Mathematics Major '25

87. 2024-Present Vanessa Boyce, B.S. in Math, Topic: Predictive Modeling of Antibiotic Resistance
    - Nominated for CSU Arts and Sciences Valedictorian

86. 2024-Present Grace Miller, Honors B.S. in Math/Physics, Topic: Modeling Atomic Deposition on Surfaces
    - Nominated for CSU Arts and Sciences Valedictorian
    - CSU Arts and Sciences Outstanding Senior '25
    - Outstanding Mathematics Major '25
    - Ph.D. Student in Particle Physics, CWRU, starting Fall 2025

85. 2024 Max Burmeister, B.S. in Math, Topic: Capital Investment in Econ Growth Models

84. 2024 Manch Gamache, B.S. in Math, Topic: Effect of Permanent Death on Zombie Dynamics

83. 2024 Caroline Kilbane, B.S. in Math, Topic: Ecological Disease Spread

82. 2024-Present Jason Simon, USRA Project on Math Modeling of Bacterial Cross-contamination in Chilling Process
    - Nominated for CSU Arts and Sciences Valedictorian
    - Outstanding Mathematics Major '25

81. 2024 Chase Robinson, B.S. in Mathematics, Topic: Modeling Predicts Dynamic Pricing for NBA Games

80. 2023-Present Tanner Greene, Tatum Martinez, COF Topic: Modeling Small Pox Outbreak

79. 2023-2024 Michael Long, B.S. in Mathematics, Topic: Modeling Stock Prices
    - Fall 2024 started M.S. in Computational Finance at Carnegie Mellon Univ.
    - Summer 2025 Data Science Intern at Citizens Bank
    - 2024 Nominated for College of Arts and Sciences Valedictorian

78. 2023-2024 Rosalia Motta, Honors B.S. in Mathematics, Topic: Modeling Ecology with Decision Trees
    - 2022-2023 Outstanding MTH/STA Tutor

77. 2023-Present Caroline Kilbane, B.S. in Mathematics, Topic: Ecological Disease Spread

76. 2022-2023 Joshua Ashby, B.S. in Mathematics, Topic: Modeling Political Party Formation
    - 2022-2023 Outstanding Undergraduate Mathematics Major
    - Nominated for College of Science Valedictorian Spring 2023
    - College of Arts and Sciences Outstanding Scholar Spring 2023

75. 2022-2023 Halani Magbag, B.S. in Mathematics, Topic: Modeling Invasion of Vampires

74. 2022-2023 Alaa Yahya, B.S. in Mathematics, Topic: Modeling Perfect Basketball Shots

73. 2022-2023 Mahamoud Musleh, B.S. in Mathematics, Topic: Stochastic Differential Equations for Financial Models
    - Ph.D. Student in Mathematics at Florida State University
    - 2022-2023 Outstanding Undergraduate Mathematics Major
    - Nominated for College of Science Valedictorian Spring 2023

72. 2022-2023 Caitlin Gibson, B.S. in Mathematics, Topic: Identifying Sound Patterns in Frog Movement
    - 2022-2023 Outstanding Undergraduate Mathematics Major
    - Won Choose Ohio Award of Excellence for Research Poster at the COF Conference Spring 2023

71. 2022-2023 Corey Short, B.S. in Mathematics, Topic: Competition in Ant Colonies
    - Nominated for College of Science Valedictorian Spring 2023

70. 2022-2023 Paul DiVenti, B.S. in Mathematics, Topic: Model for Optimizing Fencing Matches
    - M.S. in Math Education at Towson University, Fall 2023

69. 2022-2023 , P. Clere, A. Jandric, J. G. Rodriguez, W. Turner et al. Choose Ohio First Project on *The Existence Of Planet Nine: Possible Locations and Effects of a Ninth Planet Beyond Neptune*

68. 2022 Aiden Demkee, B.S. in Mathematics, Topic: Inverse Problems from Linear Algebra

67. 2022 Anthony Laurienzo, B.S. in Mathematics, Topic: Social Media and Political Polarity

66. 2022 Melanie Wroblewski, B.S. in Mathematics, Topic: Predicting Box Office Revenue for Movies
    - 2022-2023 Outstanding MTH/STA Tutor
    - M.S. in Mathematics at CSU

65. 2022 Kayla Drager, B.S. in Mathematics, Topic: Modeling Genetically-Modified Crops
    - 2022-2023 Outstanding Undergraduate Mathematics Major
    - Named College of Arts and Sciences Outstanding Scholar Fall 2022

64. 2021-2022 Abbigail Walls, B.S. in Mathematics, Topic: Modeling Coral Reef Depletion
    - M.S. in Clinical Mental Health Counseling

63. 2021-2022 Oscar Barillas, B.S. in Mathematics, Topic: Transmission of Disease and Travel

62. 2021-2022 Kelly Cooper, B.S. in Mathematics, Topic: Projecting NBA Outcomes due to Injury

61. 2021-Present Zack Hatten, B.S. in Mathematics, Topic: Thermal Property Estimation of Fibrous Insulation: Heat Transfer Modeling and the Continuous Genetic Algorithm

60. 2021-2022 Rachel Schonhiutt, Honors B.S. in Mathematics, Topic: Modeling the Metabolism
    - Nominated for College of Science Valedictorian Spring 2022

59. 2021-2022 Julia Rausch, Honors B.S. in Mathematics, Topic: Data Analysis of Carbon Sequestration

58. 2021-2022 Benjamin Kovacic, Honors B.S. in Mathematics, Topic: Modeling Pollution Spread in Aquatic Ecosytems
    - Best Overall Presentation at 2022 Choose Ohio First Research Conference
    - M.S. in Mathematics at CSU
    - Outstanding Senior, College of Science and Health Professions Spring 2022
    - 2020-2021 B. Kovacic, Choose Ohio First
    - 2023 started as a Research Data Scientist 1 at the Cleveland Clinic

57. 2021 Evan Sadler, B.S. in Mathematics, Topic: Spread of COVID-19 on Networks

56. 2021 Daniel Boyer, B.S. in Mathematics, Topic: Game Theory in Baseball

55. 2021 Michael Miller, B.S. in Mathematics, Topic: Modeling Spread of COVID-19

54. 2020-2022 Ryan Godin, B.S. Chemisty, Topic: Modeling Synthetic Cell Consortia
    - Currently Ph.D. Student in Chemical Engineering at Iowa State University (2022-)
    - Awarded NSF Graduate Research Fellowship 2023-2026
    - Outstanding Senior College of Science and Health Professions 2022
    - 2nd Place Poster Award in Food, Pharma, and Biotech at ASC21 in Boston 2021 (AlChE Annual Student Conference)

- Elsevier Poster Prize at Soc. for Math Bio International Conference June 2021 (Cell and Developmental Biology)
- REU in Synthetic Biology at Iowa State University (Summer 2021)

53. 2020-2021 Kiran Meyers, B.S. in Mathematics, Topic: Gravitation Force Geometry

52. 2020-2021 M. Dixon, C. Farrington, C. Blatnik, I. Ulle, Topic: Analyzing BPM in Music Genres

51. 2020-2021 S. Alfaro, K. Bailer, G. Caskey, A. Nacarato, Choose Ohio First: Quantifying Carbon Sequestered in Common Ohio Trees
    - S. Alfaro is currently a Data Science Researcher at Cleveland Clinic
    - S. Alfaro named 2022-2023 Outstanding MTH/STA Graduate Student
    - Best Poster Presentation, 2021 Choose Ohio First Conference
    - M.S. in Statistics at CSU

50. 2020-2021 N. McFarren, T. Moodry, T. Neece, M. Shehata, Choose Ohio First: Water Distribution and Quality Management in Cleveland, Ohio

49. 2020-2021 Kayla Ball, B.S. Mathematics, Topic: Modeling Social Networks

48. 2020-2021 Damian Dziubek, B.S. Mathematics, Topic: Modeling REM Sleep

47. 2020-2021 Anna Pavlovski, B.S. in Major Math/Chem E, Topic: Reaction Rates in Bacterial Growth

46. 2020 Russel George (w/ T. Heus), B.S. Physics, USRA Topic: Cloud Dynamics

45. 2020 Alex Sukennyk (w/ T. Heus), B.S. Physics/Mech. E., USRA Topic: Cloud Dynamics

44. 2019-2021 Ariana Chriss, Honors B.S. in Biology and Math, Topic: Modeling Chromosome Dynamics
    - Ph.D. Student in Computational Biology at Mount Sinai (New York)
    - 2021 Outstanding Senior in the College of Science and Health Professions
    - 2021 Doretta Thielker Award (Outstanding Biology Senior)

43. 2019-2021 Alexis Brown, Honors B.S. in Biology, Topic: Algae Bloom Formation
    - 2021 Outstanding Senior in the College of Science
    - 2021-Present Research Intern at Holden Arboretum Foundation
    - Participant in REU at OSU Stone Laboratory, Summer 2020
    - TRIO (First-gen) Student

42. 2019-2020 Tyler Rhoades, B.S. in Math and Physics, Topic: Image Restoration Using Math
    - Salutatorian for College of Science and Health Professions for Fall 2020

41. 2019-2020 Cameron Lathem, B.S. Mathematics, Topic: Predictive Modeling for Drag Racing

40. 2019-2020 Julia Janik, Senior Project, Topic: Math Modeling of Tympanic Membrane (Ear)

39. 2019-2020 Kevin Lannoch, Honors Senior Project, Topic: Econ. Modeling of Economy
    - Nominated for College of Liberal Arts and Social Sciences Valedictorian
    - Technical Sales Representative at Lincoln Electric (starting Summer 2020)

38. 2018-2019 Kenyon Ponzie, Senior Project, Topic: Fuel Efficiency due to Air Resistance

37. 2018-2019 Emilyann Moenich, Honors Senior Project, Topic: Predator-Prey Eqns

36. 2019 Steven Bengele, B.S. Chem and Biomed Engin., USRA Topic: Janus Cells

35. 2019 Justin Thompson, B.S. in Physics, USRA Topic: Cloud Dynamics

34. 2018-2020 Niksa Praljak, Honors B.S. in Math and Physics, Topic: Pulsatile Kidney Tubules (w/ A. Resnick)
    - 2020 NSF Graduate Research Fellow
    - Currently a Ph.D. student at U. Chicago (starting Summer 2020)
    - Outstanding Poster at CSU Science Research Day 2019
    - 2020 College of Science and Health Professions Valedictorian

33. 2018-2021 Theresa Lincheck, B.S. in Physics/Music, USRA Topic: Cloud Dynamics
    - 2021 College of Science Valedictorian
    - 2021 Ph.D. Student, Univ. of Oklahoma, School of Meteorology

32. 2018-2019 Luke Thornsberry, Choose Ohio First Topic: Auto-Driving Car Efficiency

31. 2018-2019 Christine Campbell, Jake Derkacs, Olivia Safady, Sebastian Solomon, Choose Ohio First Project, Topic: Spiral Bacterial Colonies

30. 2018-2019 Benjamin Kirkpatrick, Senior Project, Topic: Gene Regulation

29. 2018-2019 Masroor Butt, Senior Project, Topic: Disease and Travel

28. 2018-2019 Justin Simmerer, Senior Project, Topic: Effectiveness of PrEP
    - Currently an M.S. student in CSU Math Dept.

27. 2018-2019 Jacob Clark, Senior Project, Topic: Fourier Analysis in Biology
    - Currently a data analyst at AML Rightsource

26. 2018-2019 Alexis Bloor, Senior Project, Topic: Spread of Disease Between Species
    - Currently an Associate Financial Analyst at Northwestern Mutual

25. 2018-2019 Emily (Alec) DeBoard, Honors Senior Project, Topic: Wound Healing

24. 2018-2019 Wei Jia, Senior Project, Topic: Boundary Layers Effects in Clouds
    - M.S. Student and Ph.D. at University of Cincinnati (Data Science) starting Fall 2019
    - Graduate Student Intern at Proctor and Gamble, Spring 2021

23. 2018-2019 Olivia Maslanka, Honors Senior Project, Topic: Synchronization of Fire Flies

22. 2018 Mike Mesi, Senior Project, Topic: Modeling of Solar Panels

21. 2018 Lauren Blasinsky, Honors Senior Project, Topic: Traffic Flow

20. 2018 Jeremy Aufderheide, Senior Project, Topic: Fracture Mechanics of Crack Propagation
    - Currently a Consulting Developer at Equity Engineering

19. 2018-Present Marola Issa (w/ C. Wirth), Summer Research, USRA Topic: Active Particle Dynamics
    - Ph.D. Student in Chemical Engineering at CWRU
    - Named Future Leader in Chemical Engineering for the N.C. State Chem E Symposium

18. 2017-2018 Christine Campbell and Jake Derkacs, Choose Ohio First Project, Topic: Modeling Wind Turbines
    - Christine awarded Outstanding Sophomore in Engineering for 2017-2018

17. 2017-2018 Rachel Sutor, Joseph Wolf, Hayden Bartolovich, and Zachary Opperman, Choose Ohio First Project, Topic: Scallop Theorem

16. 2017-2018 Valerie Vidal, Senior Project, Topic: Modeling Type-II Diabetes

15. 2017-2018 Anthony Campagna, Senior Project, Topic: Predictive Analysis for Ranking MLB Teams

14. 2017-2018 David Zimmerman, Senior Project, Topic: Bifurcation Analysis
    - Currently M.S. in Mathematics at CSU

13. 2017-2018 Matthew Gebbett, Senior Project, Topic: Predictive Analysis for Ranking English Soccer Teams

12. 2017-2018 Aeisha Kangan, Senior Project, Topic: Modeling Econ. Growth in Developing Nations
    - M.S. student in Global Health at Georgetown University

11. 2017-2018 Jen Worthy, Senior Project, Topic: Math Models for Pedestrian Dynamics
    - M.S. student at Johns Hopkins and works for Teach For America

10. 2017-2018 Maddie Burns, Senior Project, Topic: Model for Disease Dynamics in Women's Health

9. 2016-2018 Nicky Baumgartner, Senior Project, Topic: Crab/Ant Interaction on Xmas Island
    - M.S. in Mathematics CSU, Ph.D. in Mathematics U. Wyoming
    - Two papers submitted for publication, now M.S. in Math at CSU

8. 2016-2018 William Calabrase, Senior Project, Topic: What Determines the Shape of a Cloud
    - Ph.D. Student at Case Western Reserve University (Physics) starting Fall 2018

7. 2017-Present Nick Barron, Summer Research, Topic: Fractal Cloud Structures
    - Ph.D. Student at Penn State University (Meteorology) starting Fall 2018

6. 2017 Vladimir Sworski, Summer Research, Topic: How High Does the Lower Atmosphere Go?
    - Valedictorian, College of Science and Health Professions at CSU
    - Ph.D. Student at Colorado State University (Mathematics) starting Fall 2018

5. 2016-2017 Anthony Sulak, Independent Study, Topic: Optimal Shape of Water Towers
    - Research Project published in SIAM Undergraduate Research Journal (SIURO)
    - Ph.D. Candidate, Michigan State Univ. Dept. of Mathematics starting Fall '19

4. 2016-2017 Jalisa Richardson, Senior Project, Topic: Algae Growth in Biodiesel Fuel Production
    - Currently an Adjunct Professor of Data Analytics at Trine University
    - M.S. Student at UW-Madison (Engineering Data Analytics) Fall 2018

3. 2016 R. Dovishaw (Kent State, Individual Honors Work, Topic: Math Methods in Physics)

2. 2016 J. Sobieski (Kent State, Choose Ohio First Project), **Awarded Best Poster Presentation**

1. 2013 Q. Donahue (current Math Ph.D. student U. Pittsburgh, Topic: Homogenization)

High School Student Research Advising

2. 2020-2021, Peter Soprunov, Topic: Modeling Motile Cilia

1. 2016-2017, Dorrie (Dan) Pharis (w/ T. Heus), Topic: Modeling Cloud Size Distribution

Teaching Honors

2023-2024 **CSU Distinguished Faculty Award for Teaching**, *For Outstanding Teaching and Student Mentorship, two awards for tenured/tenure-track over whole university*

2023-2024 **Jearl D. Walker Outstanding Teaching Award**, *For Outstanding Teaching and Student Mentorship in the College of Arts and Sciences*

2022-2023 **Provost's Faculty Merit Award**, *For Outstanding Teaching*

2022, 2020, 2018 **CSU Golden Apple Teaching Award**, *CSU Alumni Association*, Recognizes the contributions of outstanding faculty/staff members on the lives of students

2022-2023 **OSC Campus Champions**, *Ohio Supercomputing Center*, Recognized as liason between CSU and OSC while promoting OSC resources to faculty and students

2020-2021 **Faculty Innovator Award**, *CSU Center for Faculty Excellence*, Invited to present a webinar on keeping students engaged during remote learning.

2023,2020,2019 **Nominated for Jearl D. Walker COSHP Teaching Award**, *Recognizes an individual faculty member in the CSU COSHP for outstanding teaching*

2019-2020 **Provost's Faculty Merit Award**, *For Outstanding Teaching and Research*

2017-2018 **Provost's Faculty Merit Award**, *For Outstanding Teaching and Research*

2017-2018 **Teaching Enhancement Award**, *Cleveland State University*

2017-Present **Level 1 University Graduate Faculty**, *Cleveland State University*

2016 **Kent State Department of Athletics Faculty Honor**, *Kent State University*, For being instrumental in student-athlete academic success

2012 **Department of Mathematics Teaching Award**, *Department of Mathematics, Pennsylvania State University*

Fall 2011 **Promotion to Graduate Teaching Associate**, *Department of Mathematics, Pennsylvania State University*

Fall 2011 **Teaching With Technology Certificate**, *Graduate School, Penn State University*

- Nominated for PSU Department of Mathematics Teaching Award in 2011, 2012, and 2013

Teaching (Cleveland State)

Rating for "What is your overall evaluation of this instructor?" out of 5 Student Evaluations

Spring 2025 **Math 396: Junior Seminar**, *Instructor*,

Fall 2024 **Math 401: Mathematical Modeling**, *Instructor*, **5.00/5.00**

Spring 2024 **Sabbatical**

Fall 2023 **Math 577: Numerical Methods**, *Instructor*, **4.88/5.00**

Fall 2022 **Math 311: Numerical Analysis**, *Instructor*, **5.00/5.00**

Fall 2022 **Math 286: Intro to Differential Equations**, *Instructor*, **5.00/5.00**

Spring 2022 **Math 311: Numerical Analysis**, *Instructor*, **4.81/5.00**

Fall 2021 **Math 401: Mathematical Modeling**, *Instructor*, **5.00/5.00**

Summer 2021 **Math 286: Intro to Differential Equations**, *Instructor*, **4.84/5.00**

Spring 2021 **Math 311: Numerical Analysis**, *Instructor*, **4.91/5.00**

Fall 2020 **Math 401: Mathematical Modeling**, *Instructor*, **4.88/5.00**

Fall 2020 **Math 181H: Honors Calculus I**, *Instructor*, **4.89/5.00**

Summer 2020 **Math 286: Intro to Differential Equations**, *Instructor*, **4.92/5.00**

Spring 2020 **Math 182H: Honors Calculus II**, *Instructor*, **4.94/5.00**

Fall 2019 **Math 288: Linear Algebra**, *Instructor*, **4.82/5.00**

Fall 2019 **Math 401: Mathematical Modeling**, *Instructor*, **4.81/5.00**

Summer 2019 **Math 286: Intro. to Differential Equations**, *Instructor*, **5.00/5.00**
Spring 2019 **Math 311: Numerical Analysis**, *Instructor*, **4.90/5.00**
Fall 2018 **Math 181H: Honors Calculus I**, *Instructor*, **5.00/5.00**
Fall 2018 **Math 401: Mathematical Modeling**, *Instructor*, **4.90/5.00**
Summer 2018 **Math 288: Linear Algebra**, *Instructor*, **5.00/5.00**
Spring 2018 **Math 493: Math Modeling II**, *Instructor*, **5.00/5.00**
Spring 2018 **Math 311: Numerical Analysis**, *Instructor*, **5.00/5.00**
Spring 2018 **Math 181: Calculus I**, *Instructor*, **4.94/5.00**
Fall 2017 **Math 401: Mathematical Modeling**, *Instructor*, **5.00/5.00**
Fall 2017 **Math 181H: Honors Calculus I**, *Instructor*, **5.00/5.00**
Summer 2017 **Math 286: Intro. to Differential Equations**, *Instructor*, **4.75/5.00**
Spring 2017 **Math 311: Numerical Analysis**, *Instructor*, **5.00/5.00**
Spring 2017 **Math 182: Calculus II**, *Instructor*, **4.92/5.00**
Fall 2016 **Math 401: Mathematical Modeling**, *Instructor*, **5.00/5.00**
Fall 2016 **Math 182: Calculus II**, *Instructor*, **4.77/5.00**

Teaching (Kent State)

Rating for “Overall, how would you rate your learning experience in this course" out of 5 Student Evaluations

Spring 2016 **Math 32052: Math Methods for Physical Sciences II**, *Instructor*, **4.90/5.00**
Fall 2015 **Math 32051: Math Methods for Physical Sciences I**, *Instructor*, **4.92/5.00**

- No Teaching Fall ’14-Spr. ’15, covered by NSF Grant #1212046 (PI X. Zheng, co-PI P. Palffy-Muhoray).

Teaching (Penn State)

Rating for “Rate the overall quality of the instructor" out of 7 on SRTE Student Evaluations

Spring 2013 **Math 220: Matrices/Linear Algebra**, *Instructor for 3 Sections*, **6.77/7.00, 6.66/7.00, 6.59/7.00**
Spring 2012 **Math 251: Introduction to ODEs and PDEs**, *Instructor*, **6.97/7.00**
Spring 2012 **Math 251Z: Introduction to PDEs**, *Instructor*, **6.83/7.00**
Spring 2011 **Math 41: Algebra and Trigonometry (Precalculus)**, *Instructor*, **6.63/7.00**
Fall 2010 **Math 251: Introduction to ODEs and PDEs**, *Instructor*, **6.83/7.00**

Teaching (University of Akron)

Rating for “Overall, I rate this instructor as excellent" out of 5 on IDEA Student Evaluations

Spring 2009 **Mathematics for Elementary School Teachers I**, *Instructor*, **4.8/5.0**
Fall 2008 **Intermediate Algebra**, *Co-coordinator and Instructor*, **4.8/5.0**
Spring 2008 **College Algebra**, *Instructor*, **4.6/5.0**
Fall 2007 **Intermediate Algebra**, *Instructor*, **4.9/5.0**

Computer Skills

Languages Python, Fortran, C, C++, HTML, LaTeX, CUDA (GPU)
Platforms Mac OSX, Unix, Linux, Windows

Programs Matlab, Scilab, Mathematica, Maple, Grace, Xfig, Inkscape, Microsoft Office

Languages

- English (native language, U.S. Citizen)
- German (Elementary Proficiency in Reading, Writing, and Composition)