Matthew McCurdy

Applied Mathematician & Educator

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Work Experience

University of the Virgin Islands 2024-present
Assistant Professor, Department of Mathematics

Ohio Wesleyan University 2022-2024
Assistant Professor, Department of Mathematics and Computer Science

Trinity College 2020-2022
Harold L. Dorwart Visiting Assistant Professor, Department of Mathematics

Education

Ph.D., Applied and Computational Mathematics 2015-2020
Florida State University
Thesis: *Convection in coupled fluid-porous media systems: a tale of two fluids*
Advisor: Nick Moore, Xiaoming Wang
Honors: Distinguished Teaching Assistant (2020)

B.S., Mathematics 2011-2015
Centre College, minor in Education

Publications

J. Adriazola, P. Buchak, A. Gianesi Odu, E. Maitre, M. McCurdy, A. Newell, & T. Witelski, **Deflection and stresses in beams joined together by a continuous spring layer**, *Mathematics in Industry Reports*, 2023

M. McCurdy, M. N. J. Moore, & X. Wang, **Predicting convection configurations in coupled fluid–porous systems**, *Journal of Fluid Mechanics*, vol. 953, 2022

S. Souley Hassane†, H. Mhina†, & M. McCurdy, **Rayleigh-Bénard convection with an obstruction**, *SIAM Undergraduate Research Journal*, vol. 15, 2021 †undergraduate students

M. McCurdy, M. N. J. Moore, & X. Wang, **Convection in a coupled free flow-porous media system**, *SIAM Journal on Applied Mathematics*, vol. 79, 2019

M. McCurdy, & E. Swanson, **The spreading of an insoluble surfactant on a thin non-Newtonian fluid**, *SIAM Undergraduate Research Journal*, vol. 18, 2015

Invited Talks

University of the Virgin Islands, St. Thomas, USVI, April 2024

Wooster College, Wooster, Ohio, February 2024

Kenyon College, Gambier, Ohio, December 2023

St. Olaf College, Northfield, Minnesota, November 2023

Mount Saint Mary's University, Emmitsburg, Maryland, November 2023

Kenyon College, Gambier, Ohio, April 2023

Southern University of Science and Technology, Shenzhen, China, (Computational & Applied Math Seminar) June 2019

Contributed Presentations & Selected Seminar Talks

Modeling the Navier-Stokes-Darcy-Boussinesq system, *APS Division of Fluid Dynamics*, Nov. 2021, Phoenix, AZ

Modeling the Navier-Stokes-Darcy system coupled with heat, *44th SIAM Southeastern Atlantic Section Conference*, Mar. 2020, Auburn, GA (cancelled)

Transition of convection in coupled fluid-porous media systems, *APS Division of Fluid Dynamics*, Nov. 2019, Seattle, WA

Convection in coupled fluid-porous media systems, *39th Southeast-Atlantic Regional Conference on Differential Equations*, Oct. 2019, Embry-Riddle University

Nonlinear stability analysis for thermal convection in the coupled Navier-Stokes-Darcy system, *APS Division of Fluid Dynamics*, Nov. 2018, Atlanta, GA

Changes in the criticality of Hopf bifurcations in systems with multiple timescales, *Dynamical Systems Seminar*, Nov. 2017, Florida State University

Small Darcy number asymptotics of the coupled Navier-Stokes-Darcy system, parts I-III, *Applied PDE Seminar*, Oct.-Nov. 2016, Florida State University

The spreading of an insoluble surfactant on a thin non-Newtonian surface, *RICE Symposium*, Apr. 2015, Centre College

Spreading of an insoluble surfactant on a thin non-Newtonian film, *Bluegrass Undergraduate Mathematics Symposium*, Oct. 2014, Danville, KY

Teaching Experience

Assistant Professor 2024-present
University of the Virgin Islands, Department of Mathematics

- Taught College Algebra, College Trigonometry

Assistant Professor 2022-2024
Ohio Wesleyan University, Department of Mathematics & Computer Science

- Taught Calculus I & II, Differential Equations, Introduction to Computer Science, Linear Algebra, Partial Differential Equations, Math Modeling, Great Ideas in Mathematics

Thrive Summer Academy Professor Summer 2022, 2023, 2024
Amherst College

- Instructor for a six-week Calculus I course for rising high school seniors at a residential program taking place on the campus of Amherst College
- Thrive Scholars is a non-profit aimed at helping high-achieving, low-income underrepresented students to get into and graduate from top colleges to achieve their full career potential

Harold L. Dorwart Visiting Assistant Professor 2020-2022
Trinity College, Department of Mathematics

- Taught Calculus I, Numerical Analysis, Differential Equations, Statistical Data Analysis, Applied Linear Algebra, Partial Differential Equations, Math Modeling
- Faculty mentor for two summer research students, Samira Souley Hassane and Harieth Mhina (both class of 2022), resulting in a published paper

Instructor of Record 2019-2020
Florida State University

- Solo instructor for Pre-Calculus, Calculus, Differential Equations, and Applied Linear Algebra
- Supervised undergraduate TAs aiding with my Calculus courses
- Developed lectures and lesson plans, created exams/quizzes/other assignments, and implemented learning-centered teaching strategies into my courses

Graduate Teaching Assistant 2015-2018
Florida State University

- Led recitations and laboratory courses for various undergraduate math classes
- Held office hours and led study sessions

SAT Workshop Summer 2013
Escola Nossa Senhora da Misercórdia (Rio de Janiero, Brazil)

- Conducted SAT preparation workshops for students wishing to pursue higher education in the U.S. and collaborated with a fellow Centre student to teach a class addressing college life

Service

Journal Referee for *Physics of Fluids, Journal of Scientific Computing*

Judge for *SIMIODE Challenge Using Differential Equations Modeling* (2021-present)

At Ohio Wesleyan University:

- **University Committees**: Teaching and Assessment Committee (2023-2024), Wesleyan Council on Student Affairs (2023-2024)
- **Faculty Liaison**: Men's & Women's Cross Country, Indoor Track and Field, Outdoor Track and Field (2023-2024)

Graduate Experience at Florida State University:

- **Graduate Student Council** (2016-2020)
- **Administrative TA** (2017-2019)
- **Student Representative**: Graduate Policy Committee (2019), Curriculum Committee (2016-2020)

Skills

Programming
C/C++, Fortran, R, Julia, Matlab, Mathematica, LaTeX

Operating Systems
Unix, OSX, Windows

Other Activities & Honors

Cross Country and Track, Centre College, 2011-2015
Recognized multiple times as an NCAA All-Region and All-Conference athlete while winning five conference championship team titles

MSNBC, Centre College, 2012
Assistant to production team for the Vice-Presidential Debate

Eagle Scout, Boy Scout Troop 265, Memphis, TN. Earned in 2011

References

Dr. Paula Russo
Trinity College, Department of Mathematics
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Dr. David Mauro
Trinity College, Department of Mathematics
david.mauro@trincoll.edu

Dr. Mary Sandoval
Trinity College, Department of Mathematics
mary.sandoval@trincoll.edu

Dr. Nick Moore
Colgate University, Mathematics Department
nmoore@colgate.edu

Dr. Xiaoming Wang
Missouri University of Science and Technology, Department of Mathematics
xiaomingwang@mst.edu

Dr. Giray Ökten
Florida State University, Department of Mathematics
okten@math.fsu.edu