

LAUREN LAZARUS MELFI

Assistant Professor, Applied Mathematics
School of Computing & Data Science
Wentworth Institute of Technology

melfil@wit.edu
lauren.lazarus9@gmail.com
<https://sites.google.com/view/laurenlazarus/home>

EDUCATION:

Cornell University 2010 - 2016
Ph.D. in Theoretical and Applied Mechanics – Advisor: R. H. Rand

University of New Hampshire 2006 - 2010
B.S. in Physics with University Honors; B.A. in Classics – Summa Cum Laude

ACADEMIC POSITIONS:

Wentworth Institute of Technology 2020 – present
Assistant Professor, Applied Mathematics, School of Computing and Data Science

Trinity College 2017 - 2020
Harold L. Dorwart Visiting Assistant Professor, Dept. of Mathematics

Harvey Mudd College 2016 - 2017
Visiting Assistant Professor, Dept. of Mathematics

Cornell University Spring 2016
Teaching Associate, Dept. of Mathematics

PUBLICATIONS:

M. J. Panaggio, M.-V. Ciocanel, **L. Lazarus**, C. M. Topaz, and B. Xu: Model reconstruction from temporal data for coupled oscillator networks. *Chaos* **29**, 103116 (2019).

L. Lazarus, M. Davidow, and R. Rand: Periodically Forced Delay Limit Cycle Oscillator. *International Journal of Non-Linear Mechanics*, **94**, pp. 216-222 (2017).

L. Lazarus, M. Davidow, and R. Rand: Dynamics of an oscillator with delay parametric excitation. *International Journal of Non-Linear Mechanics*, **78**, pp. 66-71 (2016).

L. Lazarus, M. Davidow, and R. Rand: Dynamics of a delay limit cycle oscillator. *Nonlinear Dynamics*, **82**, pp. 481-488 (2015).

L. Lazarus and R. H. Rand: Dynamics of a System of Two Coupled Oscillators Driven by a Third Oscillator. *Journal of Applied Nonlinear Dynamics*, **3** (3), pp. 271-282 (2014).

AWARDS AND FELLOWSHIPS:

Fellow, Center for Teaching and Learning, Trinity College	2018 – 2019
Participant, AMS Mathematics Research Community, Agent-Based Modeling	June 2018
Blue '17 Fellow, MAA Project NExT	2017 – 2018
H. D. Block Teaching Prize, Cornell University	2016
Phi Beta Kappa Honor Society, Beta of New Hampshire	2010

PRESENTATIONS:

Invited Conference Talks:

SIAM/CAIMS Annual Meeting	July 17, 2020
“Model Reconstruction for Coupled Oscillator Networks from Temporal Data.” with M. J. Panaggio, M.-V. Ciocanel, C. Topaz, and B. Xu.	(virtual)
Joint Mathematics Meetings	January 17, 2019
“Network reconstruction from temporal data for coupled oscillators.” with H. Adams, M.-V. Ciocanel, K. Houston-Edwards, M. J. Panaggio, C. Topaz, and B. Xu.	Baltimore, MD

Colloquium Talks:

Boston University Dynamical Systems Seminar	May 2, 2022
“Model Reconstruction for Coupled Oscillator Networks from Temporal Data”	
Talk Math With Your Friends (#TMWYF) Colloquium	April 1, 2021
“Finding Resonance with Delays”	(virtual)
Yale Undergraduate Mathematics Society Seminar	October 16, 2020
“System Delay as a Feature, Not a Bug”	(virtual)
Rose-Hulman Institute of Technology Mathematics REU Colloquium	July 16, 2020
“Modeling Oscillations with Delayed Feedback”	(virtual)
University of Hartford Mathematics Undergraduate Colloquium	September 14, 2018
“System Delay as a Feature, Not a Bug.”	

Claremont Center for the Mathematical Sciences Colloquium	November 30, 2016
“Delay in the System: Oscillations caused by non-trivial response time.”	

Contributed Conference Talks:

SIAM Conference on Applications of Dynamical Systems	May 24, 2021
“Model Reconstruction for Coupled Oscillator Networks from Temporal Data”	(virtual)
with M. Panaggio, M.-V. Ciocanel, G. McLaughlin, C. Topaz, and B. Xu	

Joint Mathematics Meetings	January 17, 2020
“Comparison and machine classification of limit cycles from ODE	Denver, CO
and delayed oscillator models”	

SIAM Conference on Applications of Dynamical Systems	May 19, 2019
“Comparison and connection between delay oscillators and ODE oscillators.”	Snowbird, UT

Joint Mathematics Meetings	January 16, 2019
“Frequency effects of various cubic resonances on a delayed oscillator.”	Baltimore, MD

SIAM Conference on Applications of Dynamical Systems	May 24, 2017
“Internally delayed oscillator in coupling.”	Snowbird, UT

Joint Mathematics Meetings	January 5, 2017
“Periodic forcing of a first-order delay limit cycle oscillator.”	Atlanta, GA
with M. Davidow and R. H. Rand.	

IUTAM Symposium, Analytical Methods in Nonlinear Dynamics	July 8, 2015
“Dynamics of a delay limit cycle oscillator.”	Frankfurt, Germany
with M. Davidow and R. H. Rand.	

ASME International Design & Engineering Technical Conferences	August 20, 2014
“Dynamics of a system of two coupled oscillators driven by a third oscillator.”	Buffalo, NY
with R. H. Rand.	

American Physical Society March Meeting	March 16, 2010
Poster: “System dynamics of non-diffusively coupled oscillators.”	Portland, OR
with J. Tranquillo.	

TEACHING EXPERIENCE:

Wentworth Institute of Technology	2020 – present
Integrated Engineering Calculus I; Differential Equations; Differential Equations & Systems Modeling; Linear Algebra & Matrix Theory	
Trinity College	2017 - 2020
Intro to Mathematical Modeling; Differential Equations; Linear Algebra; Calculus II; Mathematical Pearls; Calculus III; Statistical Data Analysis	
Harvey Mudd College	2016 - 2017
Intro to Differential Equations; Intermediate Differential Equations; Intro to Linear Algebra; Differential Equations and Linear Algebra II; Multivariable Calculus	
Cornell University	2016
Calculus I; [also see Predoctoral Teaching Experience below]	

STUDENT RESEARCH MENTORING:

Benjamin Liske, Trinity College '20	Summer 2019
Daniel Melesse, Trinity College '20	Summer 2019
Kalsang Sherpa, Trinity College '20	Summer 2018
<i>Outstanding Poster, MAA Student Poster Session, Joint Mathematics Meetings 2019</i>	

SERVICE TO PROFESSION:

Organizing Committee Member: Dynamics Days 2020, Hartford, CT	January 2020
Reviewer:	
<i>College Mathematics Journal</i> – MAA, Taylor & Francis	
<i>Nature Communications</i> – Nature Research	
<i>International Journal of Systems Science</i> – Taylor & Francis	
<i>SN Applied Sciences</i> – Springer	
Contest Judging:	
AWM/MfA Essay Contest – Round 1	Feb 2021, Feb 2022
COMAP Interdisciplinary Contest in Modeling – Triage	Feb/Mar 2021

Membership:

Mathematical Association of America (MAA)
Society for Industrial and Applied Mathematics (SIAM)
Association for Women in Mathematics (AWM)
Phi Beta Kappa Honor Society

Past Membership:

American Mathematical Society (AMS) – 2016-2019

SERVICE TO INSTITUTE / SCHOOL:

Member, Applied Mathematics Curriculum Committee	2021-present
Co-Chair, Data Science Search Committee, School of Computing & Data Science	2021-2022
Member, Women's Leadership Initiative Advisory Committee (ad hoc)	2021

SELECTED OUTREACH:

Panelist / Visitor:

AAUW Tech Savvy Conference at Trinity College, Hartford, CT	March 7, 2020
Women in STEM Club at Hall High School, West Hartford, CT	April 22, 2019

PREDOCTORAL TEACHING EXPERIENCE:

Cornell University

Instructional Teaching Assistant, Dept. of Mathematics
Calculus I Sp 2014, Sp 2015

Workshop Development Assistant, Engineering Learning Initiatives
[Calculus / Multivariable Calculus] for Engineers Sp/Fa 2013, Fa 2014

Recitation Teaching Assistant, Dept. of Mathematics Fa 2010, Sp/Fa 2011, Sp/Fa 2012, Fa 2015
[Calculus / Multivariable Calculus / Differential Equations / Linear Algebra] for Engineers

Instructor's Assistant, Dept. of Mathematics Sp/Fa 2011, Sp 2012, Sp/Fa 2013, Fa 2014, Fa 2015
[Calculus / Multivariable Calculus / Differential Equations / Linear Algebra] for Engineers

Teaching Assistant, Dept. of Mechanical and Aerospace Engineering Su 2011, Su 2012, Su 2013
System Dynamics, Heat Transfer

University of New Hampshire

Sp 2010

Teaching Assistant, Dept. of Physics

PREDOCTORAL RESEARCH EXPERIENCE:

Bucknell University

Summer 2009

Research Assistant, NSF REU Program with J. Tranquillo – coupled oscillators

Lehigh University

Summer 2008

Research Assistant, NSF REU Program with D. Vavylonis – modeling cell mechanics

University of New Hampshire

2007 - 2009

Research Assistant, with P. Berglund – string theory