

Nicholas A. Scoville

Curriculum Vitae

101K Pfahler
Ursinus College
Collegeville, PA

Phone: 610-409-3118
E-Mail: nscoville@ursinus.edu
URL: <https://nscoville.github.io/website/>

POSITIONS HELD

Ursinus College

Full Professor	fall 2021- present
Joseph Beardwood III Chair of Mathematics	fall 2017-present
Associate Professor	fall 2016- spring 2021
Chair of Mathematics and Computer Science	spring 2016-present
Assistant Professor	fall 2010-spring 2016

Faulkner University

Adjunct Professor	2015
-------------------	------

Regina Luminis Academy

Adjunct Instructor	2020-present
--------------------	--------------

EDUCATION

Dartmouth College

Ph.D., Mathematics	June 2010
Masters of Arts, Mathematics	June 2007

Western Michigan University

Masters of Science, Mathematics	June 2005
Bachelors of Science, Mathematics	August 2003

Grand Rapids Community College

Associates, Architectural Drafting	May 2001
------------------------------------	----------

PUBLICATIONS

Pawel Dlotko, Julian Brüggemann, Nicholas A. Scoville, “The sequential star matching on the Vietoris-Rips complex,” *in preparation*

Nicholas A. Scoville, Dylan Wen, “Generalized gradient vector fields and the complex of discrete Morse intervals,” *in preparation*

Julian Brüggemann, David Mosquera-Lois, Nicholas A. Scoville, “A Lusternik–Schnirelmann theorem using collapsible covers,” *in preparation*

Nicholas A. Scoville, “The complex of discrete Morse matchings of the n -simplex: homotopy types and structural results,” *submitted*

Gregory Lupton, Nicholas A. Scoville, P. Christopher Staecker, “The Face Group of a Simplicial Complex,” *submitted*

Dominic Klyve and Nicholas A. Scoville, “Summation graphs and discrete Morse theory,” *submitted*

Nikola Milićević, Nicholas A. Scoville, “A McCord-type theorem for pseudotopological spaces and directed graphs,” *Journal of Applied and Computational Topology*, 10, 14 (2026). <https://doi.org/10.1007/s41468-026-00246-y>

Kevin P. Knudson, Nicholas A. Scoville, “Discrete Morse theory for open complexes,” *Topology and its Applications*, Volume 388, 2026, 109867, ISSN 0166-8641, <https://doi.org/10.1016/j.topol.2026.109867>

Julian Brüggemann and Nicholas A. Scoville, “On cycles and merge trees,” *Journal of Pure and Applied Algebra*, Volume 229, Issue 7, July 2025, 107967

Gregory Lupton, Oleg Musin, Nicholas A. Scoville, P. Christopher Staecker, Jonathan Treviño-Marroquin, “A Second Homotopy Group for Digital Images,” *Journal of Algebraic Combinatorics* (2024). <https://doi.org/10.1007/s10801-024-01352-9>

Connor Donovan and Nicholas A. Scoville, “Star clusters in the Matching, Morse, and Generalized complex of discrete Morse functions,” *New York J. Math.*, 29 (2023) 13931412.

Nicholas A. Scoville, “The Closure Operation as the Foundation of Topology: A Mini-Primary Source Project for Topology Students,” *Convergence* (June 2023)

Gregory Lupton, John Oprea, and Nicholas A. Scoville, “The digital Hopf construction,” *Topology and its applications*, 2023, 108405, ISSN 0166-8641, <https://doi.org/10.1016/j.topol.2022.108405>.

Benjamin Johnson and Nicholas A. Scoville, “Merge trees in discrete Morse theory,” *Research in the Mathematical Sciences* 9, 49 (2022). <https://doi.org/10.1007/s40687-022-00347-x>

Gregory Lupton and Nicholas A. Scoville, “Digital Fundamental Groups and Edge Groups of Clique Complexes,” *Journal of Applied and Computational Topology*, (2022). <https://doi.org/10.1007/s41468-022-00095-5>

Desamparados Fernandez-Ternero, Enrique Macias-Virgos, David Mosquera-Lois, Nicholas A. Scoville, and Jose-Antonio Vilches, “Fundamental Theorems of Morse theory on posets,” *AIMS Mathematics* 2022, Volume 7, Issue 8: 14922-14945. doi: 10.3934/math.2022818

Gregory Lupton, John Oprea, and Nicholas A. Scoville, “Subdivision of Maps of Digital Images,” *Discrete and Computational geometry*, 67, 698742 (2022). <https://doi.org/10.1007/s00454-021-00350-z>

Nicholas A. Scoville and Matthew C. B. Zaremsky, “Higher connectivity of the Morse complex,” *Proceedings of the AMS Series B*, 9 (2022), 135149.

Connor Donovan, Maxwell Lin, and Nicholas A. Scoville, “On the homotopy and strong homotopy type of complexes of discrete Morse functions,” *Canadian Mathematical Bulletin*, 1-19, 2022, doi:10.4153/S0008439522000121

Gregory Lupton, John Oprea, and Nicholas A. Scoville, “Homotopy Theory in Digital Topology,” *Discrete and Computational geometry*, 67 (2022), no. 1, 112165, doi.org/10.1007/s00454-021-00336-x

Maxwell Lin and Nicholas A. Scoville, “On the automorphism group of the Morse complex,” *Advances in Applied Mathematics*, Volume 131, October 2021, 102250

Gregory Lupton, John Oprea, and Nicholas A. Scoville, “A Fundamental Group for Digital Images,” *Journal of Applied and Computational Topology*, 5 (2021), no. 2, 249311.

Nicholas A. Scoville, “Topology from Analysis: A Mini-Primary Source Project for Topology Students,” *Convergence* (June 2020)

Desamparados Fernandez-Ternero, Enrique Macias-Virgos, Nicholas A. Scoville, and Jose-Antonio Vilches, “Strong discrete Morse theory and simplicial LusternikSchnirelmann category: A discrete version of the Lusternik-Schnirelmann Theorem,” *Discrete and Computational Geometry*, 63 (2020), no. 3, 607623.

Ian Rand and Nicholas A. Scoville, “Discrete Morse functions, vector fields, and homological sequences on trees,” *Involve, A Journal of Mathematics* Involve, a Journal of Mathematics 13-2 (2020), 219–229. DOI 10.2140/involve.2020.13.219

Yuqing Liu and Nicholas A. Scoville, “The realization problem for discrete Morse functions on trees,” *Algebra Colloquium*, **27** : 3 (2020) 455–468 DOI: 10.1142/S1005386720000371

Nicholas A. Scoville, “The Cantor Set Before Cantor: A Mini-Primary Source Project for Analysis and Topology Students,” *Convergence* (May 2019)

Mike Agiorgousis, Brian Green, Alex Onderdonk, Nicholas A. Scoville, and Kim Rich, “Homological sequences in discrete Morse theory,” *Topology Proceedings*, 54 (2019) 283–294

Colin Adams, Allison Henrich, Kate Kearney and Nicholas A. Scoville, “Knots Related by Knotoids,” *American Mathematical Monthly* Volume 126, 2019 - Issue 6, 483–490

Nicholas A. Scoville and Karthik Yegnesh “A Persistent Homological Analysis of Network Data Flow Malfunctions,” *Journal of Complex Networks*, Issue 6, 1 December 2017, Pages 884-892

Nicholas A. Scoville, “Connecting Connectedness: A Mini-Primary Source Project for Topology Students,” *Convergence* (October 2017)

Nicholas A. Scoville and Willie Swei “On the Lusternik–Schnirelmann category of a simplicial map,” *Topology and its applications* 216 (2017), 116–128

Brian Green, Nicholas A. Scoville, and Mimi Tsuruga, “Estimating the discrete Lusternik–Schnirelmann category,” *Topological Methods in Nonlinear Analysis*, 45, No. 1 (2015), 103–116

Akshaye Dhawan, Michelle Tanco, and Nicholas A. Scoville, “A Distributed Greedy Algorithm for Constructing Connected Dominating Sets in Wireless Sensor Networks,” SENSORNETS, Lisbon, Portugal January 2014

Nicholas A. Scoville, “Metric Structures for CW Complexes,” *Topology Proceedings*, 44 (2014) 117–131

Seth Aaronson, Marie Meyer, Nicholas A. Scoville, Mitchell T. Smith, and Laura Stibich, “Graph Isomorphisms in discrete Morse theory,” *AKCE Int. J. Graphs Comb.*, 11, No. 2 (2014), 163–176

Seth Aaronson and Nicholas A. Scoville, “Lusternik–Schnirelmann category for cell complexes,” *Illinois J. of Mathematics*, 57, No. 3 (2013), 743–753

Nicholas A. Scoville, “Georg Cantor at the Dawn of Point-Set Topology,” *Loci*, (March 2012), DOI: 10.4169/loci003861

Nicholas A. Scoville, “Lusternik–Schnirelmann Category and the Connectivity of X ,” *Algebraic & Geometric Topology*, 12 (2012) 435–448

Nicholas A. Scoville, “Mapping Cone Sequences and a Generalized Notion of Cone Length,” *JP Journal of Geo. and Top.*, 11(2011), Issue 3, 209–233

Nicholas A. Scoville, “A Metric for Homotopy Types,” Ph.D. Thesis, Dartmouth College, Spring 2010

Rob Nendorf, Nicholas A. Scoville, Jeff Strom, “Categorical Sequences,” *Algebraic & Geometric Topology*, 6 (2006) 809–838

BOOKS

Abstract Algebra or There and Back Again: A Polynomial’s Tale, Princeton University Press
(to appear)

Teaching and Learning with Primary Source Projects, editor with Janet Barnett and David K. Ruch, AMS/MAA Press, 2023

Discrete Morse theory, AMS/MAA Press, 2019

Student Mathematical Library series

BOOK CHAPTERS

Nicholas A. Scoville, “Sometimes when your hopes have all been shattered,” *Living Proof: Stories of resilience along the mathematical journey*, Edited by Henrich et al., AMS/MAA Press, 2019

ARTICLES

Nicholas A. Scoville, “Course on Mathematics for Human Flourishing” *MAA FOCUS* February/March 2023

BOOK REVIEWS

Nicholas A. Scoville, “A Brief Quadrivium” by Peter Ulrickson, *The American Mathematical Monthly* Volume 131, 2024 - Issue 6

Nicholas A. Scoville, “Never a dull moment: Hassler Whitney, Mathematics Pioneer” by Keith Kendig, *The American Mathematical Monthly* Volume 126, 2019 - Issue 9

HONORS AND AWARDS

Collaborative Research: AF: New Frontiers of Discrete Morse Theory for
Scientific Data Analysis and Machine Learning

NSF Future Core

with Henry Adams, Aurora Clark,

Kevin Knudson, and Bei Wang

(submitted)

AMS-Simons Research Enhancement Grants for PUI Faculty (\$9,000)

July 2023-June 2026

Laughlin Professional Achievement Award

for distinguished service to Ursinus college through significant contribution to scholarship

May 2023

Paul R. Halmos-Lester R. Ford Award

for article of expository excellence published in *The American Mathematical Monthly*

August 2020

REU SITE: Exploration and Professional

Excellence in the Mathematical Sciences

NSF Grant 1851948 (\$225,469), Principal Investigator

April 2020- March 2023

Western Michigan University

Department of Mathematics Alumni Achievement Award

For contributions to mathematics education and research

October 2018

Collaborative Research: RUI: Transforming Instruction
in Undergraduate Mathematics via Primary History Sources
NSF IUSE Grant 1524065 (\$71,002)
PIs at Colorado State, Central Washington, NMSU, Xavier,
U Colorado, Denver, U Florida

Aug. 2015- Sept. 2020

Best oral presentation at HTCA conference in Genoa, Italy
sponsored by Gruppo Italiano Ricercatori in Pattern Recognition.

February 2015

Mellon travel grant

July 2013

Mellon travel grant

May 2012

Project NExT Fellow

Aug. 2010 – Aug. 2011

GRADUATE STUDENT MENTORING

PhD thesis committee for Darryl Jent
“Reduced Product Type Monoid-Module Extension”
Western Michigan University,

May 2026

Served on PhD thesis committee for David Mosquera Lois
“Morse Theory on Finite Spaces”
University of Santiago de Compostela,

February 2022

Served on MA math thesis committee for Marwa Mosallam
“On cup-products of cofibers of maps between Moore spaces,
Hopf invariant, and Lusternik–Schnirelmann category”
Western Michigan University,

July 2021

Served on PhD thesis committee for Francisco Belchi Guillamon
“ A_∞ -persistence”
University of Malaga,

December 2015

TEACHING EXPERIENCE

Ursinus College,

Math 400: Mathematics for Human Flourishing
Math 335: Abstract Algebra
Math 491: Algebraic Topology
Math 451: Discrete Morse Theory
Math 361: Graph Theory
CIE 100: Common Intellectual Experience
Math 421: Topology
Math 211: Multivariable calculus
Math 235: Linear Algebra
Math 10: Problem Solving
Math 322: Geometry
Math 341: Probability
Math343: Math for Data
Math 236W: Discrete Mathematics
Stat 141Q: Statistics I
Math 111: Calculus I
Math 112: Calculus II

Adjunct instructor, Regina Luminis Academy

Aristotelian Logic
Philosophy of nature
Calculus
Scholastic metaphysics
Medieval philosophy
Physics
Quadrivium

Adjunct Professor, Faulkner University

Math 1312: Mathematics

Spring 2015

Other teaching experience,

Teaching Assistant: Dartmouth College

Summer 2009

Instructor: Dartmouth College

2007-2009

Teaching Assistant: Dartmouth College

2005-2007

Instructor: Western Michigan University

2003-2005

Undergraduate Teaching Assistant: Western Michigan University

2002-2003

INDEPENDENT STUDIES

Ursinus College

Metrics on the Morse complex, Nathaniel Nerone
 Graph theory, Joshua Brown
 Category theory, Tony Delgado
 Star clusters and homotopy type, Connor Donovan
 Cohomology, Connor Donovan
 Category theory, Tony Delgado
 Discrete Morse theory and knots, Connor Donovan
 Discrete Morse theory, Elvi Sopiqoti
 Discrete plates and Olives, Matthew Furgele
 Analyzing heart data, Ben Minardi
 Algebraic topology, Nick Tulio

Spring 2026
 Spring 2026
 Spring 2023
 Fall 2022
 Fall 2022
 Fall 2022
 Spring 2021
 Spring 2020
 Spring 2020
 Spring 2019
 Spring 2019

Strong collapsibility and the Morse complex, Max Lin	Spring 2019
Group of strong self-homotopy equivalences, Vince Sergi, Ryan Quick	Spring 2019
Boolean functions, Ryan Quick	Fall 2018
Algebraic topology, Jason Bennett	Fall 2018
Generating Discrete Morse Functions from Point Data, Ashlyn Welch	Spring 2018
Random discrete Morse theory, Nikolai Peralta	Spring 2018
Homotopy theory, Karthik Yegnesh	Fall 2016 Spring 2017, Fall 2017, Spring 2018
Topology, Ian Rand	Spring 2017
Discrete Morse theory and Persistent homology, Yuqing Liu	Spring 2017
Random discrete Morse theory, Nikolai Peralta, Chase Babrich	Fall 2016, Spring 2017
Algebraic topology, Matan Peleg	Fall 2016, Spring 2017
Category theory, Michael Vennettilli	Spring 2015
Multiplication in discrete Morse theory, Rose Blanchard	Spring 2015
Number theoretic notions in discrete Morse theory, Ian Rand	Spring 2015
Discrete Morse theory, Tyler Helms	Fall 2014
Estimating the discrete LS category, Brian Green	Fall 2013
Homology and Cohomology, Seth Aaronson, Brian Green, Michelle Tanco	Spring 2013
Discrete LS category, Seth Aaronson	Spring 2013
Counting discrete Morse functions, Seth Aaronson	Spring 2012
Lie Groups, Brian Green	Spring 2012
Discrete Morse Theory, Mike Agiorgousis	Spring 2012
Markov Chains, Jayant Velagala	Spring 2012
Probability, Jayant Velagala	Fall 2011
Knot Theory, Will Molden	Fall 2011
Discrete Morse Theory, Seth Aaronson	Spring 2011

STUDENT POSTERS AND PRESENTATIONS

Jose Arbelo, Tony Delgado, Charley Kirk, Zach Schlamowitz “ <i>The Dope metric is SIC: A stable, informative, and computable metric on time series</i> ,” Mathfest, Philadelphia, Pennsylvania	August 2022
Connor Donovan “ <i>Towards the homotopy type of the Morse complex</i> ,” Exploring Innovation in Appalachia, (virtual), won third place in the math/physics/astronomy category,	August 2021
Connor Donovan “ <i>Towards the homotopy type of the Morse complex</i> ,” Mathfest, (virtual)	August 2021
Benjamin Johnson “ <i>Merge trees in discrete Morse theory</i> ,” Mathfest, Cincinnati, Ohio	August 2019
Yuqing Liu “ <i>Persistence equivalence of discrete Morse functions on trees</i> ,” Mathfest, Denver, Colorado	August 2018
Karthik Yegnesh “ <i>Families of Objects in Categories and Elementary Topoi</i> ,” AMS/MAA Joint Math Meetings, Atlanta, Georgia	January 2017
Karthik Yegnesh “ <i>Cosheaf theoretical constructions in networks and persistent homology</i> ,” 68 th annual Delaware Valley Science Fair, Oaks, Pennsylvania (won “first place” in Mathematics)	March 2016

Karthik Yegnesh " <i>Cosheaf theoretical constructions in networks and persistent homology</i> ," 59 th annual Montgomery County Science Research Competition, Collegeville, Pennsylvania (won "first place" in math category)	March 2016
Matt Belle " <i>Arboricity</i> ," AMS/MAA Joint Math Meetings, Baltimore, Maryland	January 2014
Brian Green " <i>Estimating the discrete Lusternik–Schnirelmann category</i> ," AMS/MAA Joint Math Meetings, Baltimore, Maryland	January 2014
Seth Aaronson " <i>Lusternik–Schnirelmann category for cell complexes</i> ," AMS/MAA Joint Math Meetings, San Diego, California	January 2013
Mike Agiorgousis, Brian Green, and Alex Onderdonk " <i>Discrete Morse Functions and Homology</i> ," AMS/MAA Joint Math Meetings, San Diego, California (won "Outstanding Presentation" award)	January 2013
Mike Agiorgousis, Brian Green, and Alex Onderdonk " <i>Discrete Morse Functions and Homology</i> ," Undergraduate Science Research Symposium, Haverford College	September 2012
Mike Agiorgousis, Brian Green, and Alex Onderdonk " <i>Discrete Morse Functions and Homology</i> ," Mathfest, Madison, Wisconsin	August 2012
Mike Agiorgousis, Brian Green, Alex Onderdonk, and Kim Rich " <i>Discrete Morse Functions and Homology</i> ," <i>Disappearing Boundaries Summer Research Meeting, Lebanon Valley College</i>	July 2012
Seth Aaronson and Marie Meyer, " <i>Graph Isomorphisms in Discrete Morse Theory</i> ," <i>AMS/MAA Joint Meetings, Boston, MA</i>	January 2012

INVITED PRESENTATIONS (past 10 years) —————

<i>Discrete Morse Theory for Open Complexes (plenary lecture)</i> II Conference on Algebraic Topology and Related Topics, University of Santiago de Compostela	July, 2026
<i>Perfect discrete Morse matchings on VR complexes: a preliminary report</i> TDA: theory and applications, AMS Southeastern Sectional Meeting, Southern Georgia University Armstrong campus	March, 2026
<i>A McCord theorem for Cech closure spaces</i> Dioscuri Centre in TDA Basic Notions and Applied Topology seminar, Warsaw Poland	February, 2026
<i>Discrete Morse theory for open simplicial complexes</i> AMS/MAA Joint Meetings, Washington DC	January, 2026
<i>Discrete Morse theory as an introduction to topology</i> The College of New Jersey undergraduate seminar	October, 2025
<i>Discrete Morse theory: Introduction and research directions</i> AATRC Topological Complexity Virtual Seminar	July, 2025
<i>Discrete Morse theory for open simplicial complexes</i> AMS-UMI Joint Math meetings, Palermo University	July, 2024
<i>Discrete Morse theory as an introduction to topology</i> Towson University undergraduate conference, Plenary talk	April, 2024

<i>Tools of discrete Morse theory</i>	February, 2024
Applied and Combinatorial topology workshop, Dagstuhl Germany	
<i>A McCord theorem for closure spaces</i>	October, 2023
Topology seminar, Notre Dame University	
<i>The Moore Method, Flatland, and alternate topology axioms</i>	July, 2023
Innovative Pedagogy in Geometry and Topology, Oberlin College	
<i>Discrete Morse theory as an introduction to topology</i>	July, 2023
Euler Circle	
<i>Discrete Morse theory as an introduction to topology</i>	April, 2023
University of Arizona undergraduate seminar	
<i>Towards a new digital homotopy theory</i>	March, 2023
Discrete homotopy workshop, American Institute of Mathematics, San Jose	
<i>Discrete Morse theory: three approaches</i>	October, 2022
Michael Penn math Patreon Seminar	
<i>Some recent results on the homotopy type of the Morse complex (semi-plenary lecture)</i>	July, 2022
Applied Topology in Bedlewo, Bedlwo Poland	
<i>The homotopy type of the Morse complex for some collections of trees</i>	April, 2022
Virtual AMS/MAA Joint Meetings	
<i>Towards a new digital homotopy theory</i>	December, 2021
Virtual University of Regina seminar	
<i>Discrete Morse theory as an introduction to topology</i>	November, 2021
Virtual Rutgers undergraduate seminar	
<i>Higher connectivity of the Morse complex</i>	January, 2021
Virtual AMS/MAA Joint Meetings	
<i>Discrete Morse theory as an introduction to topology</i>	March, 2020
Juniata College math colloquium	
<i>Towards a new digital homotopy theory</i>	February, 2020
University of Albany Geometry/Topology seminar	
<i>Digital topology: A smooth introduction</i>	November, 2019
Westminster College, Fulton Missouri	
<i>Towards a new digital homotopy theory</i>	November, 2019
University of Missouri Geometry/Topology seminar	
<i>Strong discrete Morse theory and an application to simplicial Lusternik–Schnirelmann category</i>	November, 2019
Topological Complexity and Related topics, AMS Southeastern Sectional Meeting, University of Florida	
<i>Towards a new digital homotopy theory</i>	May, 2019
Lehigh University Algebraic Topology seminar	
<i>Digital Topology: A smooth introduction</i>	October, 2018
Western Michigan University	

<i>Digital Topology: A smooth introduction</i> Colloquium, Elon University	March, 2018
S^1 and S^2 and S^3 , oh fy! A digital Hopf fibration Math Colloquium, Montana State University	January, 2018
S^1 and S^2 and S^3 , oh fy! A digital Hopf fibration Colloquium, Catholic University of America	November, 2017
<i>Digital Topology: A smooth introduction</i> Colloquium, Bard College	November, 2017
S^1 and S^2 and S^3 , oh fy! A digital Hopf fibration Colloquium, Dartmouth College	November, 2017
<i>Digital Topology: A smooth introduction</i> Colloquium, Seattle University	October, 2017
<i>Digital Topology: A smooth introduction</i> Colloquium, Central Washington University	October, 2017
<i>Simplicial Lusternik–Schnirelmann category and strong discrete Morse theory</i> Topology Seminar, University of Florida	October, 2017
S^1 and S^2 and S^3 , oh fy! A digital Hopf fibration Colloquium, University of Florida Colloquium	October, 2017
<i>Digital Topology: A smooth introduction</i> Math Club, Cleveland State University	September, 2017
<i>Towards a new digital homotopy theory</i> Colloquium, Cleveland State University	April 2017
<i>Collaborative Research: Transforming Instruction in Undergraduate Mathematics via Primary Historical (TRIUMPHS)</i> MAA Invited Paper Session on Research in Improving Undergraduate Mathematical Sciences Education Program, AMS/MAA Joint Meetings, Atlanta	January, 2017
<i>(Strong) discrete Morse theory as an introduction to topology</i> Colloquium, Butler University	September, 2016
<i>Georg Cantor at the dawn of point-set topology</i> Butler University	September, 2016
<i>Discrete Morse theory as an introduction to Topology</i> Colloquium, University of Sevilla	December, 2015
<i>Graph isomorphisms in discrete Morse theory</i> Colloquium, Lehigh University	October, 2015

WORKSHOPS RUN

<i>Open problems in discrete Morse theory</i>	September, 2023
---	-----------------

BIGS Young Researcher Networking: Meeting on Topology and Applications, Bonn Germany (invited workshop)	
<i>Discrete Morse theory: Breadth and depth</i>	July, 2022
Adam Mickiewicz University, Poznan Poland (invited workshop)	
<i>MAA Workshop: Teaching Undergraduate Mathematics via Primary Source Projects.</i>	January, 2020
AMS/MAA Joint Math Meetings, Denver Colorado	
<i>TRIUMPHS Graduate student training Workshop</i>	July 19-20, 2019
New Mexico State University	
<i>TRIUMPHS Training Workshop</i>	September 13-15, 2018
University of Colorado Denver	
<i>Teaching Undergraduate Mathematics via Primary Source Projects</i>	January 2018
AMS/MAA Joint Math Meetings, San Diego CA	
<i>Teaching Mathematics with Primary Historical Sources</i>	April 1, 2017
MAA EPADEL sectional meeting, Kutztown PA	
<i>TRIUMPHS Training Workshop</i>	September 8-10, 2016
University of Colorado Denver	
<i>Connecting Past to Present: An approach to teaching topology via original resources</i>	July, 2016
HPM 2016, Montpellier France	

SERVICE TO URSINUS COLLEGE

Chair, Department of Mathematics, Computer Science, and Statistics	Spring 2016-present
Search Committee, Department of Mathematics, Computer Science, and Statistics; Member every year since 2010 (Chair while serving as Department Chair)	2010-present
Academic Council; Member	2013-2018, 2023-2025
Academic Standards and Discipline; Member	2018-2020
Arts and Lecture Committee; Member	2025-present
Calculus Committee, Ursinus College; Member	August 2010-present
Statistics Committee, Ursinus College; Member	August 2010-present
Kappa Mu Epsilon Faculty Advisor	2014-present
Faculty Advisor, Ursinus MAA Student Chapter	2014-2016

Organizer for Ursinus College ϵ -talks	Fall 2010-Fall 2016
Senior Personnel, Ursinus College REU (NSF Grant No. DMS-1003972)	June 2012-August 2012
Senior Personnel, Ursinus College REU (NSF Grant No. DMS-1003972)	June 2011-August 2011

PROFESSIONAL SERVICE

Founding Editorial Board Member, Incepta Mathematica	May 2026 - present
Scientific Committee, II Conference on Algebraic Topology and Related Topics Universidade de Santiago de Compostela	July 2026
Served on MAA panel “Designing and Running Effective Undergraduate Research Programs” Joint Math Meetings, Washington DC	January 2026
MAA Dolciani Mathematical Expositions , editorial board	January 2024-present
Referee for several journals	2013-present
Scientific Committee, Conference on Algebraic Topology and Related Topics Universidade de Santiago de Compostela	April 2025
Organized Special Session “Applied and computational topology” with Kate Turner, Joint Meeting of the NZMS, AustMS and AMS, University of Auckland, New Zealand	December 2024
Reviewer for MathSciNet Mathematical Reviews	February 2015-January 2024
Reviewer for mathematical publication database Zentralblatt	August 2012-January 2024
Focus Magazine, editorial board	November 2017-2022
Member of NSF’s College of Reviewers for Undergraduate Education	2018-2021
Served on virtual panel “Teaching and the Liberal Arts” University of Tennessee, Knoxville	April 2020
Served on MAA Basic Library List Committee	January 2017-January 2020

Book reviewer for online MAA book reviews	2014-2020
Scientific Committee, ESU8, Oslo Norway	July 2018
Scientific Committee, ICART 2018, Rabat Morocco	July 2018
Organized Special Session “AMS Special Session on Open & Accessible Problems for Undergraduate Research, ” with Allison Henrich and Michael Dorff at AMS/MAA Joint Math Meetings	January 2018
Served on NSF panel review	2016, 2017, 2018
CUR Councilor in the Mathematics and Computer Sciences Division	2014-2017
Organized Special Session “AMS Special Session on Open & Accessible Problems for Undergraduate Research, ” with Allison Henrich and Michael Dorff at AMS/MAA Joint Math Meetings	January 2017
Served on panel “The Research and Teaching Pendulum: Finding a Stable Equilibrium” at AMS/MAA Joint Math Meetings	January 2017
Organized Special Session “Applied and Computational Topology, ” with Matthew Wright and Paweł Dłotko at AMS/MAA Joint Math Meetings	January 2016
Organized panel “Finding a thesis topic and advisor, ” at AMS/MAA Joint Math Meetings	January 2016
Reviewed applications for Posters on the Hill	Fall 2015
Treasurer for YMN (Young Mathematicians Network)	2010-2015
Organized panel “Graduate school: Choosing one, getting in, staying in, ” at AMS/MAA Joint Math Meetings	January 2015
Reviewed applications for Posters on the Hill	Fall 2014
Served on panel “You published your dissertation: now what?” at AMS/MAA Joint Math Meetings	January 2013
Organized panel “The on-campus interview survival guide” at AMS/MAA Joint Math Meetings	January 2013

Organized Panel “Hit the Ground Running! Interview like a Pro and land the job” at AMS/MAA Joint Math Meetings	January 2012
Judge for MAA Student Paper Session 3, MathFest	August 2011
Judge of research abstracts for Young Mathematicians Network Conference applicants	July 2011
Judge for MAA Student Poster Session, Joint Mathematics Meetings	January 2011
Judge for MAA Student Paper Session 11, MathFest	August 2010
Reader/Reviewer for “Introduction to Homotopy Theory” by Martin Arkowitz	2007-2008
Student Seminar Organizer	2004-2005
WMU Pi Mu Epsilon Graduate Representative	2003-2005
Grader	Summer 2004, Summer 2003

ADDITIONAL ACTIVITIES

<i>Equipment manager</i> RLA Cross Country and Track Berwyn, PA	August 2024-present
Tutor for Critical Point Test Prep Berwyn, PA	Fall 2020-Fall 2022
Director of Religious Education Sacred Heart Parish, Royersford PA.	Fall 2019-Fall 2023
Second Grade PREP Teacher Taught hour-long once weekly religious formation/catechism class to second grade students at Sacred Heart Parish, Royersford PA.	Fall 2016-Spring 2019
First Grade PREP Teacher Taught hour-long once weekly religious formation/catechism class to first grade students at Sacred Heart Parish, Royersford PA.	Fall 2015-Spring 2016
Fourth Grade PREP Teacher Taught hour-long once weekly religious formation/catechism class to fourth grade students at Sacred Heart Parish, Royersford PA.	Fall 2014-Spring 2015
Ursinus College Newman Society Faculty Advisor	Fall 2011-present
Sixth Grade PREP Teacher	Fall 2011-Spring 2014

Taught hour-long once weekly religious formation/catechism class to sixth grade students at Sacred Heart Parish, Royersford PA.

Sixth Grade Religious Education Teacher

Fall 2010-Spring 2011

Taught hour-long once weekly religious formation/catechism class to sixth grade students at St. Norbert Parish, Paoli PA.

Seventh Grade Religious Education Teacher

Fall 2009-Spring 2010

Taught hour-long once weekly religious formation/catechism class to seventh grade students at St. Denis Parish, Hanover NH.

Youth Group Leader at St. Denis Parish

Fall 2008-Spring 2009

Gave lectures, organized activities, participated in service projects

Completed Level 19 on high speed in *Dr Mario*

January 2022

Dr. Mario, Nintendo Entertainment System, 1990

Beat *Silver Surfer*

September 2011

Finished NES game *Silver Surfer* (Arcadia Systems, 1990), considered by many to be the most difficult game in NES history.

Contra Speedrun

Fall 2008

Defeated NES video game Contra in 11 minutes and 4 seconds without cheats or turbos, Hanover NH