

CONTACT INFORMATION

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RESEARCH INTERESTS

C*- and operator algebraic dynamical systems, representation theory for non-self-adjoint operator algebras, C*-algebras from symbolic dynamics, and quantum information theory.

ACADEMIC APPOINTMENTS

Associate Professor of Mathematics (with Tenure) <i>Department of Mathematics, Embry-Riddle Aeronautical University</i>	April 2025 – August 2025
Assistant Professor of Mathematics <i>Department of Mathematics, Embry-Riddle Aeronautical University</i>	August 2019 – April 2025
Graduate Teaching Assistant <i>Department of Mathematics, University of Nebraska-Lincoln</i>	August 2013 – May 2019

EDUCATION

University of Nebraska-Lincoln, Lincoln, Nebraska USA

Ph.D. in Mathematics, May 2019
 • Advisor: Professor Allan Donsig
 M.S. in Mathematics, May 2015

Youngstown State University, Youngstown, Ohio USA

B.S. in Mathematics, May 2013.
 • Graduated Summa Cum Laude with a minor in Physics

PREPRINTS AND PEER-REVIEWED PUBLICATIONS

- [1] A. Askew, E. Babcock, M. Hamidi, L. Ismert, I. Joy, and H. Murray, *Classifying Quantum Edge Correspondences on $M_2(\mathbb{C})$* . In preparation. (2025).
- [2] M. Hamidi, L. Ismert, and B. Nelson, *Simplicity of Cuntz–Pimsner algebras of quantum graphs*. Accepted. To appear in **Bull. London Math. Soc.** (2025).
- [3] M. Hamidi, *Admissibility of C^* -covers for operator algebra dynamical systems*, Accepted. To appear in **J. Operator Theory** (2024).
- [4] E. Babcock, D. Brindle, M. Hamidi, and L. Ismert, *Matricial Frameworks for the Mandelbrot and Filled Julia Sets*, **Ball State Math. Exch.**, Vol. 17, No. 1(2023).
- [5] M. Brannan, M. Hamidi, L. Ismert, B. Nelson, and M. Wasilewski, *Quantum edge correspondences and quantum Cuntz–Krieger algebras*. **J. London Math. Soc.**, 107(2022): 886-913.
<https://doi.org/10.1112/jlms.12702>
- [6] Hamidi, M., *Admissibility of C^* -Covers and Crossed Products of Operator Algebras* (2019), ETD collection for University of Nebraska - Lincoln. AAI13862046.
- [7] N. Wakefield, K. Uhing, M. Hamidi, *Building Long-Term Support for Faculty through Graduate Student Instructor Professional Development*. W. M. Smith, B. R. Lawler, J.F.Strayer, L. Augustyn (Eds.). (2018). **Proceedings of the Sixth Annual Mathematics Teacher Education Partnership conference**. Washington, DC: Association of Public Land-grant Universities.

GRANTS, FELLOWSHIPS, AND AWARDS

- (1) **Collaborate@ICERM Program:** *A Construction of Quantum Error-Correcting Codes from Classical Quasi-Cyclic Locally Recoverable Codes.* (June 2025)
- (2) **Best Canvas Course Award – Prescott Campus:** *Annual award presented by the Center for Teaching and Learning Excellence based on student nominations.* (2023-2024)
- (3) **NSF Grant - DMS-2154557:** *Conference Grant - Young Mathematicians in C*-Algebras 2022.* Co-PI (with PI L. Ismert). (2022-2023, \$49,985)
- (4) **FIRST Grant:** *Faculty Innovative Research in Science Technology (FIRST) internal faculty research grant.* PI (with co-PI L. Ismert). (2022-2023, \$12,308)
- (5) **FRDP Award:** *Faculty Research Development Program (FRDP) internal faculty award.* (2021-2022, \$1,000)
- (6) **Arizona Space Grant:** *Competitive, NASA-sponsored award to support undergraduate intern research.* Co-advised with L. Ismert. (2020-2021, \$4,000)
- (7) **MAA Project NExT Fellowship:** Brown '20 Cohort. (2020-2021)
- (8) **NSF Travel Award to Young Mathematicians in C*-Algebras International Conference.** (2018, 2019)
- (9) **Don Miller Outstanding GTA Award:** *Annual department award given to one experienced GTA.* (2018-2019, \$750)
- (10) **Lloyd Jackson Emeritus Faculty Fellowship:** *Department fellowship given each academic year to support graduate student research.* (2015-2019, \$750)
- (11) **Certificate of Recognition for Contributions to Students, UNL Parents Association:** *Annual university-wide award recognizing faculty and staff who have made a significant difference in students' lives based on nominations by parents.* (2014, 2017, 2019)
- (12) **Othmer Fellowship:** *A highly competitive university-wide fellowship that provides additional support of \$8000 per year for three years.* (2013-2016, \$24,000)
- (13) **Outstanding Student in Mathematics and Statistics Award:** *Annual department award given to one mathematics major that demonstrates an outstanding academic record.* (2012-2013, \$100)

INVITED RESEARCH TALKS AND COLLOQUIA

- (1) **AMS Spring Central Sectional Meeting:** Special Session on Advances in Operator Algebras, Lawrence, KS, March 29, 2025.
- (2) **Joint Mathematics Meetings:** Special Session on Advances in Operator Algebras, Seattle, WA, January, 10 2025.
- (3) **Michigan State University:** Mathematical Physics and Operator Algebras Seminar, October 29, 2024.
- (4) **Exchange of Mathematical Ideas Conference 2024:** Prescott, AZ, August 12, 2024.
- (5) **St. Johns University - NYC:** Noncommutative Geometry in NYC Seminar (virtual), April 17, 2024.
- (6) **University of Nebraska–Lincoln:** Nebraska-Iowa Functional Analysis Seminar, *Distinguishing between quantum Cuntz-Krieger and local quantum Cuntz-Krieger algebras*, March 25, 2023.
- (7) **Purdue University:** Operator Algebras Seminar (virtual), *Quantum edge spaces and C*-algebras associated to quantum graphs*, February 21, 2023.
- (8) **University of Waterloo:** Analysis Seminar, *Dynamical Extensions and Crossed Products*, May 12, 2022.
- (9) **Joint Mathematics Meetings:** Special Session on Advances in Operator Algebras (virtual), *The Quantum Cuntz-Krieger Algebra and Edge Correspondence of a Quantum Graph*, April 9, 2022.
- (10) **Brazos Analysis Seminar:** Semi-annual seminar series supported by Baylor, Texas A&M, TCU, Houston, and UT-Tyler (virtual), *Non-Self-Adjoint Crossed Products as Subalgebras of C*-Crossed Products*, November 13, 2021.
- (11) **Northern Arizona University:** Mathematics and Statistics Department Colloquium, *Topological Dynamics: An Operator Algebraic Approach*, September 7, 2021.

- (12) **Arizona State University:** ASU C*-Seminar (virtual), *An Introduction to Non-Self-Adjoint Crossed Products*, April 7, 2021.
- (13) **Michigan State University:** Mathematical Physics and Operator Algebras Seminar (virtual), *Crossed Products of Operator Algebras: A Tool for Noncommutative (Topological) Dynamics*, November 16, 2020.
- (14) **University of Nevada, Reno:** Department of Mathematics & Statistics Colloquium (virtual), *Crossed Products of Operator Algebras: A Tool for Noncommutative Dynamics*, October 8, 2020.

INVITED MINICOURSES & WORKSHOPS

- (1) **Purdue University:** Groundwork for Operator Algebras Lecture Series (GOALS) minicourse led on *Completely positive maps on C^* -algebras and an introduction to non-self-adjoint operator algebras and operator systems*, June 2023.

CONTRIBUTED TALKS

- (1) **Joint Mathematics Meetings**, Denver, CO: *Rigidity of Crossed Products Arising from \mathbb{Z} Acting on the Disc Algebra*, January 15, 2021.
- (2) **Joint Mathematics Meetings**, Baltimore, MD: *Admissibility of C^* -Covers and Crossed Products of Operator Algebras*, January 18, 2019.
- (3) **Nebraska-Wesleyan University:** *The Earth is Not Flat, or: Studying Continuous Functions on Manifolds*, October 26, 2017.

LOCAL SEMINAR PRESENTATIONS

ASUERAU C*-Seminar

A View to a Cuntz-Pimsner Algebra, September 7, 2022.

UNL Operator Algebras Seminar

Structure of C^ -Covers*, 2 talks, Fall 2018

Extending Dynamics from the Disc Algebra to the Toeplitz Algebra, 2 talks, Spring 2018

Admissibility of Dynamical Systems, Fall 2017

Crossed Products of Non-Self-Adjoint Operator Algebras, 2 talks, Fall 2016

Semi-Crossed Products, 2 talks, Spring 2016

Crossed Products of C^ -Correspondences by Amenable Group Actions*, Fall 2015

An Introduction to C^ -Correspondences and Cuntz-Pimsner Algebras*, 2 talks, Fall 2015

The Russo-Dye Theorem for C^ -Algebras*, January 21, 2015.

UNL Operator Theory Reading Seminar

An Introduction to Operator Algebras & Operator Theory, Fall 2018

Construction of Group C^ -Algebras & Examples*, 2 talks, Spring 2017

The Gelfand-Naimark Theorem & Its Applications, Fall 2016

C^ -Algebras Generated by Isometries Part II: Cuntz Algebras*, 2 talks, Fall 2016

Graph C^ -Algebras & Their Uniqueness Theorems*, 2 talks, Spring 2016

Spectral Theorem for Compact Normal Operators & Its Applications, Fall 2015

Introduction to von Neumann Algebras & the Bi-commutant Theorem, Spring 2014

Isometries & the Wold-von Neumann Decomposition, Spring 2014

UNL Graduate Student Seminar

Representation Theory by Way of C^ -Algebras*, January 7, 2019.

The Basics of Building a (Personal) Website, March 30, 2015.

CONFERENCES & SEMINARS CO-ORGANIZED

- (1) **Special Session on Quantum Theory and Operator Algebras:** AMS Spring 2025 Central Sectional Meeting at University of Kansas in Lawrence, KS, March 29-30, 2025.
- (2) **ASUERAU C*-Seminar:** Weekly research seminar hosted virtually and in-person at Arizona State University. (Co-organized with L. Ismert, S. Kaliszewski, J. Quigg, and J. Spielberg.) Fall 2021-Present.
- (3) **Arizona Women's Symposium in Mathematics (AWSiM),** November 5-6, 2022.
- (4) **Young Mathematicians in C*-Algebras 2022:** Annual international conference supporting junior researchers in operator algebras held at University of Oslo. August 8-12, 2022.
- (5) **ERAU Math Department Colloquium,** Fall 2021 & 2024.
- (6) **Nebraska Conference for Undergraduate Women in Mathematics (NCUWM),** January 25-27, 2019.
- (7) **UNL Operator Theory Reading Seminar,** Fall 2018.
- (8) **UNL Department of Mathematics Graduate Student Seminar,** 2014-2015.

OTHER CONFERENCES/WORKSHOPS ATTENDED

AMS Sectional Meetings

<i>Fall Western Sectional at UC-Riverside in Riverside, CA</i>	November 9–10, 2019
<i>Spring Central Sectional at North Dakota State University in Fargo, ND</i>	April 16–17, 2016

Canadian Operator Symposium (COSy)

<i>Hosted online by University of Guelph in Guelph, Ontario</i>	May 31–June 4, 2021
<i>Hosted online by the Fields Institute in Toronto, Ontario</i>	May 25–29, 2020

IEEE Workshop on Combinatorial Enumeration & Applications

<i>Hosted at Embry-Riddle Aeronautical University in Prescott, AZ</i>	August 19–20, 2022
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Iowa-Nebraska Functional Analysis Seminar (INFAS)

<i>At University of Nebraska-Lincoln in Lincoln, NE</i>	November 3, 2018
<i>Des Moines, IA</i>	November 11, 2017, November 5, 2016, April 19, 2014
<i>At Creighton University in Omaha, NE</i>	March 28, 2015

Joint Mathematics Meetings (JMM)

<i>Boston, MA</i>	January 4–7, 2023
<i>Hosted online</i>	January 6–10, 2021
<i>San Diego, CA</i>	January 10–13, 2018

Great Plains Operator Theory Symposium (GPOTS)

<i>Hosted online by Washington University in St. Louis, MO</i>	May 10–14, 2021
<i>At Miami University in Oxford, OH</i>	May 29–June 2, 2018
<i>At Texas Christian University in Fort Worth, TX</i>	May 22–26, 2017
<i>At University of Illinois Urbana-Champaign in Champaign, IL</i>	May 23–27, 2016

MAA Mathfest

<i>Hosted online</i>	August 4–7, 2021
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MAA Minicourse

<i>Interdisciplinary and Inclusive Modeling Across the Curriculum – hosted online at Mathfest</i>	August 5–6, 2021
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Mastery Grading Conference

<i>Hosted online at masterygrading.com</i>	June 5–6, 2020
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Operator Algebras Mentor Network: Mentorship Training Workshop

Mentorship training workshop focused on diversity, equity, and inclusion
Hosted online by the Operator Algebras Mentor Network – led by Dr. Chandra Erdman and Erin Brown

August 27, 2021

PIMS EDI Panel: Effective Allyship in STEM

Hosted online by Pacific Institute for the Mathematical Sciences (PIMS)

June 16, 2021

Project NExT Workshop

Hosted online during MAA MathFest

August 3–6, 2021

Hosted online during JMM

January 6, 2021

Hosted online

July 27–31, 2020

Rocky Mountain Mathematics Consortium (RMMC)

At University of Wyoming in Laramie, WY

June 1–5, 2015

Workshop at Institute for Pure and Applied Mathematics (IPAM) – An NSF Math Institute

Actions of Tensor Categories on C^ -Algebras – hosted online by UCLA*

January 21–28, 2021

Young Mathematicians in C^* -Algebras (YMC*A**)**

At University of Copenhagen in Copenhagen, DK

August 5–10, 2019

At KU Leuven in Leuven, BE

August 13–17, 2018

Young Women in C^* -Algebras (YWC*A**)**

At KU Leuven in Leuven, BE

August 11–12, 2018

Zagreb Workshop on Operator Theory

Hosted online

June 29–30, 2020

TEACHING EXPERIENCE AT EMBRY-RIDDLE AERONAUTICAL UNIVERSITY

MA 412 - Probability and Statistics	Fall 2022, 2023, & 2024
MA 399 - Special Topics: Intro to Linear Algebra for Quantum Information, <i>2 students</i>	Fall 2023
MA 399 - Special Topics: Intro to Quantum Information Theory, <i>10 students</i>	Fall 2023
MA 345 - Differential Equations and Matrix Methods	Fall 2021 & 2022, Spring 2023
MA 335 - Introduction to Linear and Abstract Algebra	Spring 2021 & 2022
MA 314 - Applied Linear Algebra and Statistics	Spring 2021, 2022, 2023, & 2025
MA 242 - Calculus and Analytical Geometry II	Fall 2019, 2020, & 2023, Spring 2020
MA 241 - Calculus and Analytical Geometry I	Fall 2019, 2020, & 2021
MA 225 - Introduction to Discrete Structures	Fall 2024 & Spring 2025
MA 112 - Applied Calculus for Aviation	Summer 2025

TEACHING EXPERIENCE AT UNIVERSITY OF NEBRASKA-LINCOLN

As Instructor of Record

MATH 807T - Using Math to Understand Our World*	Summer 2019
MATH 806T - Number Theory and Cryptology for Middle Level Teachers*	Summer 2015
MATH 800T - Mathematics as a Second Language for Middle Level Teachers*	Summer 2016

807T, 806T, and 800T are masters-level proof-writing courses for in-service K-12 teachers. These courses are offered as part of a larger masters degree and professional development program designed to enhance science and math teachers' ability to offer their students challenging courses and curricula.

MATH 314 - Linear Algebra Summer 2017, Spring 2017

MATH 301 - Geometry Matters Spring 2016

300 and 301 are courses designed for pre-service elementary school teachers to deepen their conceptual understanding of the core mathematical concepts they will introduce in their own classrooms. Both courses are taught in tandem with a pedagogy course to enhance the development of connections between the mathematical and pedagogical concepts needed to be an effective teacher.

MATH 221 - Differential Equations	Spring 2019
MATH 208 - Calculus III (Multivariate & Vector Calculus)	Fall 2017
MATH 106 - Calculus I [<i>large lecture of ~100 students</i>]	Fall 2018, Fall 2016
MATH 104 - Business Calculus	Summer 2018
MATH 102 - Trigonometry	Spring 2015, Summer 2014
MATH 101 - College Algebra	Spring 2018
MATH 100A - Intermediate Algebra	Fall 2014

* *Indicates courses taught as co-instructor*

Special Appointments

Recitation Mentor	Fall 2017
<p><i>Selected to serve as mentor for first year graduate TAs with duties including observing and documenting the teaching of all graduate students leading calculus recitations.</i></p>	
WeBWorK and Workbook Programmer	Summer 2016, Summer 2015, Spring 2015
<p><i>Appointed to lead the ongoing initiative to develop code for student assessments in the open-source online homework system, WeBWorK. Reprogrammed and designed the department-wide mastery exams for all calculus and pre-calculus courses. Developed workbook randomization for active learning pre-calculus courses.</i></p>	

As a Teaching Assistant

MATH 447/847 - Numerical Linear Algebra	Spring 2019
MATH 325 - Elementary Analysis	Spring 2017
MATH 106 - Calculus I	Fall 2018, Fall 2016, Spring 2014, Fall 2013
MATH 104 - Business Calculus	Spring 2016

ADVISING AND MENTORING

Senior Capstones

- (1) Isaiah Joy, *Space Physics Major* (Graduated Spring 2025, Currently GTA at Arizona State). Project: *A Quantum Factoring Algorithm*.

Undergraduate Research Projects

- (1) Aiden Askew, Eric Babcock, Isaiah Joy, and Hailey Murray (Fall 2022–Spring 2023). Project: *Classification of quantum edge correspondences for quantum graphs over $M_2(\mathbb{C})$* . Funded by FIRST Grant. Co-advised with L. Ismert. Article in preparation.
- (2) Eric Babcock and Dawson Brindle (Fall 2020–Spring 2021). Project: *New Methods for Iterations and Visualizations of Julia Sets*. Funded by the Arizona Space Grant. Co-advised with L. Ismert. Published in *Ball State Math. Exch.*

ERAU “Someone” Faculty Advisor

2020–2025

Nominated by an academic advisor as “Someone” willing to listen objectively and provide direction, guidance, and referral to student resources.

ERAU SERVICE & OUTREACH

University Committees/Appointments

COAS Member, <i>Search Committee for Dean of College of Engineering</i>	2022-2023
Coordinator for CBSI, <i>Prescott Campus Diversity and Inclusion Committee</i>	2020-2025

Faculty Senate Committees

Member, <i>Academic Computing Faculty Advisory Committee (ACFAC)</i>	2020-2025
Member, <i>Academic and Admissions Standards Committee</i>	2020-2021

Departmental Committees/Appointments

Math Ambassador	2020-2025
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Serving as the lead for communicating and tracking external departmental needs from mathematics courses. The data collected improves courses by optimizing course schedules to support student learning in non-math courses.

Member, <i>Calculus Committee</i>	2019-2025
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Student Community

Faculty Club Advisor, <i>Dungeons and Dragons Club</i>	2020-2025
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OTHER SERVICE & OUTREACH

Operator Algebras Mentor Network (OAMN)

2019-Present

Junior Mentor, *Nominated to serve as a mentor in an international network that supports underrepresented or in minority within mathematics due to gender graduate students and young postdocs in operator algebras.*

Journals Refereed: Analysis Mathematica.

OTHER SERVICE & OUTREACH

Search Committee for Dean of College of Arts & Sciences at UNL

2018-2019

Graduate Student Representative, *Nominated to serve as the graduate student representative for the university on the search committee for a new Dean of the College of Arts & Sciences at University of Nebraska-Lincoln.*

Spring Research Fair for Undergraduate Research at UNL

2018

Judge, *Judged undergraduate research poster session for undergraduate math majors.*

American Mathematical Society (AMS) Graduate Student Chapter at UNL

2016-2017

President, *Created chapter budget, wrote activity reports, distributed travel funding to graduate students, organized invited speaker colloquium.*

All Girls/All Math Summer Camp at UNL

July 2015

Guest Lecturer, *Volunteered to give a lecture on aerodynamics for a week-long summer program for thirty high school girls from across the country.*

Nebraska Conference for Undergraduate Women in Mathematics

2014, 2017-2018

Volunteer, *Provided on-site technical support for undergraduate women's talks.*

Nebraska Math Day

2013-2018

Volunteer, *Proctored state-wide math competition for 1500+ high school students to earn a scholarship to University of Nebraska-Lincoln.*

UNL Math Department GTA Orientation

Fall 2016, Fall 2017

Microteaching Advisor, *Led teaching activity and discussion for incoming first year graduate students.*

INVITED PANELS

- (1) *OAMN Career Panel*, May 9, 2023.
- (2) *Faculty Panel*, New Faculty Orientation, ERAU, August 18, 2021.
- (3) *Mentorship for Mathematics*, Diversity Committee – Department of Mathematics Graduate Students, Texas A&M University, March 31, 2021.
- (4) *Teaching Mathematics & Statistics*, UNL Campuswide Workshops for Graduate TAs, August 15, 2017.
- (5) *Lesson Learned – Experienced Exam Writers Panel*, UNL Math Exam Writing Workshop, March 4, 2017.
- (6) *Experienced GTA Panel*, UNL Math Department GTA Orientation, August 18, 2016.

CERTIFICATIONS

The Erdős Institute Data Science Bootcamp (Certificate)

May-Summer 2024

Certification for completion of an intensive, industry-focused professional development program for PhDs, providing skill in data science and machine learning, earned by completing a portfolio worthy project in collaboration with a team of peers.

SKILLS

- Markup/Programming Languages: Python, MATLAB, C/C++, L^AT_EX, HTML, CSS, Javascript, PHP
- Applications: Mathematica, Maple, FTP clients, common Mac and Windows spreadsheet and database software