FALL **2024**

Math News

A PUBLICATION OF THE UNIVERSITY OF NEBRASKA-LINCOLN DEPARTMENT OF MATHEMATICS


Eloísa Grifo


Brian Harbourne


Jack Jeffries


Tom Marley


Alexandra Seceleanu


Mark Walker

Research Training Group (RTG) Grant to Support Graduate Students and Postdocs

Eloísa Grifo, Brian Harbourne, Jack Jeffries, Tom Marley, Alexandra Seceleanu, and Mark Walker have earned Research Training Groups (RTG) funding from the National Science Foundation to support graduate students and postdocs in commutative algebra.

The RTG program aims to strengthen the nation's scientific competitiveness by increasing the number of well-prepared U.S. citizens, nationals, and permanent residents who pursue careers in the mathematical sciences. RTG grants support graduate student research training and professional development through structured groups pursuing collaborative research.

The project, called "RTG: Commutative Algebra at Nebraska," will use the funding—over $1.7M—to establish activities for researchers ranging from undergraduate students to faculty. Graduate students and postdoctoral scholars can jumpstart their research programs and develop broad skills as professionals, and undergraduates can cement their interest and confidence in mathematics. This training will also increase participation of first-generation and Hispanic students and enhance the competitiveness of junior researchers in algebra overall.

All of the faculty members are part of the Department of Mathematics and the Commutative Algebra and Algebraic Geometry research group.

Training activities supported by this grant include a first-year Research Experience for Undergraduates (REU) for first-generation college students, an international REU

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{ VIEW FROM THE CHAIR }

"Good friends are like stars. You don't always see them, but you know they're always there."

– Unknown

Petronela Radu

Dear Alumni and Friends,

With the holiday season upon us, Friendsgivings are becoming favorite celebrations. We are reminded of how much joy comes from gathering together with friends—and what better time than now to celebrate all that we've achieved this year! Friends, members, and supporters of the Department of Mathematics, we want to take a moment to share and celebrate some of the many highlights from 2024.

It's been a remarkable year for our department, and as you'll see throughout this newsletter, there's so much to be proud of! Some of the most prestigious and competitive NSF awards are the Research Training Group (RTG) grants and we are thrilled to be recognized with one. This is another testimony to the excellence of our commutative algebra group. Along with this, several of our faculty and graduate students received accolades and awards—please don't hesitate to reach out and send them your congratulations!

This year, we had the bittersweet privilege of celebrating two incredible colleagues. In May, we bid farewell to professor Richard Rebarber, who retired after several decades in our department, serving over the last few years as Graduate Chair. His contributions to the department were invaluable, and he will certainly be missed. This December, we're also saying goodbye to Cheryl Kane, a dedicated lecturer who has taught many thousands of students over her remarkable 40-year career with us. Her impact on the department has been immeasurable, and we wish her all the best in her next chapter.

We're also thrilled to welcome new members to our department family! Assistant professor Shiying Li, an expert in Data Science, joins us after completing a postdoc at North Carolina Chapel Hill. We're excited about the energy and expertise she brings to our department. On the staff side, we're excited to introduce Kim Hermsen, our new Graduate Administrative Assistant, and Michael Sandvold, our new Human Resources Coordinator. We're very happy to have them onboard.

For more updates and highlights that didn't make it into this newsletter, be sure to check out our website and follow us on social media (please see the QR code below and check out the back cover for social media handles).

As we wrap up 2024 and look forward to the new year, we want to thank all of you—our amazing friends, faculty, staff, and students—for your support. Here's to a joyful holiday season and an exciting 2025!

Visit our website!

Lai wins Award for Impact on the Teaching and Learning of Mathematics

Photo by Raleigh Cooper

Yvonne Lai, Milton Mohr Professor and Graduate Chair in Mathematics, was awarded the 2025 American Mathematical Society (AMS) Award for Impact on the Teaching and Learning of Mathematics.

This prestigious award, established by the AMS Committee on Education in 2013, is given to a mathematician who has made significant contributions of lasting value to mathematics education.

Lai receives this award during the prize ceremony of the Joint Mathematics Meetings in Seattle, WA, in January 2025.

"Dr. Yvonne Lai exhibits a deep, energetic, and abiding commitment to supporting improvements in mathematics education at all levels, and to creating a more inclusive and equitable mathematics community," as stated by prize citation.

She is receiving this award in part for her instrumental role in changing a 24-year policy so that mathematics education research now appears in the largest database of literature in the mathematical sciences, MathSciNet.

Lai states, "I remain inspired by professional mentors and groups who show by example that there can and should exist spaces where mathematicians, education researchers, and teachers can learn from each other."

She earned an S.B. in Mathematics from MIT and a PhD from UC Davis, specializing in geometric group theory and hyperbolic geometry. Lai's career includes postdoctoral work at the University of Michigan and significant contributions to mathematics education, particularly for secondary teachers. Lai is an expert in Mathematical Knowledge for Teaching.

- Juli Parra Olivas,
Math and PBS Student Worker

Donsig stepping down as Vice Chair, will lead W.H. Thompson Program

Allan Donsig

Professor Allan Donsig will be stepping down as vice chair at the end of 2024 after 13 years in the role and will continue as the faculty coordinator for the William H. Thompson Scholars Learning Community. The vice chair leads the teaching side of the department, with a particular focus on the introductory and service courses, from pre-calculus through calculus to differential equations and linear algebra.

The department teaches about 8% of the total credit hours at the university each year, and about three-quarters of the math credit hours are in these introductory and service courses. The department has made major changes to how these courses are taught during Donsig's time as vice chair. For example, the department now has 9 dedicated classrooms used for precalculus classes and calculus recitations, where students work in groups and discuss mathematics with their peers. There is extensive support for graduate teaching assistants (GTAs), including a 3-credit-hour graduate course that GTAs take when they first teach a course on their own, two orientations at the start of each year, one for first-year graduate students and another for second-year and beyond students, weekly instructor meetings, and both conveners and associate conveners to help GTAs instructors. These innovations served the department very well during the COVID pandemic, providing tools and experience to help change instruction in ways that minimized the impact on students.

In the last few years, Donsig has led an effort to move almost all of these courses to use free online textbooks. If you go to mathbooks.unl.edu, you can see the full collection of free online textbooks, from Intermediate Algebra through all three semesters of Calculus to Linear Algebra, a 300-level course. This change saves UNL students as much as $750,000 each year. The department has course packets for most of these courses, which students do buy at the bookstore for $20 to $45. They provide fill-in-the-blank notes and problems that students work on in class. Graduate students and faculty regularly work each summer on improving the online texts, course packets, and the online homework system, an open-source platform that, like the textbooks, costs students nothing.

The cumulative impact of these changes has been very positive for student success. In precalculus courses, the share of students who earn a final grade of D or less, and so would have to repeat the class, has been cut in half, and the share of low grades in MATH 106 and MATH 107, the first two calculus courses, has been reduced significantly. Donsig observed, "I feel very lucky to be part of an outstanding team of instructors and a department and campus where teaching is highly valued. The support of the chairs I've worked with, Judy Walker, Tom Marley, and now

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Seceleanu wins Michler Prize

Associate professor Alexandra Seceleanu has received the 2024–2025 Ruth I. Michler Memorial Prize from the Association for Women in Mathematics and Cornell University.

The prize is awarded annually to a woman recently promoted to associate professor or an equivalent position in the mathematical sciences. Part of the prize is a fellowship that supports the awardee spending a semester in the Mathematics Department of Cornell without teaching obligations.

Seceleanu joined the University of Nebraska—Lincoln in 2011 as a postdoctoral research fellow and became an assistant professor in 2015. She has received support and recognition for her work with National Science Foundation (NSF) grants.

Alexandra Seceleanu

Schafhauser wins Zemanek Prize

Christopher Schafhauser

The 2024 Jaroslav and Barbara Zemanek Prize in functional analysis has been awarded to associate professor Christopher Schafhauser.

The Jaroslav and Barbara Zemanek Prize in functional analysis with emphasis on operator theory for 2024 is awarded to Christopher Schafhauser (University of Nebraska-Lincoln) for his outstanding contributions to the classification and structure theory of C*-algebras, particularly to the Elliott classification programme.

The jury emphasized his outstanding results on AF-embeddability of the UCT C*-algebras and his original and innovative approach to the classification of simple nuclear C*-algebras, which led to breakthrough in the field.

Following a generous donation from the Zemanek family, the annual J. and B. Zemanek Prize was founded by the Institute of Mathematics of the Polish Academy of Sciences (IM PAN) in March 2018, to encourage the research in functional analysis, operator theory, and related topics. The Prize is established to promote young mathematicians, under 35 years of age, who have made important contributions to these areas.

Homp wins Donald W. Miller Service Award

Associate professor of practice Michelle Homp has won the Donald W. Miller Service Award from the Nebraska Association of Teachers of Mathematics.

Homp received this honor based on her work with the Department's online Master of Arts for Teachers program and the Nebraska Math and Science Summer Institute. She also leads the Greater Nebraska Math Teachers Circle. This event brings together teachers from across the state, providing them a platform to collaborate, share best practices, and engage in collaborative problem-solving.

Michelle Homp

As the nomination says, she has "consistently demonstrated exemplary leadership in the field of mathematics education" and "her impact on both students and fellow educators is truly commendable.

The NATM board established the Don Miller Distinguished Service Award in 1989. Its purpose is to honor mathematics educators for their contribution to the improvement of mathematics education in the state of Nebraska.

Gonzales wins Distinguished Teaching Award

Kevin Gonzales

Kevin Gonzales, assistant professor of practice of mathematics, has received the College of Arts and Sciences Distinguished Teaching Award. The honor was given to Gonzales for his outstanding, student-focused teaching which is evident in his office hours, feedback from his students and mentorship of others.

Gonzales started at the University as a part-time lecturer in the summer of 2014, became a full-time lecturer in 2016 and became assistant professor of practice in 2021. He currently teaches Applied Calculus (MATH 104) and Calculus I (MATH 106). He's even written the workbook that students now use for Applied Calculus (MATH 104) which has provided students with more active learning in a larger lecture hall setting.

Professor Gonzales is one of the most supportive professors I've ever had. He really cares about his students and their success and will always help when you ask. I feel that my success in the course is mostly due to his teaching style and the support he provides.

- Undergraduate Student Feedback

Gonzales sees around 80-150 students in his larger lectures, but he makes a priority to help every student, giving individualized focus. When walking down the second-floor hallway, it's evident which office is his. Students will be lined down the hall waiting for the start of Gonzales' office hours.

Along with providing constant support for his undergraduate students, he holds a teaching teatime for graduate students, which provides a space for graduate students to come and ask questions about teaching methods, and to simply ask for advice and classroom support.

In receiving the College of Arts and Sciences Distinguished Teaching Award, Kevin Gonzales has been recognized for his dedication as an educator. His commitment to student success, whether through his attentive office hours or innovative teaching materials, has left a lasting impact on both his undergraduate and graduate students. Gonzales' passion for teaching goes beyond the classroom, fostering a community of learning and mentorship. His recognition reflects not only his remarkable skills as a teacher, but also his genuine care for his students' growth, making him an invaluable asset to the University.

- Samantha Krabbenhoft, Math and PBC Student Worker

Kelley named AWM Fellow

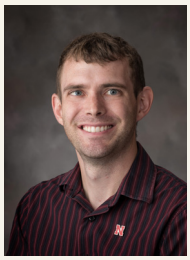
Christine Kelley

Professor Christine Kelley has been honored as a Fellow of the Association for Women in Mathematics, a distinction recognizing those with a sustained commitment to advancing and supporting women in the mathematical sciences. Kelley was chosen for her transformative efforts to inspire young women to pursue mathematics, including her instrumental leadership in the Nebraska Conference for Undergraduate Women in Mathematics and her extensive record of mentoring, advising, and guiding women in the field.

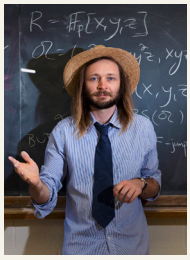
This is just the latest in a long line of honors for Professor Kelley. In 2010, she received the Harold and Esther Edgerton Junior Faculty Award for creative research, extraordinary teaching abilities, and academic promise. She was the Harold and Esther Edgerton Assistant Professor from 2010 to 2012. Our graduate students also chose Professor Kelley as the 2021 recipient of the Roger Wiegand Award for contributions to the UNL Math Graduate Program. In addition to her departmental duties, she is currently serving as director to the Mathematical Association of America Project NExT.

- Mark Walker and Judy Walker

Faculty Promotions



Josh Brummer promoted to associate professor of practice



Jack Jeffries promoted to associate professor with tenure

Yvonne Lai promoted to full professor

Chris Schafhauser promoted to associate professor with tenure

RETIREMENT: Cheryl Kane

Cheryl Kane

Cheryl Kane is retiring from the department this year after more than 40 years of teaching. For thousands of students over that time, Kane's enthusiasm and support were part of their first semester at UNL. A retirement reception this fall recognized her many contributions, with acknowledgments from the many people she has worked with.

Kane began teaching in March of 1983, but her first experience at UNL was as an undergraduate math major, graduating in 1974. As part of that, she took a class from Jim Lewis, his first class in 1971. In 1983, Kane had chatted with Jim, who was then vice chair, at a social event, and so he thought of her a few weeks later when an instructor had to quit in the middle of the semester for health reasons. Kane took over the evening trigonometry class and then began teaching evening classes regularly. She began teaching daytime classes in the 1990s and contributed significantly to the department's updates and revisions to introductory courses. In the last decade, she has mostly been teaching MATH 104, Applied Calculus.

Kane has also played a big role in the summers with New Student Enrollment and advising. She led the "math table" for twenty years, working with advisors from across campus to help incoming students work out their first math course at UNL. Doug Pellatz, the current math advisor, noted, "Cheryl always did a fantastic job working with the students and their advisors to help them determine the best first Math course at UNL. cdxbv" She also helped advise students during Priority Registration each semester for many years. Kane also helped organize Math Day, the department's outreach event for high school students.

As Jim Lewis observed at Kane's retirement reception, "You need people you can count on, and she was definitely part of it." Since 1995, Kane has taught 174 classes and more than 7,500 students. More than sheer numbers, impressive as they are, Kane has significantly impacted student success through her attention to good teaching and engaging instructors. As convener for Math 101 and Math 104, she supported graduate student instructors, helping them develop as instructors. She also made the first steps towards the coordination and support provided today. For example, Kane found different sections of the same course had tests that were quite different, some easy and some much harder. Kane decided to do something about this, to make things fair. So, she wrote the syllabus and all exams for these two courses, so all students took the same exam. It's a significant amount of work, but it made a big difference to students.

Kane believes the most meaningful work she has done during her time at UNL is being one of the authors/editors of the online textbook for Math 104, Applied Calculus. Her contributions helped students in the course better understand calculus, something she found particularly meaningful. (You can see the text yourself; go to mathbooks.unl.edu and look for the Applied Calculus text). The department continues to use this textbook.

Kane's hard work and dedication have not gone unnoticed by others---she has received many certificates of recognition for contributions to students given by the Parents Association and the Teaching Council. Nominations for this award are made by parents and students who recognize the contribution of an instructor to their student's success. Kane regards these awards as one of her most proud personal achievements.

When asked about her plans, Kane said, "I am an avid quilter and will spend more time sewing. I would like to travel and visit family, and I plan to increase my volunteer activities." She is also interested in tutoring students in math, though she plans to enjoy her retirement and take life one day at a time.

- Allan Donsig

RTG { Cont. }

run in partnership with Centro de Investigación en Matemáticas in Guanajuato, Mexico, and a professional development workshop for early-career algebraists throughout the US.

This grant will also create three postdoctoral positions and support numerous graduate students. The University of Nebraska-Lincoln has a decades-long reputation as an international center for commutative algebra. The research group has made significant advances in many topics of current interest, and this grant will propel further advances in these areas by increasing the participation of postdocs and graduate students.

This project is jointly funded by the NSF's Algebra and Number Theory Program and the Established Program to Stimulate Competitive Research (EPSCoR).

RETIREMENT: Richard Rebarber

Richard Rebarber

After four decades at the University of Nebraska-Lincoln, Milton E. Mohr Professor Richard Rebarber has retired, leaving behind a legacy that will resonate for years to come. As a distinguished member of the Department of Mathematics, he has spent his years inspiring students, advancing research, and contributing to the academic community with unwavering passion and commitment.

While with the department, Rebarber says he's most proud of his mentoring activities. He was a part of the success of the REU program, which provided research opportunities to undergraduate students in Applied Mathematics. Rebarber and Gordon Woodward worked together to create a flexible structure for a very successful program, and many applied math faculty contributed carefully thought-out projects for the students.

"I very much enjoyed running REU Site projects. They tended to take over a summer, so I didn't do them every year, but when I did they were great. The project groups consisted between four and seven undergraduates, one grad student, and I often had a co-mentor. The students, who came from all over the country, were really sharp, and I had their undivided attention for eight weeks, so we would get a lot done and, in most cases, got a paper out of it that would eventually get published," says Rebarber.

After working in the subject of Control Theory for about twenty years, in 2005, Rebarber started working in Math Biology, leading him to a steady stream of PhD students, all of whom were co-mentored by Brigitte Tenhumberg of the School of Biological Sciences. "I'm quite pleased not only with their research accomplishments but also the successful careers they have," says Rebarber.

One of Rebarber's most notable contributions was teaching Math in the City (MATH 435), a hands-on course where students applied mathematical modeling to real-world social issues. Students collaborated with local organizations, using data to tackle problems and create solutions.

"I did projects in football strategy (quite a stretch for me, since I'm not a fan), ecological modeling of white perch in Branched Oak Lake, gerrymandering, COVID-19, and general infectious disease modeling," he said.

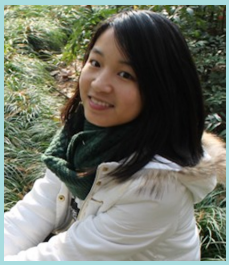
Rebarber also enjoyed teaching graduate courses, particularly Analytic Function Theory (MATH 924-925). "Everything fits together perfectly, almost everything you want to be true is true, and a complete basic theory is accessible to grad students. In college, it was this topic that got me to decide to go to grad school in math." When asked about advice for students, Rebarber emphasized the value of developing skills in science, computer science, and/or statistics to create more career opportunities, particularly for those interested in non-academic careers.

In retirement, Rebarber has continued working on research projects with his collaborators and is dedicating more time to his musical pursuits. "As some people in the department know, I have musical projects I'm working on... so I'm writing, recording, and occasionally performing music."

To check out some of Richard's music, head to: https://floatingopera1.bandcamp.com/music

- Michaela Farley

NEW FACULTY



Assistant Professor **Shiying Li** received her Ph.D. in Mathematics from Vanderbilt University. She was a postdoctoral research associate at the University of Virginia, and then at the University of North Carolina at Chapel Hill. Her research lies at the intersection of optimal transport and mathematical data science, focusing on developing new data representation frameworks and meaningful distances for high-dimensional nonlinear data. In particular, her work leverages the data geometry associated with optimal-transport-based embeddings to enhance the efficiency and interpretability of machine learning algorithms. She is also interested in manifold learning algorithms for biological applications.

NEW POSTDOC

Anna Brosowsky earned her Ph.D. from the University of Michigan under the direction of Karen Smith. Her research is in commutative algebra, with a focus on singularities in positive characteristic. Her postdoctoral mentor is Jack Jeffries. Brosowsky is the recipient of a competitive NSF postdoctoral award.

DONSIG { Cont. }

Petronela Radu, has been essential to these changes. It is really the team of people that has made this possible. I am confident that the department will continue to work on supporting students."
Josh Brummer, who is the Director of First Year Math Programs and has taught the graduate course on pedagogy and convened almost every first-year math course, will be taking over as Vice Chair on January 1, 2025. Donsig has been, since the Fall 2023 semester, the faculty coordinator for the William H. Thompson Scholars Learning Community, which supports students holding Susan Buffett scholarships at UNL. "I'm excited to be part of a program that works to ensure UNL is open to all students," Donsig says, "and I hope to continue to contribute to the department's work, in both research and teaching." Donsig is looking forward to having only one administrative job and teaching more of his favorite courses, such as the history of mathematics. Donsig concluded, "There is a certain joy in sharing old mathematical discoveries and insights, going back to ancient Babylon or medieval India, and showing how they appear in the latest technology."

Teacher Education Conference held in honor of Jim Lewis

Mathematicians and mathematics educators from across the US traveled to Lincoln to attend "JimFest: What, where, and for what purpose is the mathematics in mathematics teacher education?" a workshop funded by the National Science Foundation and held at University of Nebraska-Lincoln (UNL), Thursday, May 30 to Saturday, June 1, 2024. Yvonne Lai led the workshop design, with co-organizers Allan Donsig, Elizabeth Lewis (TLTE), Judy Walker, and Mark Walker. JimFest was held in honor of long-time mathematics faculty member W. James "Jim" Lewis, on his retirement from UNL.

JimFest 2024 group photo

Each day's focus was named after a national policy document co-authored by Jim. Thursday's focus was "Towards a Fully Inclusive Profession," and featured an opening keynote by Deborah Loewenberg Ball, member of the National Science Board, on the power of teaching to address inequities. Friday focused on the "Mathematical Education of Teachers," discussing recent results and future directions of mathematics experiences for teachers. On Saturday, participants gathered to build on what they had learned on previous days to the theme of "Towards Excellence." Across the workshop days, there were nearly 100 workshop participants. Lively discussion and debate were had on all days.

Jim Lewis with UNL Alumni. Left to right: Michelle Homp, Lisa (Johnson) Rezac, Paula Jakopovic, Katie Morrison, Theresa (Strei) Jorgensen, Jim Lewis, Wendy Smith, Erica Johnson, Sandeep Holay

On Thursday evening, a reception was held at the Lied Commons, and on Friday evening, a banquet was held at Morrill Hall. Both events featured toasts to Jim by students, colleagues, and friends who shared anecdotes and personal attestations to how Jim had impacted their lives. At the banquet, a picture of "Archie" (the mammoth sculpture outside Morrill Hall) was presented to Jim that was signed by conference attendees.

Additional support for the conference was provided by UNL's Center for Science, Mathematics, and Computer Education; College of Arts and Sciences; College of Education and Human Sciences; Department of Mathematics, Department of Teaching, Learning, and Teacher Education; and Office of Research and Economic Development.

- Yvonne Lai and Judy Walker

UNL Faculty lead Summer Undergraduate Research with Polymath

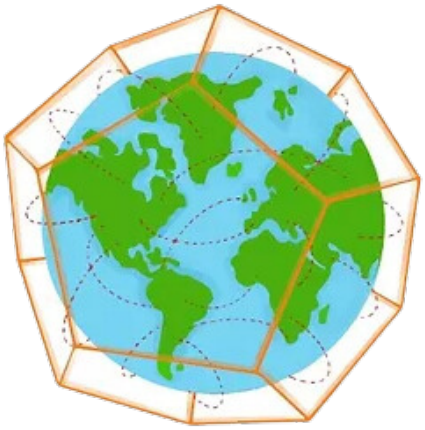
In the current academic climate, an undergraduate research experience has become a great way for promising students to signal their interests and abilities to graduate programs in mathematics. As a result, demand for these programs has increased dramatically; anecdotally, getting into an NSF-funded REU (Research Experience for Undergraduates) can be more difficult than getting into graduate school. An increasing number of UNL math faculty have become involved in Polymath Jr., a program that dramatically expands access to undergraduate research experiences for students from around the world. Inspired by the Polymath Project (https://en.wikipedia.org/wiki/Polymath_Project), Polymath Jr. is a massive open online REU that accepts around 300 students each summer to participate in one of roughly 15 projects for its eight-week duration. The program culminates in an internal end-of-program conference, in which each group nominates a subset of students to present their results to the rest of the participants.

Polymath Jr., which is run by a team of mentors led by Prof. Adam Sheffer of CUNY, began in the summer of 2020, at the height of the Covid pandemic. Participants and mentors interact in a variety of different ways. In addition to regular Zoom meetings, groups are invited to share materials via a project wiki and a dedicated Discord server. Thus, even though group members may hail from around the world, they can connect easily and instantly with each other. Many participants in these projects end up continuing to graduate programs in mathematics, and some have even ended up at UNL.

UNL professor Alexandra Seceleanu served as a project mentor during the initial summer of 2020, running additional projects during the summers of 2021, 2022 and 2024. Professor Alex Zupan joined the program in 2021, supervising another project in 2022 and co-supervising projects in 2023 and 2024 with a longtime collaborator. Professor Mikil Foss and professor Petronela Radu co-supervised their first project in the summer of 2024, on the topic of nonlocal models. More information about these projects can be found below.

Nonlocal frameworks have recently become preferred settings for modeling a variety of phenomena: dynamic fracture (e.g. breaking a plate or ice), phase separation (such as in water and oil), population/swarm models, sandpile formation. The ability to formulate an equation that holds for functions which are not "smooth" is one of the main advantages of nonlocal models. Foss and Radu have led a group of over 20 students in the analysis of nonlocal initial value problems. More precisely, they tried to answer the following question: given some initial state how will the process advance when the (nonlocal) rate of change is known? The group's findings will be sent for publication and they will be shared at national conferences, such as the Joint Mathematics Meetings.

It is a long-term goal of the Polymath program to train the next generation of mentors by supporting graduate assistants. The project led by Alexandra Seceleanu in 2024 originated from the PhD thesis of Nikola Kuzmanovski, a recent UNL PhD graduate, who also served as a teaching assistant for the Polymath program. The group of approximately 20 students they mentored considered sets endowed with partial order relations, with a particular focus on sets of monomials with the partial



order given by divisibility. These objects form a bridge between algebra and combinatorics. In algebra one is interested in counting monomials to estimate the size of algebraic structures called rings and ideals. The Polymath project discovered several new classes of rings where a particular combinatorial technique minimizes the count. The students also created a software package to aid researchers in studying this topic. These findings constitute the topic of two papers in preparation.

In 2024, Professor Zupan ran a project jointly with Prof. Jeffrey Meier of Western Washington University, one of his longtime collaborators. Their group focused on various investigations into the ribbon numbers of knots in 3-dimensional space. A ribbon knot bounds a special type of self-intersecting disk, and a count of these intersections is called the "ribbon number" of a given knot. Professor Zupan began studying ribbon numbers during his Faculty Development Leave in the fall of 2022, and his 2023 Polymath Jr. group produced a large catalogue of new data on ribbon numbers, which is now featured on the prominent knot theory website KnotInfo (https://knotinfo.math.indiana.edu/), and which will be

POLYMATH { PAGE 12 }

Semester at SLMath

Photo includes UNL faculty Eloísa Grifo and Tom Marley, and graduate students Ryan Watson, Sabrina Fowler, Julianne Faur, and Robert Ireland. The group members pictured in front of the SLMath building are mathematical descedndants of Craig Huneke.

The Spring 2024 semester saw a large contingent from the math department, including nine members and one enthusiastic canine, heading to the Simons Laufer Mathematical Sciences Institute (SLMath, formerly MSRI), perched high in the Berkeley hills. What drew them there was a semester-long program in Commutative Algebra, along with a companion program in Noncommutative Algebraic Geometry. Professors Eloísa Grifo, Jack Jeffries, Alexandra Seceleanu, and Mark Walker spent January to May in residence as Research Members, and Lauren Cranton Heller attended for the same time as the Huneke Postdoc. They were joined by four dedicated graduate students—Nawaj KC, Andrew Soto Levins, Ryan Watson, and Shah Roshan Zamir—who contributed to the vibrant atmosphere for most of the term. Several other members of the department, including Professor Tom Marley and Emeriti Professors Roger and Sylvia Wiegand and a handful of graduate students attended for shorter periods of time, especially during the conferences and workshops.

Throughout their stay, the University of Nebraska-Lincoln (UNL) team made their mark with numerous mathematical presentations. Cranton Heller was selected to represent the entire Commutative Algebra program by delivering a talk during the Academic Sponsors Day, an important event where SLMath's academic sponsors gather to learn about the institute's activities. Grifo took the stage at the Connections Workshop for the program—expertly organized by Seceleanu—and participated as a panelist for the Noncommutative Algebraic Geometry Program's Connections Workshop. Seceleanu herself delivered a three-part lecture series at the Introductory Workshop, while Walker was tapped to give one of the program's colloquia. Meanwhile, Jeffries spoke in David Eisenbud's seminar down the hill on the UC Berkeley campus. The graduate students also shone, each giving talks as part of the Graduate Student Seminar.

Former UNL students were no strangers to the spotlight either. For instance, Josh Pollitz (PhD 2019) co-organized and delivered multiple talks in an inspiring focused lecture series, Michael Brown (PhD 2015) presented at the Recent Developments in Commutative Algebra con-

{ SLMath PAGE 11 }

Jack Jeffries and CohenmacOllie (family dog) heading to Berkeley

Jack Jeffries and collaborators setting up a complicated induction

Pictured above left to right: Srikanth Iyengar (former UNL math faculty), Michael Brown (PhD 2015), Mark Walker (professor), Haydee Lindo (MS 2012)

Great Plains Operator Theory Symposium

A math conference with a long history of Nebraska connections returned to Lincoln in Summer 2024. The Great Plains Operator Theory Symposium (GPOTS) began in Lincoln in 1980 as a midwestern conference on operator theory and operator algebras held jointly between universities in Iowa, Kansas, and Nebraska. Since then, the conference has been held annually and has grown into one of the major international conferences on this topic. GPOTS returned to Lincoln in June 2024 for its 44th meeting, organized by Allan Donsig, Gregory Faurot, Ishan Ishan, David Pitts, and Christopher Schafhauser. The conference featured 14 one-hour plenary talks given by leading experts in the field, 59 twenty-minute contributed talks, and over 100 participants. Speakers came from across North America and as far away as the Czech Republic, Denmark, and Brazil.

Operator algebras and operator theory study linear transformations on infinite-dimensional vector spaces, building on the material in MATH 314, Linear Algebra. The subject has connections to quantum mechanics, knot theory, and now quantum computing. Indeed, one of the speakers at the conference, Eleanor Rieffel, leads a research team at NASA working on quantum computing. The Math Department has had faculty working in operator algebras and operator theory for the last fifty years and has produced many PhDs. They include GPOTS organizer Greg Faurot, who graduated in August of 2024 and has now taken up a postdoctoral position at the Ohio State University, and plenary speaker Travis Russell, who graduated in 2017 and is now a faculty member at Texas Christian University, and faculty member Christopher Schafhauser here at University of Nebraska at Lincoln (UNL).

UNL's Math Department has organized GPOTS several times since 1980, namely in 1994, 2007, and 2024. We drew in a large crowd, partly because participants can stay in the dorms, making the conference affordable for graduate students. Many graduate students, postdocs, and young faculty participated, which helped them make the personal connections essential to becoming part of the research community. Mathematicians depend on regular discussions with their colleagues, and conferences are gatherings of many friends, old and new. GPOTS was supported in part by the university, including the UNL Research Council and the department, and by a grant from the National Science Foundation.

- Allan Donsig, David Pitts, Chris Schafhauser

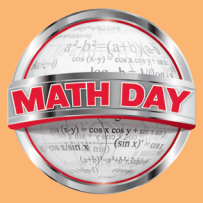
SLMath { Cont. }

ference, Haydee Lindo (MS 2012) was a panelist at the Connections Workshop, and Graham Leuschke (PhD 2000) co-organized the Recent Developments in Noncommutative Algebraic Geometry, a conference that was part of the companion program.

Beyond the formal talks, the most rewarding aspect for all participants was the informal research interactions that took place during this period of intense mathematical activity. Many new research projects were sparked, and everyone returned to Lincoln brimming with fresh ideas and inspiration. The group—save for maybe a few exceptions—would agree that the highlight of the semester was the frequent karaoke nights, which added a musical twist to their academic adventures.

- Eloísa Grifo, Jack Jeffries, Mark Walker

EVENTS



The 35th Nebraska Math Day will be held on Tuesday, Feb. 18, 2025. Math Day is designed for students in grades 9, 10, 11 and 12 and for exceptional students in lower grades. PROBE I will be taken at individual schools in January, in advance of the in-person event on campus on Feb. 18. Students will compete in the bowl team competition on Feb. 18 and any additional students who would like to attend hands-on activities can be registered by their teacher. PROBE II also is planned to occur on Feb. 18. Schools interested in attending should email mathday@unl.edu.

Po-Shen Loh will be giving a lecture at the 2025 Math Day event. Lo, is a social entrepreneur, mathematician, and professor at Carnegie Mellon University. Lo formerly served as the USA International Mathematical Olympiad team from 2013-2023.

Po-Shen has earned distinctions ranging from an International Mathematical Olympiad silver medal to the United States Presidential Early Career Award for Scientists and Engineers. As an educator, he was the coach of Carnegie Mellon University's math team when it achieved its first-ever #1 rank among all North American universities, and the coach of the USA Math Olympiad team when it achieved its first-ever back-to-back #1-rank victories in 2015 and 2016, and then again in 2018 and 2019.

The 27th annual **Nebraska Conference for Undergraduate Women in Mathematics** will feature three plenary talks by outstanding women mathematicians: Drs. Shelly Harvey of Rice University, Tasha Inniss of Spelman College, and Ulrike Meier Yang of Lawrence Livermore National Laboratory. The conference will be held in-person Jan. 31- Feb. 2, 2025, in Lincoln. Visit go.unl.edu/ncuwm for more details.

The 2024 **Howard Rowlee Lecture** was given by Professor **Alan Frieze** at the University of Nebraska-Lincoln on March 22. This year's Rowlee was organized by **Xavier Pérez Giménez**.

NEW STAFF

Michael Sandvold earned his Bachelor of Science in Business Administration specializing in Human Resource Management, Economics, and Global Leadership at the University of Nebraska-Lincoln.

He is currently the Human Resources Coordinator in the Pound Business Cooperative and serves as the President of the College of Arts and Sciences Staff Council.

Sandvold also serves on the Leadership Council of the Lincoln Young Professionals Group. In his free time, he enjoys playing golf and sand volleyball.

Kim Hermsen earned her Bachelor of Journalism in Advertising at the University of Nebraska-Lincoln, where she also received a Public Relations and Social Media graduate certificate.

Kim recently joined the Mathematics department as a Graduate Administrative Assistant.

Outside of work, she enjoys spending time with her family, hiking, and photography.

POLYMATH { Cont. }

submitted for publication in the near future. The 2024 group investigated a number of different problems; for instance, one subgroup compared ribbon numbers to another invariant, knot determinants.

Beginning in 2022, the Polymath Jr. program began running a special session at the Joint Mathematics Meetings to give student participants more opportunities to present their research.

In January 2025, student groups from all three project above will deliver presentations in Seattle, Washington. The Polymath Jr. program is a wonderful example of the impact UNL professors can have on the mathematical community at large, and its recent NSF award of over $250,000, on which professor Seceleanu was a co-PI, and which provides funding through 2027, indicates that the program will continue to impact many students' lives for years to come.

- Mikil Foss, Petronela Radu, Alexandra Seceleanu, Alex Zupan

NEW GRANTS

Kristen Amman, NSF, Broadening Narratives about Math Majors

Kristen Amman, Allan Donsig, Kevin Gonzales, Yvonne Lai, Alexander Zupan, The Transforming Post-Secondary Education

Amy Bennett, Center for Undergraduate Research in Mathematics, Undergraduate Research and Mathematical Modeling Scope

Amy Bennett, ImpactED LLC, ImpactED PD^2 Evaluative Research Phase 1

Lauren Cranton Heller, AMS, Virtual Resolutions and Multigraded Algebra of Toric Varieties

Christopher Schafhauser, NSF, Structure of Simple Amenable C*-Algebras

Alexandra Seceleanu, NSF, Polynomial Interpolation, Symmetric Ideals, and the Lefschetz Properties

Alexandra Seceleanu, NSF, Conference: Women in Commutative Algebra III

Wendy Smith, NSF, Collaborative Research: PRISMATIC 2 Incubation Project

Wendy Smith and **Leen-Kiat Soh** (School of Computing), NSF, CS-FUTURES (Computer Science: Focusing on Undergraduate Pre-Service Teachers, with Unified Research, Ecosystems, and Structures)

Alexander Zupan, NSF, The Topology of 3- and 4-Manifolds

Alexander Zupan, Simons Foundation, The Topology of 3- and 4-Manifolds

Alexander Zupan, NSF, NCUWM 2024-2026

Augustyn transitions to position at Los Alamos National Laboratory

Lindsay Augustyn, Photo by Rebecca Marie Photography

Lindsay Augustyn, the former associate director of the Center for Science, Mathematics and Computer Education at the University of Nebraska-Lincoln, has started a new position at Los Alamos National Laboratory (LANL) in New Mexico. Her last day at UNL was March 15.

After 15 years working at the CSMCE, Augustyn is now a professional staff assistant and editor with the Engineering Leadership Council (ELC) and the National Security Education Center at LANL. She is the administrator for the ELC, a group of 40 engineers across LANL.

Augustyn started at the CSMCE in 2009 as an events support associate, then became the outreach and communications coordinator in 2011. She was promoted to assistant director, then to associate director in 2022. As associate director, Augustyn directed all activities related to the operation of the CSMCE, administering a wide variety of projects, grants, meetings, conferences, graduate education for STEM teachers and other activities in partnership with faculty across UNL. She also developed and implemented a branding and communications plan for the CSMCE and individualized the plan to the needs of each project.

Augustyn was also on the committee that created UNL's Staff Senate, and she helped orchestrate the first UNL All Staff Conference in 2021, for which she won her second College of Arts and Sciences Applause Award (the first being in 2014). Augustyn won the Floyd S. Oldt Award in 2015, which recognizes employees who demonstrate exceptional service and dedication, and served as the chair of the College of Arts and Sciences' Staff Council from 2019 to 2022. Currently she is on the education fund board of ACES: The Society for Editing and has been a copyediting scholarship judge for ACES since 2016.

"It was bittersweet to leave the CSMCE after building such strong friendships with colleagues and educators across UNL and the state," Augustyn said. "But the experiences and leadership responsibilities I was given by Jim Lewis and Wendy Smith prepared me to take my skills to this next level of national laboratory work. I hope to keep in touch with my Husker community and see how we can develop connections to LANL."

Ingram joins CSMCE as Associate Director

Erin Ingram

With just over 13 years of experience working at UNL, Ingram brings expertise in education, education research, science communication, entomology, and community engagement to her new role as associate director. She has experience in successfully navigating K-12 and higher education spaces to address relevant and pressing STEM education needs and developing effective partnerships with numerous K-12 teachers and public and private education partners.

A UNL alumna, Ingram earned her bachelor's in elementary education in 2004, her master's in entomology in 2013, and her doctorate in entomology in 2019. While a graduate student in the UNL Department of Entomology, she also worked as a research assistant from 2011-2019 and science literacy coordinator from 2014-2016.

"When I read the Center's strategic plan, I saw my values aligning with the mission and vision in so many ways," Ingram said, "and after interviewing with the Center's core team, it was easy to imagine leveraging the skills and connections in the K-12 STEM education space that I had built during my time with IANR in new ways at the Center."

As associate director, Ingram will direct all activities related to the operation of the CSMCE, administering a wide variety of projects, grants, meetings, conferences, graduate education for STEM teachers, and other activities in partnership with faculty across UNL. She hopes to find ways to grow and adapt the associate director role, so that CSCME staff members are positioned to use their strengths for the good of the Center, UNL, and Nebraska educators.

STEM CONNECT: Jack Murphy

Jack Murphy

Omaha native Jack Murphy says he's always been fascinated by the precision and elegance of mathematics, along with its wide range of applications. "I love how applicable mathematics is; there are endless problems that can be solved by using it. I am pursuing this field because I hope to produce impactful research that can have broad impacts for society."

Murphy graduated from Millard West High School, where he then pursued mathematics at the University of Nebraska-Lincoln. He is a part of STEM CONNECT, which provides career opportunities in Nebraska, such as networking, experiential learning, and computational thinking (STEM CONNECT). The program is grant-funded by the National Science Foundation, which has formed a partnership among UNL, Southeast Community College, and Western Nebraska Community College.

"STEM CONNECT has provided me with a group of like-minded peers to surround myself with and has presented me with great experiences, both fun and practical. For example, we have done entertaining activities things such as breakout rooms, along with more practical things like listening to speakers and having career preparation workshops."

Murphy is currently a senior in the Department of Mathematics, where he has been involved in various undergraduate research experiences.

He connected with Associate Professor, Huijing Du, because he was interested in her research in mathematical biology. Together, they worked on a proposal for the Undergraduate Creative Activities and Research Experience program (UCARE) conducting a research project that involved designing a dynamical system of differential equations to model the growth and treatment of pancreatic cancer growth. Their proposal was accepted, and Murphy had the opportunity to spend the summer conducting this research.

"Throughout the project I learned so much about mathematical biology, mathematical modeling, designing and running computer simulations to test models, and the overall process of how research is conducted as an applied mathematician."

Currently, Murphy is working with the Math Department Chair, Petronela Radu, on research involving nonlocal models.

"In the nonlocal framework, integral operators are used to approximate derivatives for functions that aren't smooth or differentiable, in other words, for functions that are not "nice." Since many real-world phenomena are "rough" or present singularities, we can expect nonlocal calculus to have many applications in fields such as dynamic fracture, image processing, and population density models."

They are conducting research into nonlocal curvature, with the end goal of solving the prescribed curvature problem: given the curvature of a function, what is the surface that represents it? "We are currently approaching it analytically, but we may also use numerical methods to pry into this question."

Outside of research, Murphy has taken on other math related endeavors, including work as an underwriting intern for an insurance company, where he gained valuable experience and witnessed some of the applications of mathematical and statistical models in industry. He has also worked many semesters as a tutor in UNL's Math Resource Center (MRC), a place where students in 100-level math courses can come for walk-in tutoring services. Murphy has even worked as a teaching assistant for a calculus III course. "My experiences with working in the MRC and as a TA have been so fulfilling. I am very passionate about helping others grasp complex concepts and I aim to inspire students to appreciate all that math has to offer," Murphy explains.

Murphy is currently applying to graduate schools, hoping to start his PhD studies in applied mathematics in the fall of 2025.

"I am excited to learn more about the subject and start contributing to the field of applied mathematics. My end goal is to become a research and teaching professor, which will allow me to pursue my passions in both producing meaningful research and teaching mathematics to the next generation of students."

- Michaela Farley

Data Science Growing in Math

The Data Science program launched just a year and a half ago and is quickly establishing itself as a cornerstone of the university's academic offerings. As of November 2024, the program has reached a significant milestone, with over 100 students declaring Data Science as their major.

Of the 258 undergraduate students pursuing majors within the Math Department, 76 have chosen Data Science as their first, second, or third major. This is a testament to the program's appeal and the increasing relevance of data-driven disciplines in today's world. In addition to the students enrolled through the College of Arts and Sciences, there are 5 Data Science majors from the College of Agricultural Sciences and Natural Resources (CASNR) and 28 from the College of Engineering (ENG).

Bill Anderson

Recently, the department welcomed Data Scientist and UNL Alum Bill Anderson, who was the speaker of the Career Perspectives Lecture. His lecture was entitled, "Becoming a Full Stack Data Scientist to Increase Your Chances of Job Acquisition and Career Success." Anderson talked about what a "Full Stack Data Scientist" is and how our data science students should construct their class work, internships, capstones, and other activities outside of class to become and demonstrate themselves as a Full Stack Data Scientist.

Undergraduate Spotlight: Sara Vance

Where are you from?
Bellevue, Nebraska

What inspired you to pursue a degree in mathematics at UNL ?
I always knew I wanted to attend UNL, and I've loved math for my entire life. It was an easy decision from there!

Are you involved in any math groups at UNL? If so, what has this experience been like for you?
Yes, many. I attend Math Club and AWM (Association of Women in Mathematics) meetings, and I'm a member of Pi Mu Epsilon. Groups like these are great opportunities to meet other math students, make friends, and maybe see the same people you know in other math classes.

Have you been involved in any research while at UNL? If so, can you tell us more about that?
I participated in the Directed Reading Program for a semester. As an undergraduate math student, you get paired with a math graduate student to learn about a topic not necessarily taught in one of your own math classes. Over the course of a semester, you learn about the chosen topic and work on a presentation to give at the end of the semester. I have also completed various research projects for some of my upper-level math classes.

How has your view of math changed since starting at UNL?
I feel like my perspective about math has broadened significantly since coming to UNL. I didn't even know that math research was a thing, and I'm still amazed by all the different research topics and areas of study. There's a saying that goes "the more you know, the more you realize you don't know", and I feel like that's representative of my time in the UNL math department.

Graduate Spotlight: Ana Podariu

Where are you from?
Omaha, Nebraska

What is the best career advice that you've been given regarding graduate school or your career?
The best advice I have been given regarding graduate school is not to expect to be able to do everything by yourself! In particular, math is a very collaborative science. Concepts that seemed opaque to me became much more intuitive when practiced with my peers. This piece of advice is perhaps more useful for teaching me to ask for help and in helping me to conquer any sense of shame I feel for not completely understanding things. In this way, I can pursue better comprehension at most costs!

What is your research area of interest?
I am studying commutative algebra. In particular, I am learning about the Lefschetz properties.

What types of jobs are you interested in pursuing after graduation?
I may stay in academia, but I would be interested in doing some government funded research, depending on the area. If I could somehow veer into physics that would be neat.

What is a goal you have accomplished as a Husker?
During my time as a grad student, one goal I've accomplished is to get a better sense of just how broad math is, with the unexpected delight of seeing how different fields become related in unexpected ways.

What do you hope to cross off your "bucket list" in the next few years?
Well, I sure hope I finish my PhD in the next few years! A more fun goal is that I'd like to write a little novel for absolutely no one to read.

MAA Alder Award: Haydee Lindo

Haydee Lindo

Haydee Lindo, a former doctoral student with the UNL Mathematics Department and current associate professor of mathematics at Harvey Mudd College, was announced as one of three recipients of the Henry L. Alder Award from The Mathematical Association of America (MAA).

Haydee Lindo's rigorous yet supportive approach to teaching is celebrated by students and colleagues alike, rooted in her belief that every student can excel in their course material.

Her passion for mathematics is described as "infectious" by her students, and her mentorship has guided several cohorts of undergraduates in completing publishable research in commutative algebra. Notably, a majority of her research students come from communities underrepresented in mathematics, and many of them are now pursuing graduate studies in mathematics or related fields, largely thanks to these transformative research experiences and her dedicated mentorship.

Upon receiving this honor, she expressed her appreciation: "This award is the result of the brilliance, grit, ambition, open minds, and good humor of my incredible students."

Her contributions to mathematics education and her mentorship's lasting impact on student's academic and professional journeys exemplify her commitment to excellence and inclusivity in the field.

Former UNL PhD alum, Lauren Keough is also a past recipent of this award that recognizes teaching excellence.

The MAA annually honors teachers who are making an impact on mathematics education with the Henry L. Alder Award. For more information visit: https://maa.org/

Nebraska Alumna named UNMC's interim Vice Chancellor for Academic Affairs

Jane Meza, PhD, University of Nebraska-Lincoln Department of Mathematics alumna, and Kendra Schmid, PhD, former Nebraska Math and Science Summer Institutes instructor, are two of three newly appointed interim academic leaders in the University of Nebraska Medical Center Office of Academic Affairs and in Graduate Studies.

Dele Davies, MD, interim chancellor of the UNMC, announced the appointments on July 8. Effective immediately following the announcement, Meza became interim vice chancellor for academic affairs. Schmid became interim dean of graduate studies and interim associate vice chancellor for academic affairs. Karen Gould, PhD, became interim executive associate dean of graduate studies and interim assistant vice chancellor for academic affairs.

Meza earned her bachelor's, master's and doctoral degree from the UNL Department of Mathematics and Statistics in 1996, 1998, and 2000, respectively. An active mathematics department alumna, she presented the plenary talk "What I learned from the question I asked as an undergraduate: What can I do with a math degree?" during the MATH 125 celebration on April 28, 2023.

Left to right: Jane Meza, PhD, Kendra Schmid, PhD, and Karen Gould, PhD

Schmid earned both her master's degree in 2004 and her doctorate in 2007 from the UNL Department of Statistics. Between 2014–2017, she taught statistics courses for middle- and high-school teachers through the CSMCE Nebraska Math and Science Summer Institutes.

"I am excited to welcome this team," Davies told UNMC Strategic Communications.

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{ ALUM CONT. }

"Throughout her career at UNMC, Dr. Meza has proven an innovative, inspirational and thoughtful leader," Davies said. "She has played an integral role on many fronts, including helping to lead the campus through the COVID pandemic and expanding UNMC's global presence. She has worked with colleges and institutes across the university and brings a proven leadership success record.

"Dr. Schmid also has been an innovator and has been an impactful voice for UNMC accreditations and student enrollment efforts."

Davies added, "This is a strong team of leaders, who each has a demonstrated record of academic innovation and achievement. They have played valuable roles in such recent successes as our threefold increase in applicants, 62% increase in enrollment at the graduate college, and a 12% reduction in student attrition. These are just a few of their many successes—and I am certain there are more to come."

Meza, who has served as the UNMC associate vice chancellor for academic affairs since 2023, told UNMC Strategic Communications she was excited about the new role.

"I am excited and honored to be the interim vice chancellor for academic affairs," Meza said. "I look forward to working with our UNMC community to further create enriching learning experiences for students and trainees and to cultivate the ongoing professional growth of faculty." In her new role, Meza will continue her global engagement and strategic planning work at UNMC. She has previously held numerous leadership positions in the UNMC College of Public Health and the Department of Biostatistics.

Schmid was named UNMC assistant vice chancellor for academic affairs in 2020 and UNMC executive associate dean of graduate studies in 2022. She served as interim chair of the UNMC Department of Biostatistics and has held positions as a professor and UNMC's academic liaison to the Higher Learning Commission.

"I'm looking forward to this new role and continuing the strong course set for Graduate Studies under Dr. Davies' leadership to ensure our students are supported and well-positioned for success," Schmid said. "I'm grateful for the opportunity to support UNMC, colleagues, and students during this time of transition."

"Students are the heart of UNMC," Davies said. "As the interim chancellor, I know that, with Drs. Meza, Schmid, and Gould, in these important roles, our students' success will continue to be at the forefront of everything we do."

- UNMC Strategic Communications

Undergraduate Awards

Chair's Prize Award
Helena Holland and Nicholas White

Chancellor's Scholars (4.0 GPA in all courses)
Spring 2024: Helena Holland, Tan Phan, and Nicholas White

Senior Honors and Distinction Theses (directed by)
Evan Fulton, Fall 2023 (Timothy Gay, Physics & Shireen Adenwalla, Physics)

Abigail Hanson, Spring 2024 (Sean Trundle, History & Gerald Steinacher, History)

Bryce Herrington, Spring 2024 (Robert Streubel, Physics & Peter Dowben, Physics)

Helena Holland, Spring 2024 (Tyler White, Political Science & Alexandra Seceleanu, Math)

Layla Montemayor, Spring 2024 (Petronela Radu, Math & Mikil Foss, Math)

Nicholas White, Spring 2024 (Mikil Foss, Math & Adam Larios, Math)

Ethan Yaroch, Spring 2024 (Ross Miller, Political Science & Daniel Tannenbaum, Economics)

Bachelor's Degree

Math Majors Graduated in Summer 2023
Cole Johnson, Ann Le, Jessica Osterhaus, and Michael Young

Math Majors Graduated in Fall 2023
Nataliya Brana, Kuan Ruei Chiang, Joel Eckloff, Evan Fulton, Anna Gullett, Nathan Hanzy, Courtney Higginbotham, Jiahua Jia, Mark Pham, Sean Snider, Xiangyuan Su, and Yuanshu Wang

Math Majors Graduated in Spring 2024
Zach Beaver, Zachary Bravo, Morgan Brockner, Eric Corrado, Shaunak Datta, Sophia Duncan, Charlie Fulks, Abigail Hanson, Hugo Hausman, James He, Bryce Herrington, Helena Holland, Joshua Irby, Harrison Kerns, Angeline Luther, William Marshall, Alexander Miller, Layla Montemayor, Shivani Mudhelli, Layla Nguyen, Tan Phan, Justin Powers, Lake Reikofski, David Ryckman, Abraham Schaecher, Samantha Schur, Maggie Scott, Augustus Shald, Juan Silva, Dennis Startsev, Elizabeth Weber, Nick White, and Ethan Yaroch

Special Scholarships Awards
Note: 70 scholarships were awarded for the 2024–25 academic year.

New Eastman Top Scholars for 2024-25
Garrett Carter, Ruby Gutzmann, Hannah Heftie, Jacob Reason, Mia Wendt, and Rohan Yalamanchili

Dean H and Floreen G Eastman Memorial Scholars
Jadyn Anderson, Mitchell Anderson, Dakota Andrews, Braden Borchers, Riley Brown, Nevin Butler, Bryley Carabantes, Garrett Carter, Carson Catherall, David Dirks, Landry Geiger, Andrew Grant, Abby Gregory, Joshua Havlovic, Hannah Heftie, Alexander Hermsen, Aditya Jain, Anna Janvrin, Thanish Kashyap, Kaitlin Keleher, David Khuu, Nicole Marienau, Brooke Murphy, Caitlin Murphy, Jack Murphy, Kolton O'Neal, Erica Pearce, Bryant Peck, Jasmine Pham, Bishop Placke, Jacob Reason, Karmen Reimer, Lily Rippeteau, Noah Sorensen, Ian Sutton, Sophia Thompson, Blaine Traudt, Sara

Vance, Jenna Wakefield, Mia Wendt, Edward Wiltgen, Lucas Wurtz, and Brayton Zeibig

Irwin Dubinsky Memorial Scholars
Khai Shen Chng and Jacob Snider

Joel Stebbins Fund Scholarship
Zach Hamman and Andrew Maas

Renneman/Luebbers Scholarship
Khai Shen Chng, Zach Hammann, and Jacob Snider

Drusilla Winchester Scholarship
Khai Shen Chng and Zach Hamman

Ruby Matzke Wittemore Scholarship
Jenna Wakefield

Sylvia and Hans Jeans Mathematics Scholarship
Sajid Raihan Akash, Dakota Andrews, Caroline Belleque, Donovan Dyk, Abbigail Gant, Carlin King, Andrew Maas, Lain Mastey, Riley Oller, Jacob Snider, Sebastian Wysocki, and Ivy Zhan

Dr. Hubert Schneider Memorial Scholarship
Andrew Maas

Gallup UNL Math Day Scholarship Winners
Andrew Rogers and Rohan Yalamanchili

Linda Bors Mathematics Scholarship
Caitlin Murphy

Mike & Jo McGuire Scholarship
Dakota Andrews

Chivukula & Emani Scholarship for Mathematics
Andrew Maas

Master's Degrees

December 2023, MAT
Jordan Marie Rector

May 2024, MA/MS
Shalom Echalaz Alvarez, Robert Ireland, Thanh Le, Ari Mallott, Mikkel Munkholm, Zach Nason, Maciej Piwowarczyk, Ana Podariu

August 2024, MA/MS
Gabriel Adams, Derek DeBlieck, Fares Soufan

August 2024, MAT
Kacey Carpenter, Lyli Chavez, Lauren Haman, Juli Johnson, Burkelee Kenefick-Aschoff, Katie Kuhn, Peter McGinley, Liz Swartz, Loren VanDenBerg, Ryan Voelker

Doctoral Degrees

December 2023 Ph.D.
Molly R. Creagar, advised by Richard Rebarber and Brigitte Tenhumberg, "Game-Theoretic Approaches to Optimal Resource Allocation and Defense Strategies in Herbaceous Plants." MIRTE.

Aurora Justine DeBellevue, advised by Susan Hermiller and Mark Brittenham, "Effective Computations of Automatic Structures for HNN Extensions," Northrop Grumman.

Meraiah Martinez, advised by Christine Kelley, "On Dyadic Parity Check Codes and Their Generalizations." Benedictine College.

Frank Richard Zimmitti, advised by Brian Harbourne, "Unexpectedness Stratified by Codimension." Sandhills Publishing.

May 2024 Ph.Ds.
Matt Enlow, advised by Adam Larios. "Approximation via Degree Reduction of Nonlinearities with Applications to Turbulent Flows, Flame Fronts, and Magnetohydrodynamics."

Lawrence Gustavo Seminario-Romero, advised by Richard Rebarber and Brigitte Tenhumberg, "An analysis of plant response to herbivory," Visting Assistant Professor at Haverford College.

Nikola Kuzmanovski, advised by Alexandra Seceleanu and Jaime Radcliffe. "Discrete Maculay-Steiner Geometry." Kenna Postdoctoral Research Associate at the University of Notre Dame.

Isabel Safarik, advised by Adam Larios. Dissertation title: "Mathematical and Computational Analysis of Certain Regularizations for the 3D Navier-Stokes Equations and Nonlocal Peridynamic Conservation Laws." Fire Weather Research at Colorado State University's Collaborative Institute in the Atmosphere at the NOAA Global Systems Laboratory.

August 2024 Ph.Ds.
Gregory Faurot, advised by Christopher Schafhauser, "On Regularity of Graph C* -Algebras." Postdoc at Ohio State Unviersity.

Allison Ganger, advised by Brian Harbourne, "Spreads and Transversals and Their Connection to Geproci Sets." Penn State University-Erie.

Scott Hootman-Ng, advised by Petronela Radu, "Nonlocal Frameworks for Nonlinear Conservation Laws And Advection-Diffusion Processes." Research Mathematician at USDA-ARS Clay Center, NE.

David Lieberman, advised by Jack Jeffries, "Making Sandwiches: A Novel Invariant in D-Module Theory." California State University, San Bernadino.

Dylan McKnight, advised by George Avalos and Mohammad Rammaha. " Gevrey Class Estimates Towards Null Controllability of a Fluid Structure Interaction System." Assistant professor at Colorado Mesa University.

Sara McKnight, advised by George Avalos, "Semigroup well-posedness and finite element analysis of a Biot-Stokes interactive system." Lecturer at Colorado Mesa University.
Nick Meyer, advised by Alex Zupan, "Torus Surgery, Fibrations, Multisections, and Spun 4-Manifolds." University of Central Missouri

Andrew Soto Levins, advised by Mark Walker, "A Study on The Vanishing of Ext." Texas Tech University.

Kaitlin Tademy, advised by Mark Brittenham, "Virtual Unknotting Numbers for Families of Virtual Torus Knots." Harvey Mudd College.

Anh Thuong Vo, advised by Petronela Radu, "Nonlocal Frameworks for Nonlinear Conservation Laws And Advection-Diffusion Processes." Instructor at Occidental College in Los Angeles, CA.

Catherine Zimmitti, advised by David Pitts, "Unexpectedness Stratified by Codimension." Nebraska Wesleyan.

Graduate Awards and Fellowships

Amy Bouska GTA Leadership Award
Michael Pieper

Linda Bors Fellowships
Matt Enlow
Nawaj KC
Isabel Safarik

Steven Haataja Award for Outstanding Exposition by a Graduate Student
Kirsten Morris

Ben Nolting Award
Jordan Barrett

Grace Chisholm Young and William Henry Young Fellowship
Audrey Goodnight

Walter Mientka Teaching
Gabriel Adams

Don Miller Outstanding GTA
Abbey Long-D'Ovidio

Outstanding 1st Year Student
Wolf Allred

Outstanding Qualifying Exam
Thanh Le
Julianne Faur

Outstanding Graduate Teaching Assistant
Dakota White

2023-2024 Internships and Summer Schools

Sara McKnight, NASA, Summer 2023

Sabrina Klement, Georgia Tech Research Institute, Summer 2024

Anh Vo, ORNL

Scott Footman-NG, Sandia Laboratories

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Math News is produced and edited by Michaela Farley and staff of the Mathematics Department. Cover design is by Juli Parra Olivas.

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