



2025 - 2026

Department of Mathematics ANNUAL NEWSLETTER



UNIVERSITY OF
OREGON

Mathematics

A WORD FROM THE HEAD



Greetings! I'm Ben Elias, and I'm just wrapping up my first year as the Mathematics Department Head. It's been an eventful year! Admittedly, most of those events have been of the "doom and gloom" variety, and originate from beyond the department. But there's good news too, and our department continues to do what it does best.

This year we moved back to University Hall (formerly Deady Hall), which had been renovated over the last two years, and we're very glad to leave our temporary offices in Mac Court behind (though we'll miss the basketball hoops). The new classrooms have continuous blackboards longer than any I've ever seen, which would make any mathematician sigh contentedly. The faculty offices on the top floor surround a large collaborative work area, lit by the building's original skylights, with more blackboards around comfortable seating. The new building also has working air conditioning and heat, a great boon compared to the archaic pre-renovation heating system. The seminar room is larger than before, lovely and functional, across the hall from the new Hilbert Space (undergraduate collaboration area). One of this summer's goals is to spruce up Hilbert Space, but even in its current form it has been getting good use and has hosted a number of well-attended math major events.

Speaking of majors, I want to congratulate the class of 2026! This year two graduating seniors received the Marion Walter Future Teachers award, Cat Annjanette and David Haddad, while the DeCou prize went to Kellan Murakami. Kellan will be staying on at UO for our (fairly new) accelerated master's program; he spent his senior year taking advanced math coursework at the graduate level, so with one more year of graduate work he will earn a master's degree. You can find this year's other award winners on page 4!

Sadly, this has been an extremely turbulent year. On the academic side, the University managed to avoid further faculty layoffs, but the budget crisis has gotten worse; and no one knows what next year portends. Our operating budget was cut by 20%, and further cuts are expected. Due to a shortage of instructors we were forced to cancel a number of classes. We downsized our postdoctoral program and cut back support for the Fenton Hall Library homework helpers; next year this tutoring program will be merged with other tutoring programs led by the Tutoring and Academic Engagement Center (TAEC). Our department has one more year of funding from a large NSF Research Training Group grant which has been keeping us afloat, after which these cuts will really hit home, eating into seminars, summer undergraduate research funds, homework helpers, travel to conferences, and other essential functions.

Our Ph.D. program had been cut by 20% in the previous year, and we managed to convince the university to give us back a few more Ph.D. positions for next year (admitting our biggest class in several years). I'm grateful to our adaptable (indeed, proactive!) faculty and students, as we manage changes to our program which allow us to operate at reduced size. For example, we now alternate years between our graduate-level topology and geometry sequences, and next year we will merge the analysis and probability sequences. Similar streamlining at the undergraduate level has already taken place. Next year, expect further cuts to graduate programs university-wide.

Cuts to the TAEC led to the loss of undergraduate learning assistants (LAs) in MATH101, a course which teaches math modeling but also, crucially, helps students get over the increasing plague of math anxiety. We've been working closely with our colleagues in TAEC, and we will get these learning assistants back for next year; many thanks to Teaching Professor Tammy Nezel for her leadership here. In fact, we're optimistic about where our closer relationship with TAEC is heading: possibly to more effective tutoring, and to LAs in other classes like College Algebra and Precalculus.

Despite all of the budget drama, there is also a lot of great news to celebrate: promotions, new faculty members, a CAREER grant for Ian Zemke. We'll cover these items and more in the rest of the newsletter, so flip through and enjoy! I'll return for some parting words at the end.

--- Ben Elias, Department Head

If you would like to be added to our mailing list for future newsletters and other UO Math Department Information, please write to Shelly Watson (srwatson@uoregon.edu). We promise not to barrage you with solicitations for donations!

Department of Mathematics
University of Oregon
202 Fenton Hall
1222 University of Oregon
Eugene, Oregon 97405
(541)346-4705

Mathematics | Natural Sciences

Commencement 2026

The 2025-2026 Commencement was the first in the new format adopted by the UO administration. All College of Arts and Sciences Natural Science majors and graduate students participated in a ceremony together at Matthew Knight Arena. To celebrate our graduates, the department hosted a separate Department of Mathematics Celebration and Awards Ceremony in the Tykeson Commons two weeks before.



Far Left: Emily Mitchell at commencement.

Left: Kellan Murakami receives the DeCou Prize.

Below: Graduate and undergraduate students attend the department celebration.

Bottom: Ben Elias chats with students and faculty.



2026 Award and Scholarship Recipients

Frank W. Anderson Graduate Teaching Award

Duca Delfin Ares de Parga; continuing Mathematics doctoral student

E.E. and E.J. DeCou Prize in Mathematics

Kellan Murakami; B.S. Mathematics, Philosophy 2026;

Marion Walter Future Teachers Award

Cat Annjanette; B.S. Mathematics: Secondary Teaching; 2026. Continuing in UO Teach.

David Haddad; B.S. Mathematics, Computer Science, 2026.

The Charles W. and Elizabeth H. Curtis Scholarship

Fedor Chayka; continuing Chemistry and Mathematics undergraduate

Osi Bernstein; continuing Mathematics undergraduate

Sam C. and Ruth Ann Saunders Scholarship

Maria Wieczorek; continuing Mathematics undergraduate

Shay Raloff; continuing Music and Mathematics undergraduate

Erwin and Gertrude Juilfs Scholarship

Mahina Carlon; continuing Mathematics undergraduate

Sophia Fern; continuing Mathematics undergraduate



Above: Department Chair, Professor Ben Elias congratulates Duca Delfin Ares de Parga on receiving the Frank W. Anderson Graduate Teaching Award.

Below: Elias addresses graduate and undergraduate students, faculty, and staff at the Department Celebration and Awards Ceremony.



2025-2026 Ph.D. Graduates

The Department of Mathematics celebrates these students who have earned their PhD.



Megan Boes

Benjamin Young
*Covering Maps and
other Maps
between Higher
Dimer Models*



Francis Dunn

Ellen Eischen
*Rankin-Cohen
Type Operators on
Hermitian Modular
Forms*



Andy Huchala

Nicolas Addington
*Griffiths Residues
and Hypersurfaces
in Grassmannians*



Kyla Pohl

Benjamin Young
*Jack Combinatorics
of the Equivariant
Vertex Measure*



Arya Yae

Laura Fredrickson
*Hyperkähler Metric
Convergence from
Parabolic $SL(2, \mathbb{C})$ -Higgs
Bundle Moduli Spaces to
Hyperpolygon Spaces*

ONWARD

Some of our graduates share their post-graduation plans.

Andy Huchala I'll be at ICERM in Brown this fall working at the Computations on K3 Surfaces and Related Varieties semester program, working with a group developing code to compute zeta functions of smooth hypersurfaces and complete intersections in Grassmannians.

Kyla Pohl After defending my thesis this spring and finishing up a one year VAP position at Colby College, I'm taking some much-needed time off this summer before looking for a job. In the meantime I've been getting into running, teaching at a middle school math camp, and spending time with my partner and cats.

New Faculty

In this past year, three new Assistant Professors joined the department



Elizabeth Collins-Woodfin (“Lizbee”) earned her PhD from University of Michigan (2022), where she was a student of Jinho Baik. She was a Postdoctoral Fellow at McGill University (2022-2025) and in Fall 2024 was a research fellow at Institut Mittag-Leffler. Lizbee studies probability and random matrix theory, as well as their applications to spin glasses and machine learning.



Alena Erchenko studies smooth dynamical systems, ergodic theory, and the interplay between dynamical systems and geometry. Her PhD is from The Pennsylvania State University (2018), where she was a student of Anatole Katok. Alena did postdoctoral work at Ohio State, SUNY Stony Brook, and University of Chicago, and before coming to UO she was an Assistant Professor at Dartmouth.



Andrew Hanlon received his PhD from UC Berkeley (2019), where his advisor was Denis Auroux. Andrew studies homological mirror symmetry and its applications to symplectic topology, algebraic geometry, and commutative algebra. Andrew did postdoctoral work at SUNY Stony Brook and Columbia University, and was most recently a Research Instructor at Dartmouth.



Faculty Honors and Promotions



Ian Zemke

was awarded tenure and promoted to Associate Professor. We also congratulate Ian on receiving a prestigious NSF CAREER award!



Dev Sinha, Arkady Vaintrob, and Ben Young were all promoted to Professor.



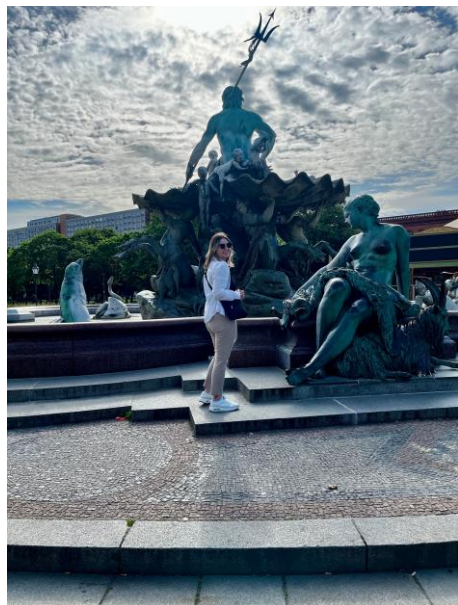
Ella Kleshcheva was promoted to Associate Teaching Professor.



Kristen Henderson (left) and **Liliana Pazdan-Siudeja** (right) were promoted to Teaching Professor.

Alumni News

We caught up with a few alumni to find out what they have been up to since their time at UO.



Jessica Babyak (née Taylor), B.S. 2022

Jessica graduated from Indiana University Bloomington in the spring of 2024 with a master's degree in mathematics. Since graduating, she works as a forecasting analyst in the energy sector. She currently lives in Bloomington, Indiana with her husband and two cats, spending most of her free time reading and traveling.

Photo of Jessica in Berlin

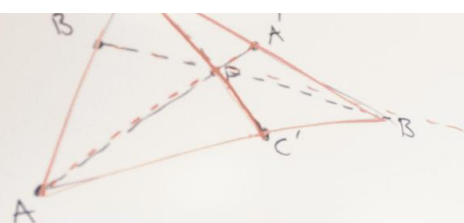


Thomas Bell, Ph.D 2013

After graduating from the UO, Thomas and his wife Melissa moved to Provo, Utah, where he worked for three years at Brigham Young University as a visiting assistant professor. During this time he advised an undergraduate research project and helped run two summer math camps, leading the 10-12 year-old group. They also acquired a third member of their family – a miniature poodle named Ellie.

After BYU, Thomas and his small family moved all the way to Buena Vista, Virginia, at the base of the Blue Ridge Mountains, to teach at Southern Virginia University, a small liberal arts college. He helped start the math major at SVU, and he has now been the mathematics program coordinator for five years. Thomas enjoys working in the smaller environment, getting to know his students very well, and helping them achieve their goals and aspirations.. Thomas was just inducted into the Phi Kappa Phi honor society for his service to SVU, and also just received his full professorship.

Thomas, Melissa, and Ellie have enjoyed being part of the community in Buena Vista. Thomas served for seven years on the regional library board and has been part of the local chime choir for the last two years.



$$\text{Then } \frac{AP}{BP} \cdot \frac{BP}{CP} \cdot \frac{CP}{AP} = 1$$

By Menelaus' Theorem,

$$\frac{AP}{BP} \cdot \frac{BP}{CP} \cdot \frac{CP}{AP} = -1$$

$$\frac{AP}{BP} \cdot \frac{BP}{CP} \cdot \frac{CP}{AP} = -1$$

$$\frac{AP}{BP} \cdot \frac{BP}{CP} \cdot \frac{CP}{AP} \cdot \frac{BP}{AP} \cdot \frac{AP}{BP} \cdot \frac{CP}{BP} = 1$$



Vince Mateus, B.S. 2019



In 2021 Vince started working remotely as an actuarial analyst supporting state Medicaid programs. He and his wife moved to Long Island in 2022 for her clinical internship, and in September of that year their daughter Citali was born in Stony Brook. A year later they moved again, this time to southeastern Illinois right outside St. Louis. As of April 2024 the family lives in Irvine, CA.

Vince reports studying for and passing actuarial exams in 2025, family vacations to Chicago and Lake Tahoe and Disneyland, and that this July they took their daughter on her first overnight camping trip. “Many mornings start at 6am with an endlessly energetic, happy kid who wants to draw and play and hang out with me, and I feel like the luckiest person in the world. I love being a dad and my daughter is the light of our lives. While parenting is hard sometimes, the hardest days still don’t come anywhere near my first time trying to learn abstract algebra!”

Tenchita Alzaga Elizondo, B.A. 2015 (Math and Spanish)



The picture on the right was taken on a recent visit to Eugene in June 2026!

From UO, Tenchita went to Portland State University with the intention of getting her masters in Math so that she could teach at a community college. She ended up getting **both** an MS in Mathematics and an MS in Mathematics for Teaching.

At Portland State she was introduced to mathematics education research and fell in love with the subject, deciding to stay at PSU and get her PhD in Mathematics Education. Tenchita describes herself during this period as “a professional student collecting math degrees”. When she wasn’t busy being a professional student she did a lot of traveling: she took a couple of trips to Europe with both friends and family, and regularly visited Mexico to see family. After finishing her PhD in fall 2022 she found a tenure track job at University of Texas Rio Grande Valley (UTRGV), where she currently works as an Assistant Professor. She still regularly returns to the Portland area to visit friends and family, and hopes that one day she can make it back here permanently!

Ian McConachie, B.S. 2023 (Math and CIS)

Ian has lived in Boston, MA for the last 2 years where he has been working as a paralegal at the Massachusetts Attorney General's Office specializing in cryptocurrency fraud. His team has been able to recover millions of dollars and their efforts have been covered in NPR and Bloomberg. This fall Ian will be attending law school at the University of Michigan to continue his legal career. He looks forward to biking around Ann Arbor and spending time on the Great Lakes, but still misses the beautiful mountains and forests surrounding Eugene. (Ian cites Professor Hersh's *Combinatorics and Graph Theory* course, as well as Professor Young's *Mathematical Cryptography* course as having helped him greatly in his work).



Cathy Hsu, Ph.D 2018

After graduating from UO, Cathy completed a two-year postdoc at the University of Bristol as a Heilbronn Research Fellow. Since 2020, she has been delighted to serve on the faculty at Swarthmore College, where she was recently promoted to Associate Professor of Mathematics. One of Cathy's teaching highlights has been incorporating illustration into modern algebra topics, and she has enjoyed traveling to give talks. Outside of her academic work, Cathy has carried on the UO graduate students' tradition of winning intramural sports championships!



Top: Ian McConachie in Boston

Above: Cathy with her PhD advisor Ellen Eischen, in spring 2026. This was taken when Cathy visited Ellen's classroom to give a guest lecture on the mathematics of the game SET.

Left: Cathy with her intramural championship team.

Marnie Reid, B.A. 2015

After graduating from UO, Marnie joined Teach For America and taught high school math in Baltimore while earning her master's degree in Educational Studies from Johns Hopkins University. She then returned to her hometown of Bend, OR, to continue teaching before moving to Dublin, Ireland, to teach MYP and DP Math at an IB international school. Since returning from abroad, Marnie has been working as a Math Success Manager (coolest job title ever!) at Innovamat, a math organization that builds hands-on, inquiry-based, and research-backed math programs for PK-8 classrooms. In her role, Marnie partners with teachers and schools to implement the curriculum, coaching them through the shift to a more student-centered classroom. She's now living in New York City and loving life in the Big Apple — though after all her travels, the PNW still has her heart!



What are you doing?

To all of our alumni: **We would love to hear from you!** If you are willing to be included in a future newsletter or would just like to let us know what is going on in your life, please reach out to either Dan Dugger (ddugger@uoregon.edu) or Shelly Watson (srwatson@uoregon.edu).

Alumni Interview

We caught up with Nicole Aver (BS, 2014), who is a civil engineer at Skanska USA, living and working in Los Angeles. The following is a digested version of our conversation.



DD: Hi, Nicole! Can you start by giving us an overview of your journey since leaving UO?

NA: I graduated in December 2014; I actually walked the previous June, but I stayed through December because I wanted to stick around for one more football season! After graduating I moved back to Los Angeles, and then went to grad school where I got my Masters in civil engineering, with a focus in water resource and environmental engineering. That was August 2015 through May 2017, at Loyola Marymount University here in LA. When I was at UO I was a business minor (in addition to a math major), and one of my business teachers had us create a LinkedIn account. I worked really hard on that and got it as perfect as I could. After grad school I updated my LinkedIn, and a company contacted me out of the blue and invited me for an interview. At the interview I was hired on the spot!

They relocated me to Fresno to work on the California High Speed Rail project, and then about 14 months later I transferred to the LAX Automated People Mover project (which hopefully will be functional soon!) After the structural part of that project was done I was moved to a tunnel project, for taking treated wastewater from a water treatment plant to an outfall in the ocean. Working on a project like that, you quickly figure out whether you are a tunnel person or not; and I was definitely not a tunnel person! So after a while I left that company and transferred to my current employer, which is Skanska USA.

Skanska is a worldwide company, based in Sweden, but they have offices across the U.S. They put me on a project at LAX that involved re-doing roadways that lead into the airport. That project finished, and now I'm on a different (but related) project that involves building nine different bridges around LAX that will help funnel people into the airport efficiently and effectively.

DD: What originally led you in the direction of civil engineering?

NA: I started UO as a human physiology major, but when I got to the harder chemistry and biology classes the material just didn't click for me. So I went and thought about what subjects I had always been good at, and math really stood out---both as a subject that had always made sense to me and also as one that I really enjoyed. I ended up taking linear algebra (Math 341) with Jonny Comes, and I thought I was doing SO horribly...but then the second week of class he gave us a pop quiz and I ended up getting 100%! So I realized that something up there was making sense. I considered the different math major tracks [at the time Pure, Teaching, and Applied]. My mom was an elementary school teacher and I had experiences going to her classroom and helping out, tutoring kids in math, so I knew I could do that. But I really wanted to do something that helped people in a different way.

I figured that applied math could open up roads to lots of different things---being an actuary, or going to graduate school, or just about anything really. I liked the idea of civil engineering and the fact that it could take a person in so many directions: architecture, or engineering, or design... I liked the idea that I could take the math I learned in college and connect it to real life. And so here I am!

DD: If I decided I wanted to be a civil engineer, I would have no idea how to actually go about that. How did you navigate it?

NA: It was definitely very challenging for me, since as you know UO doesn't have an engineering program. Someone who wanted to be an engineer would probably go to OSU instead. But by the time I figured out what I wanted to do, I had so many friends and connections at UO that I definitely did not want to transfer (and I was a Duck, not a Beaver!) I did some research about what schools would you to do a Masters in engineering without a Bachelors in that subject, so that took leg work. But it worked out really well. I'm in the construction side of civil engineering, but there are so many paths that you can take in this industry.

DD: If you were talking to a bunch of UO undergraduates, how would you describe the pros and cons of your career?

NA: The "con" is that you are never really off of work, though maybe that's most careers these days. Possibly I had some idea of this before entering the profession, but once you are thrown into your first job you really find it out fast. For the "pros", it is just so rewarding to feel that you are helping people, even if it is in a somewhat indirect way. Most people have no idea what it takes to improve infrastructure, and mostly experience the process through the inconveniences of when construction is happening. But the finished product is what people get to benefit from, and it can make a real difference in their lives. So much planning goes into all of the construction that happens around the world. The project I am currently on at LAX is specifically to help prior to the upcoming 2028 Olympics. This is going to really help people!



DD: Does it ever feel that the people you are helping are so far removed from you that you never get the first-hand experience of it?

NA: There's some truth in that, but when I drive around town and see a road or a bridge I helped make there's a real pride in ownership with that. Also, I grew up in LA and it feels great to contribute to the city in these ways. Another thing is that it's a very small industry, so you end up working with the same people over and over again. You all have the same stories, your friends all know what you're working on, there's a real sense of community in the job.

DD: Do any particular memories from your time at UO come to mind?

NA: Here's a really great memory. I was sitting in Weiyong He's Math 315 class, the very first day. It was a small classroom and I was sitting in the front row waiting for the class to start, petrified of this course where we were going to be writing all of these hard proofs. (cont. next pg)

Some girl who I had seen before in Calc 3 saw me, came running up to me, and said “Oh my gosh! I’ve seen you in other classes! Can I sit next to you, will you study with me?” This girl is still one of my really great friends today, and it’s just such a special memory to have this lifelong friend show up out of the blue like that, at a moment that started out with a lot of fear.

I was back on campus last January and my husband and I walked through Deady [now University] Hall. I remembered how in the old building there was a seating area in the stairway right out in front of Chris Sinclair’s office. My friend and I would just park ourselves there to wait for his office hours, to make sure we were getting as much of the information as possible. We had a lot of interactions with all of the grad students, and all of the professors, because we would be in that little stairwell for hours on end and everyone was constantly walking by! I have a lot of great memories of Deady Hall, and of the stacks in Fenton. I took my husband down to the stacks and showed him where I used to study, it was my secret “away” place from everybody. It’s a hidden little gem! I wish I had found out about it sooner because it was just so helpful, and quiet, and isolated.

Speaking of my husband, I have a funny story! I got married last April, and as it happens my husband is also a Duck! He was a year ahead of me. We didn’t know each other at all in college, we didn’t meet until later in life.



But it turns out that one of his best friends was also a UO math major. That friend and I didn’t have any classes together (he was pure, I was applied), and we didn’t figure out this connection until the day before the wedding! But we realized that at the math department graduation we were sitting maybe one seat away from each other. And my husband was there in the audience supporting his friend!

Of course neither my husband nor I knew that our future spouse was in the same room that day. My husband and I have traced back through our time at UO, and there are so many places where we could have met but didn’t. I lived at Hamilton my first year and he actually worked there! We could have crossed paths every single day without realizing it. There are a lot of examples like that.



DD: Let’s come back to the present day for a moment. What about life outside of work? Activities you particularly enjoy?

NA: We love to travel! We went to Japan back in 2024, and are going to Vancouver this summer. I’m a big sports person and just went to a World Cup game last weekend.

DD: Lots of people who come to UO either come here as sporting people or leave here as sporting people.

NA: Definitely! I went to every single football game I could. In fact I lived just across the street from Autzen, so I went to all the football games, all the baseball games, all the basketball games...everything I could. I’m a huge sports fan. Being at UO during the Marcus Mariota period was incredible!

DD: Why did you choose UO in the first place?

NA: My parents both went to UCLA, in fact they met there. I always thought I wanted to go to UCLA too, but growing up I was always in fairly small schools and UCLA has gotten so huge. When we went to look at Oregon, my mom commented that UO felt the way UCLA did back when she went there. I loved the brick buildings and the feeling of walking along 13th Street, it’s just a magical place. Eugene, being a small college town, makes the college experience really intimate. LA is of course a HUGE city, you can go to school here and easily not feel like you are in college at all. But at UO I really felt like I was in college. And everyone there is so into the Ducks, and so amazingly devoted to the school. It’s a wonderful environment to be in.

DD: Do you have any words of wisdom to pass on to our undergraduates about why a math major is a good idea?

NA: There is a reason why subjects like math, and English, and history are the core fundamental classes that you take throughout your life. If you are unsure of what you want for a career but have always been strong in one of those subjects, it's a great path to take because of how many different avenues you can branch off to. With an applied math degree you are well-positioned to go into almost any field that has math component---you might have to do a bit more schooling, but you will be set up very well.

That's also the reason I chose to have a business minor, because that knowledge is useful for many different directions. I knew that if engineering didn't work out for some reason, the business knowledge would help give me other directions to go.

I do think there is an issue these days with people not being willing to work as hard as they used to, and that can be a real problem. In my industry, it's a lot of hard work. And if you are not willing to put in the effort and the time, you aren't going to be as successful as you hope to be.

I wouldn't change one thing about my degree. I love the fact that I can say I am part of the less than one percent of the population that has this degree! It's such an amazing, unique, and fun thing to have. People at work sometimes introduce me by saying "Here's our math major, Nicole". They seem a little in awe of the degree and don't know how I did it, but honestly, it's just that the subject always made sense to me. Even as a kid I loved numbers, and patterns, and I loved to play with those things. I just love math! It was always something fun for me.

DD: Do you get to experience that as part of your job?



NA: Absolutely! I get to play with numbers almost every day. Just earlier I was working on the columns for a bridge, and there's the top deck elevation and then there's where you need to place the concrete, and you do some backwards math to figure out where that is. It's not hard math, and often it takes the form of building and playing around with Excel spreadsheets, but it's very fun and interesting.

DD: Is there anything else you would like to add before we close?

NA: I would just like people to get the idea that it's okay to not know exactly what you want to do for a career, especially when you are 18 or 19. As long as you keep trying hard and working on improving yourself, you will get to where you are eventually supposed to go. For me, without knowing what I wanted to do, I ended up in the industry I was meant to be in. When I was a kid I wanted to go to UCLA, but I ended up at UO and I wouldn't change one minute of it. I have so many amazing memories, made so many amazing friends, it was really the place I needed to be to become who I am today. Trust in the process, trust in your instincts. That's key to life.

DD: I feel like UO should hire you to go around promoting us! Thank you so much for all of your time!

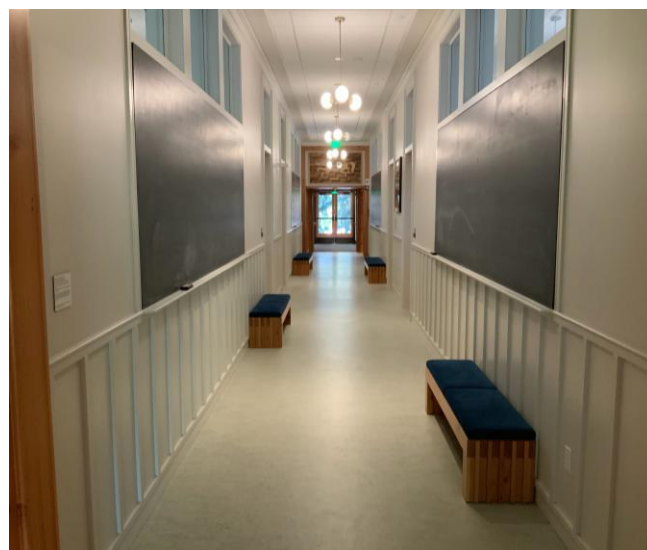
NA: It was an honor!

Introducing the new University Hall

In Fall 2025 the renovations on University Hall (formerly Deady Hall) were completed, just in time for classes to start---but only barely! Nick Proudfoot was the department's main representative on this project during his term as head, and thanks to all of his work with the architects---which, among other things, involved insisting over and over again that we needed long blackboards everywhere---we ended up with a very beautiful building that works great for us. The next two pages give a tour in pictures of the renovated building. The building now has a modern heating and A/C system! Classrooms are now only on floors 0 and 1, floor 2 has graduate student offices, Hilbert Space, and the seminar room. Floor 3 has faculty offices and common workspace.

Remember the mezzanines? They are gone---or rather, they now house the equipment for the heating and A/C, and so we don't interact with them. The building feels much more "normal"!

Let's start the tour on the first floor [right and up], where most people enter... Then we will head down to level 0 (half-basement) in the two pictures below.



Hallway: note the benches and blackboards!



Lovely artwork above the doors



Student workspace

The arches are part of the original building but were covered up long ago. Now they are back! Note the (original) brick behind the (new) wood arch.

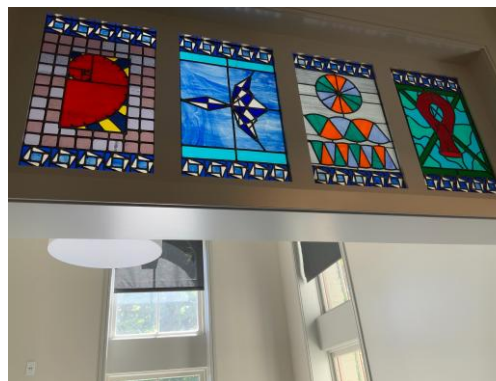
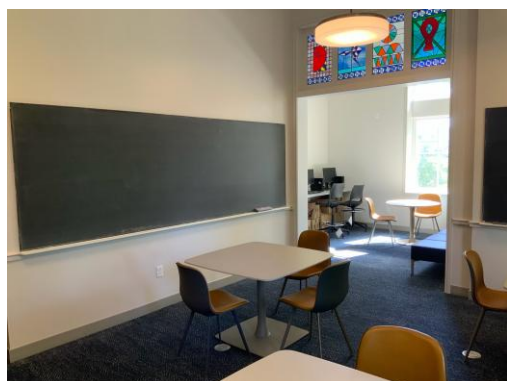


University Hall, cont.

In the classrooms we have wonderful board space, and movable desks for collaborative work:



Now let's head up to the second floor:



Above: The seminar room is still here, but down the hall from where it used to be. That's Villard Hall out the windows.

Left: Hilbert Space is now across from the Seminar Room. The beautiful stained glass panels were a gift from former undergraduate student David Jordan.

And finally, a few shots of the open workspaces on the third floor:



Third floor. Note the skylight in the third picture. Students often congregate in these spaces for office hours.

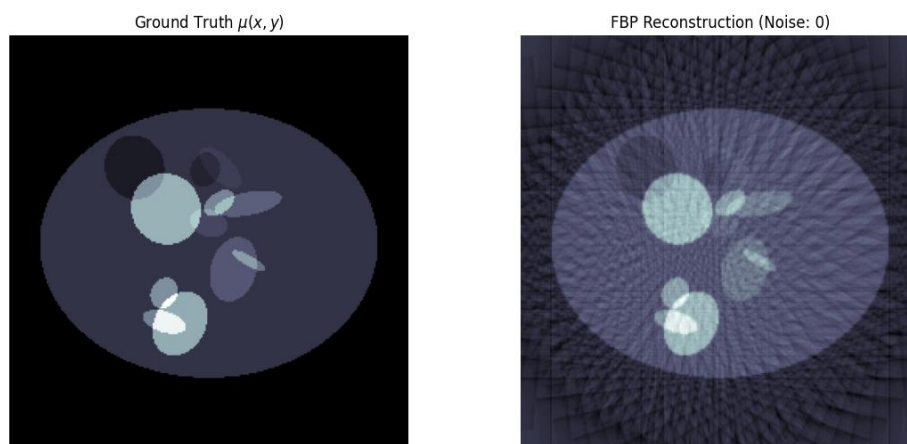
In the Classroom

Jason Murphy shares about a new undergraduate course entitled **The Mathematics of Medical Imaging**



I became interested in the math behind medical imaging after seeing a lecture by Peter Kuchment on ‘hybrid image techniques’. I was pleasantly surprised to see that the techniques boiled down to analysis of partial differential equations (specifically wave equations), which is exactly my area of research. I have always been interested in applications of mathematics (in physics, nonlinear optics, etc.), and medical imaging seemed like a particularly exciting topic because there are deep connections between interesting mathematics and modern, accessible, real-world applications. In addition, my brother is a radiologist, so I had easy access to an actual practitioner.

I decided to develop a course on this topic while working at my previous institution (Missouri S&T), relying on a very nice textbook by Charles Epstein (*Introduction to the Mathematics of Medical Imaging*) and regularly sending questions to my brother. In fact, the first iteration of the course was given over Zoom during the pandemic, allowing my brother to attend remotely from California. My goal has been to design a course that can be interesting both for mathematics students seeking to learn about applications, as well as students in science and engineering looking to deepen their understanding of the mathematics behind why things work.



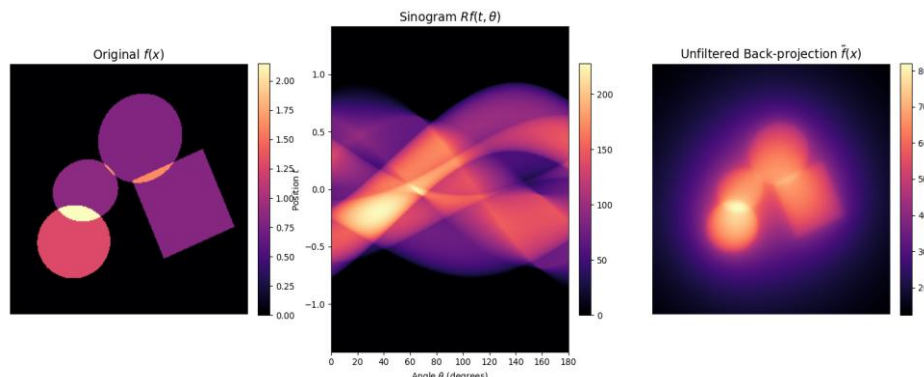
An example of Filtered Back Projection: original on the left, reconstructed image on the right

While the exact topics change with each iteration of the course, the core ones are the mathematics of X-Ray Computerized Tomography (X-Ray CT) and Magnetic Resonance Imaging (MRI). Underlying both topics is the fundamental mathematical topic of Fourier Analysis, which consists of analyzing functions by decomposing them into waves of fixed frequency. A complete mathematical treatment of these two imaging modalities takes several weeks. Afterwards there is a great deal of flexibility in what to cover next, adjusted based on what kinds of students are taking the class.

Some examples include sampling theory, numerical implementation of reconstruction algorithms, analysis of imaging artifacts, additional imaging modalities (such as Positron Emission Tomography [PET] and ultrasound), and the application of machine learning to medical imaging.



Mathematics of Medical Imaging, cont.



Unfiltered Back Projection: original on the left, reconstruction on the far right. Without the filter one ends up with a blurry version of the original.

The most challenging part of delivering this course is properly accounting for the different mathematical backgrounds of students. I try to keep the prerequisites relatively light, to keep the course accessible to as many students as possible. But much of the material relies on concepts from analysis that could be challenging for students who have not seen them before. The course starts with an introduction to these essential analysis topics, which might be review for some students but totally new for others.

In fact, throughout the quarter many homework problems boil down to straightforward calculus computations, but making such reductions is a real challenge for students. In some sense a natural remedy would be to assign a lot more homework and other assessments, but of course I do not want to overwhelm the students with work (and in fact, it is not that easy to produce tractable computational problems based on the material). I have also found that students who are not disciplined about attending class quickly fall behind, especially as we move frequently between different topics.

The part of the course that works best is the final project. Students select their own topic (in consultation with me) and have a great deal of flexibility in the details of their implementation. Here students can play to their strengths. Some choose to present mathematical theory; others present the details of a reconstruction algorithm; others rely on their programming skills to carry out numerical implementations; and so on. The project is quite open-ended. Every time I have run this course I have seen exceptionally good projects from students, many of which could naturally be developed further as undergraduate research projects.

Twenty-three students took the course this year, and we had a great time!

Eugene Youth Math Festival



As in past years, Maria Nemirovskaya assembled a small army of volunteers to take over McArthur Court on a Saturday in February, to share math activities with hundreds of children. This year we had over 150 volunteers, and over 420 children participants. The event is supported by the UO Math Department and also by Thornton Orthodontics, together with all of the awesome volunteers! More information about the math festival can be found at <https://blogs.uoregon.edu/mathfestival/> How many familiar faces can you spot in this year's pictures?



Eugene Youth Math Festival, cont.



This year the department hosted a record number of **four** conferences and workshops, spread across the year.



WARTHOG participants atop Spencer Butte.

WARTHOG, August 2025

WARTHOG is a summer graduate workshop that takes a unique pedagogical approach - alternating between an hour-long lecture and an hour-long exercise session with a single problem. We focus on one mathematical topic and getting graduate students from the basics to a deep new result. We also give the attendees another form of exercise: a hike up Spencer Butte on Wednesday.

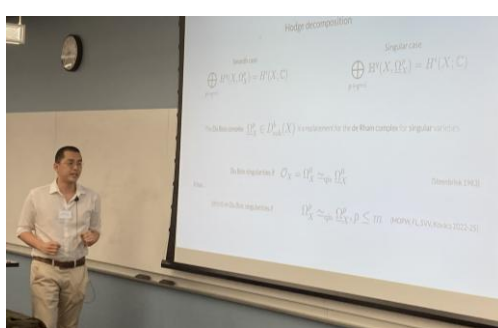
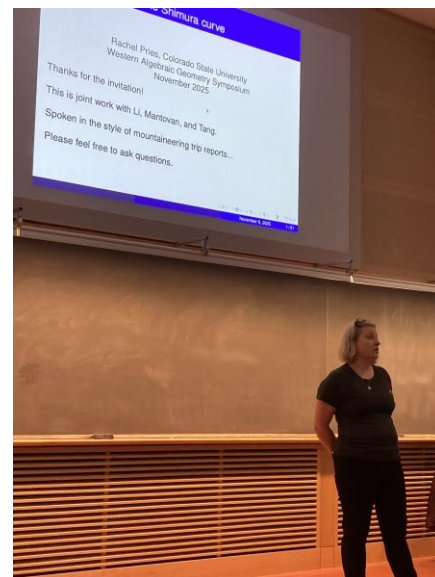
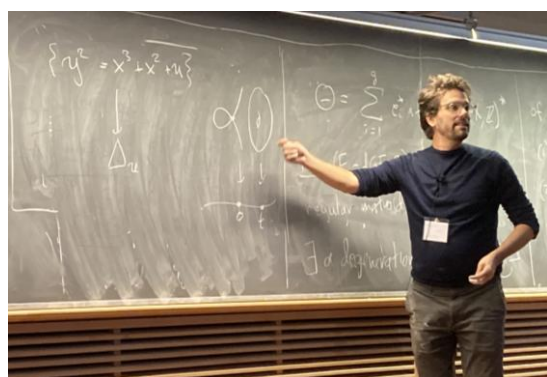
WARTHOG 2025 was run by three main speakers in tandem: Eugene Gorsky and Melissa Sherman-Bennett from UC Davis, and Jose Simental Rodriguez from UNAM. We studied braid varieties, newly-invented algebraic and geometric gadgets that encode sequences of moving lines, planes, etcetera within a higher dimensional space. The event was attended by about 65 graduate students from across the world together with 10 UO PhD students.

WARTHOG=Workshop for Algebra and Representation Theory on Oregon Grounds. Local Organizers Ben Elias and Nick Proudfoot



Western Algebraic Geometry Symposium (WAGS), November 2025

WAGS is a twice-yearly meeting of algebraic geometers in the western US and Canada, aimed at building a regional community of mathematicians at all career stages, from advanced undergraduates to full professors, with more than a hundred people taking part. (Local organizers Nick Addington, Sasha Polishchuk, and Nick Proudfoot). The University of Oregon hosted this fall's meeting over the weekend of November 7th.



Pictured: Speakers Kristin DeVleming (center), Phil Engel (left), and Rachel Pries (above).

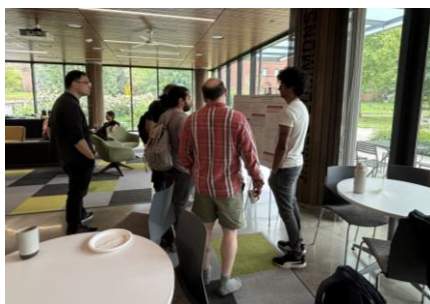


Functional Analysis in the Pacific Northwest, November 2025

UO hosted this conference from November 8-11. The four-day event aimed to bring together a diverse field of mathematicians from around the world and foster an environment for collaboration and exchange of ideas, as well as celebrate this year's guest of honor, the influential functional analysis expert William B. Johnson, distinguished professor and A.G. and M.E. Owen Chair of Mathematics at Texas A&M University. There were over 40 participants, including researchers from Canada, Brazil, Switzerland and Poland. The local organizer was Marcin Bownik.



Cascade Lectures in Combinatorics (CALICO), May 2026



This is part of a series of conferences being organized in the Pacific Northwest region, aimed at graduate students, postdocs, and faculty. These conferences bring in four to six expert speakers for each meeting and are aimed at creating a sense of community with friendly and frequent meetings. This was the ninth conference in the series, held May 9-10, and had over 35 participants. The local organizers were Patricia Hersh, Colin Crowley, Alex McDonough, and Ben Young.



Pictured speakers: John Shareshian, Steven Karp, and Anne Schilling

In Memoriam



Charlie Curtis passed away on May 3, 2026, age 99. Charlie graduated from high school at age 16 and earned his Bachelor's degree from Bowdoin College in just two years. He served in the navy during WWII (1944-1946), and afterwards earned his PhD from Yale in 1951, where he was a student of Nathan Jacobson. Charlie was on the faculty of the University of Wisconsin from 1954 to 1963, at which point he moved to UO.

Charlie's work was in finite group theory and representation theory, and during his career he was one of the most prolific researchers in our department. Math Reviews lists 82 publications with 3,356 citations, an enormous number on both counts.

One of his most famous works is the two-volume graduate textbook "Representation Theory of Finite Groups and Associative Algebras" that he wrote with co-author Irving Reiner. He also wrote an undergraduate textbook, "Linear Algebra: An Introductory Approach".

Charlie served as department head from 1970-1973. He had 26 Ph.D. students (19 of them at UO), and was selected as an AMS Fellow in the inaugural class of 2013. Charlie retired in 1992, but for many years after that he would still occasionally come to campus to use the library, visit colleagues, and attend seminars. He will be sorely missed.

Every year the department awards the Charles and Elizabeth Curtis Scholarship, in honor of Charlie and his wife Betsy.



Hi! It's me again. One sad thing we have found with these newsletters is that there is just not enough time or space to talk about **all** of the wonderful work that goes on around the department. Despite the hard times, there are so many things to celebrate, so much work that people put their heart and soul into. Each year we pick a few things to focus on, and the hope---if we are able to keep these newsletters going---is to rotate the focus from year to year. For example, we didn't cover this year's fascinating Moursund and Niven lectures, given by Vic Reiner (Minnesota) and Tyler Jarvis (BYU), respectively. Nor did we talk about the awesome work done by our graduate students in the Directed Reading Program, the AWM chapter, and the AMS student chapter. So if you didn't find your favorite topic this time, tune in again next year! And don't be afraid to send us requests or suggestions.



It is my privilege to wrap up this newsletter with some words of gratitude, and a few more updates along the way. I want to start by thanking Dan Dugger, last year's department head and initiator of this wonderful newsletter tradition. Don't let my remarks as figurehead fool you --- Dan and Shelly Watson are the ones putting in the effort behind the scenes to make this newsletter happen!

On the administrative side, last fall our department manager was called up to the military reserves (we heard from Tim recently, he is well), and after months of uncertainty our departmental staff have been folded into a new administrative unit. We bid farewell to Scott Hill, who is moving to a different unit in CAS, but we will continue to work with Amy Massoud, Charlotte Mueller, and Shelly Watson as part of the new team (for which we are very grateful). Let me take the opportunity to reiterate our appreciation for these four wonderful people, not just for their excellent work but also for their fabulous spirit, dedication, and camaraderie. A small taste of these three features can be seen in the group photo below.

In my opening words I spoke of the impending budget cuts and the ways we are responding. Thankfully, many of the impactful things we do in this department are primarily funded by donations, and have continued without cuts. This includes the Math Festival and Math Circle, which remain top priorities for support. This year the Math Festival had 420 children participating, and it remains an event that families all over the region look forward to. Donations also quietly help to fund graduate student travel and summer research in a major way. We are also still able to continue our work with the Prison Education program (for which we thank the College), with classes taught by our ever-energetic Assistant Teaching Professor AJ Rise. So, even though we say it again on the next page, thank you donors!

Let me close by thanking all of our alumni for their support (it is so great hearing from some of you in these newsletters!), all of our faculty and staff for their hard work and passion, and all of our students for their wonderful energy and zeal for learning.

See you all next year!



Administrative Support staff (from left to right) Charlotte, Scott, Garth and Wayne, Amy, and Shelly pose in their Halloween costumes, bringing some extra fun to the office.





Tie dye folks at the annual department picnic, 2026. From Left to right: Annika Christiansen, PhD student; Alex McDonough, Post Doc; Cory Peters, PhD student; Duca Delfin Ares de Parga, PhD student; Arthur DressenWall, PhD student.

Thank You To Our Donors

We are grateful to all of our donors for their continued interest in the UO Department of Mathematics, and for their generous contributions. Donor funds support undergraduate research opportunities, allow us to bring in distinguished visitors, provide scholarships and student awards, fund curriculum development efforts, and so much more. In a time of dwindling federal, state, and university resources, the role of donors to the mission of our department is more important than ever. We are incredibly appreciative of your support and the opportunities that your gifts help provide.

Love of mathematics, and the desire to share mathematics with others, are very rare and special qualities. They drive everything that our department does. Thank you so much for your devotion to those ideals, and for helping us turn them into realities. Thank you for your belief in our department and institution.



Guitar playing and singing at the winter Odell Lake trip, 2026. From left to right: Leo Fries, PhD student; Micah Warren, Associate Professor; Nick Proudfoot, Professor; Sasha Polishchuk, Professor; Sam VanderArk, PhD student; Laura Fredrickson, Assistant Professor.



Rainbow over Odell lake, February 2026

MAKE A GIFT

To make a donation to the Department of Mathematics, please use the link or QR code below.

<https://bit.ly/4hVpg9e>

The link will take you to a secure webpage associated to the UO Foundation. Note that the gift will result in you being added to a generic UO Foundation mailing list, but you can unsubscribe from that if you wish. More information about giving to UO can be found at the link <http://giving.uoregon.edu>.

You can also go to the Contacts/Resources link at the UO Math homepage and use the button below the picture of University Hall.

