2025 IN REVIEW

The Schlieren

School of Chemistry and Materials Science

IN THIS ISSUE

Editors: Dr. Tina Goudreau & Grace Jones ‘27

Dr. Michel Awarded RIT Eisenhart Distinction

Adapted from an article by Mollie Radzinski

Educators had a big influence throughout **Dr. Lea Michel’s** educational journey, and now she is being recognized for her own impact with the 2025 Eisenhart Award for Outstanding Teaching.

Michel, a professor in the School of Chemistry and Materials Science, said she was happy and grateful upon hearing she was selected for the award, adding that, “Teaching has always been important to me, so to be recognized for teaching is really exciting.”

While attending an all-girls high school in Rochester, Michel credits encouraging teachers, especially in STEM, who taught her that women could do anything. The school brought in speakers with careers in science and engineering to inspire students.

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TWO STUDENTS NAMED GOLDWATER SCHOLARS

Grace Perna & Eva Reilly

> ***What I love most about RIT is my program's ability to incorporate hands-on and laboratory approaches to learning while maintaining creative freedom.***
> ***-Grace Perna***

Adapted from an article by Mollie Radzinski

Two RIT undergraduates have earned the prestigious Barry M. Goldwater Scholarship to support their research to find better medical treatments. **Grace Perna**, a fourth-year biotechnology major from Clifton Park, N.Y., and **Eva Reilly**, a third-year biochemistry major from Erie, Pa., both study in labs that aim to find better solutions for a range of diseases.

The Goldwater Foundation awarded 1,350 students across 445 academic institutions this year after receiving more than 5,000 applications. The award gives support to outstanding undergraduate students interested in pursuing research careers in science, engineering, and mathematics.

Perna is working in the lab of Dr. Lea Michel, professor in the School of Chemistry and Materials Science. She is currently researching extracellular vesicles and testing their antimicrobial efficacy.

Perna is no stranger to research. Last summer, she received funding to conduct research in biocatalysis at California Institute of Technology. While she grew up wanting to be a lawyer, Perna shifted to science after being diagnosed with chronic illness in high school, as she wanted to understand her condition more and improve treatment methods. She originally majored in neuroscience before transferring to RIT in 2023 to pursue biotechnology. She plans to pursue a Ph.D. in either biochemistry or immunology in the future.

Reilly credits excellent high school science teachers for getting her interested in biology and chemistry. Her two older sisters were RIT students, but she didn't think she would follow them to Rochester. In the end, though, it was the right fit for her, too.

In the lab of Dr. Suzanne O'Handley, associate professor in School of Chemistry and Materials, Reilly is currently researching enzymology and characterizing enzymes as potential novel antibiotic targets. Specifically, she is studying enzymes that are found in the bacteria that causes tuberculosis and leprosy.

Reilly also works as a learning assistant, which has helped show her that she would like a career as a professor to continue teaching and conducting research after earning a Ph.D. As a student-athlete on the cross country and track and field teams and member of other student organizations, Reilly has learned how to manage her time while keeping her aspirations in sight.

> ***The Goldwater application process really helped me narrow down my goals and understand what I want to do. It gives me more confidence that science is something that I can contribute to***
> ***-Eva Reilly***

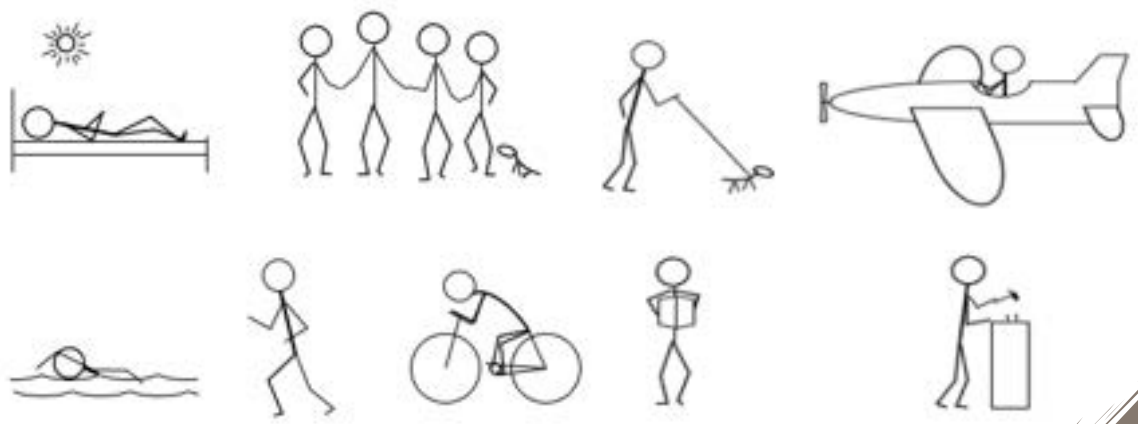
Dr. Joseph Hornak Retires

Dr. Hornak, and his wife Beth

Dr. Joseph Hornak, Professor of Imaging Science, Chemistry, and Magnetic Resonance Laboratory Director, announced his retirement at the end of the 2025 spring semester and spent his last summer with the Center. Dr. Hornak has been named Professor Emeritus for the Chester F. Carlson Center for Imaging Science for his notable contributions at RIT. "It is with mixed emotions that I announce my retirement from RIT and the Center for Imaging Science. I joined The Center for Imaging Science in 1989 as the Wiedman Professor of Medical Imaging. My affiliation with CIS gave me experiences I could never have had elsewhere. I have worked and lived in Italy and Germanyectured at universities in China, Italy, Peru, and nd the USA; and educated learners in literally every country through The Basics of MRI and NMR hypertext books."

A celebration of Joe's outstanding career at RIT was held on November 20, 2025 with many of his former students traveling from across the country to attend. In addition to a great food, a few speeches and much mingling, Jan Van Aardt led a "How Well Do You Know Joe?" quiz getting all attendees involved. Questions included, "What certificates and licenses does Joe hold?" (answer: Private Pilot License and Scuba Diving Certification), "How many Ironman Branded triathlons has Joe finished?" (answer: 2 full and 2 half), "Which of Joe's graduate students have supported his running addiction?" (answer: Jo Roe and Olivia Kuzio), "How long did it take Joe to complete the challenge of running around each of the NY finger lakes?" (answer: 792 days, 6 hours, 15 minutes, and 22 seconds), What student developed Imaging Science's first and RIT's 3rd US patent with Joe? (answer: Scott Szeglowski), "Who was the primary RIT chemistry student involved in the development of the EPR MOUSE?" (answer: Lauren Switala), "Joe's hypertext books The Basics of MRI and The Basics of NMR have had how many total readers since their initial release?" (answer: 4.5 million and 2.3 Million, respectively).

Joe shared on reflection, "I thank the numerous students and colleagues who helped make me and the RIT Magnetic Resonance Laboratory look good. I am asked, what will I do in retirement? The answer is: what I have not been able to do enough of while working. This includes...Key: sleep late, spend time with family, train, read, fix things, walk Luna, and get recertified." We'll miss you Joe, and enjoy retirement!



New Faces Around SCMS

Dr. Pritam Ganguly

Dr. Pritam Ganguly started as an Assistant Professor in SCMS last fall. Ganguly was born in a small town called Makardaha in West Bengal, India, about 15 miles west of Kolkata. He completed his undergraduate studies at St. Xavier's College, Kolkata, where he majored in Physics with minors in Chemistry and Mathematics. He then went on to earn a master's degree in Physics from the Indian Institute of Technology Guwahati, where his thesis focused on molecular dynamics simulations for studying rare events, specifically correlated ion hopping in salt crystals. Ganguly then completed his PhD in Chemistry at the Technical University of Darmstadt in Germany, working on biomolecular solvation and developing methods for molecular dynamics simulations. He then joined the University of California, Santa Barbara as a postdoctoral researcher and later continued as a project scientist. There, his research centered on the molecular mechanisms behind neurodegenerative diseases such as Alzheimer's and Parkinson's. He also collaborated on projects with a pharmaceutical company working on drug development for ALS.

When asked what drew him to his PhD focus, Ganguly shared, "I think I was drawn to computational research from my undergraduate days. I was then introduced to molecular simulations during my master's and immediately fell in love with the 'potential(!)' of this kind of research. My master's thesis supervisor played a huge role in inspiring me to continue in this field. I would be lying if I said I had a very clear idea of what I wanted to do during my PhD back then, but I was determined to develop and test new methods for running molecular simulations more efficiently. My PhD work was mostly focused on method development, and it was only toward the very end that I gained a clearer sense of how I wanted to apply these techniques to understand molecular mechanisms behind diseases and to develop drugs."

Ganguly's favorite thing about conducting research in his chosen field is that it's safe. He explained, "I was often scolded by my professors for randomly pushing buttons in the physics lab, and occasionally for mixing chemicals in the chemistry lab. (Dangerous and definitely not recommended for any untrained or unsupervised students) Quite rightly, I was advised not to pursue experimental research. So I chose simulation. My computational research has become my safe space, where I can try out the most obnoxious ideas without causing any real damage, which still gives me a child-like excitement."

We asked Ganguly what advice he can offer to students about research. He stated, "Research may look flashy, with all the perceived glamour around well-known scientists. In reality, it can be quite boring. We spend most of our time debugging and optimizing protocols, and it is not newsworthy science all the time. That is why persistence is key. It is also important to stay open to changing your research ideas and methodology. The goal is to uncover the truth, no matter which path leads you there."

Since Ganguly's role at RIT is both research and teaching, we also asked him what he enjoys teaching. He explained, " I really value the trust students place in an instructor's knowledge of a subject. At the same time, that trust is a bit scary and makes an instructor very responsible. The second reason is a bit selfish: teaching actually gives me more clarity about a subject and helps redefine the purpose of learning it. Also, students stopping by my office just to say hello."

When not working Ganguly enjoys playing and watching cricket. So swing by his office to say hi, and if you don't know much about cricket, you've got the perfect conversation starter!

New Faces Around SCMS

Dr. Kathryn Benincasa

Dr. Kathryn Benincasa is our newest addition to our teaching faculty. Born and raised in the "Waterfall Capital of the World," Benincasa explains that Hamilton, ON in Canada boasts over 100 waterfalls within city limits! She completed her bachelor degree in chemistry at McMaster University. As an undergrad, she conducted undergraduate research leading her to complete her PhD in the same research group. The overarching theme of her research was investigating how light interacts with materials, specifically photopolymers. Using a nonlinear optical phenomena, she created films embedded with light channels (waveguides) that are currently being researched for use as coatings on solar cells. A publication from her post doctoral work recently came out in Carbon Energy - super exciting!

When asked about her favorite thing about conducting research, she explained, "I went to a conference several years ago and what a speaker said resonated with me. It was a panel regarding early career research and one of the panelists was asked what motivates us as researchers, if not funding or publications? Their answer: 'What motivates me is that there are some discoveries, that may only come a couple of times in your career, that only YOU know about. Some mystery of the world that, for a short period of time, only you know and no one else does. That is pretty special.' And I agree, I think that is pretty special."

As for starting in her new teaching role at RIT, Benincasa shared that she loves creating content that will get students engaged. "Chemistry, especially general chemistry, can be a very polarizing subject - students either hate it or love it. When I get to know the students and we're a couple lectures in, my favorite times are when they feel confident and comfortable asking questions and engage with that content. It brings me such joy to know that I have created a safe and supportive learning environment for students."

Given her belief in chemistry as a polarizing subject, we were delighted to find out that she has a dipole moment (δ+ and δ-) tattooed across her ankles! When she is not at RIT, Benincasa enjoys video games, crochet, learning cross-stitch/embroidery, playing piano, and reading. And when it comes to food, she can't turn down BBQ chicken wings, especially if they are from a particular grocery store chain back home.

Finally Benincasa was asked what her favorite element is and why? She shared that her "favorite element is Bismuth. The crystal structure for Bismuth is rhombohedral. When the structure solidifies, it has a 'stair-case' like organization and is iridescent in color due to a layer that forms on the crystal itself." She has a small bismuth crystal on display in her office you can check out when you drop in to say hi!

If you haven't been a while since you have visited campus, a lot has certainly changed. A new addition to your walk between the College of Science and Crossroads is this large RIT sculpture that is lit up at night! If you're wondering, it reads RIT on both sides. This has become one of the most popular spots for photo ops, especially at graduation.

New Faces Around SCMS

Casey Schultz - SCMS Main Office

Casey Schultz joins us as the new Senior Staff Specialist in the SCMS main office. She hails from Honeoye Falls, not to be confused with Honeoye! She started her college education at MCC and then finished her bachelors degree at SUNY Brockport. She majored in Broadcast Communications with a minor in Criminal Justice. Outside of class, Schultz reports spending a lot of her time in the Campus TV Club.

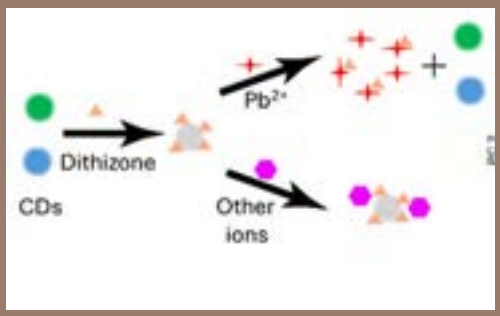
From 2014 to 2016 Schultz was a contract employee at RIT. For those two consecutive years she held multiple short-term positions across campus and has gained a useful collection of experiences that will surely benefit our school. In total, she worked in six different departments: GCCIS Deans Office, Margaret's House, MIS/Marketing/Digital Business, Online & On-Campus EMBA Program, Center for Campus Life, and Alumni Relations. Schultz shared, "I had always hoped that I would one day return as a permanent employee…and the stars finally aligned 10 years later."

Outside of the office, Schultz is a first-time mama to a beautiful and rambunctious 3.5-year-old named Mable. "Most of my time is spent following Mable's orders." Schultz absolutely love animals, and is constantly getting her dog Sabre and cat Sammy all riled up. She is also a Certified Pet-Loss Grief Support Specialist and plans to write a book one day about it.

As far as hobbies, Schultz and her husband started camping in the ADKs back in 2014. Neither had ever camped before. They fell in love with being outside, cooking their meals over the fire, and enjoying music and some beverages. Now they have "upgraded" to retreating many weekends to a lovely cabin on Trout Lake.

We also asked Schultz what the nerdiest thing about her was. She replied that she was a Staples lover, as in the store! She explained, "If I could wake up every morning in Staples, I would. I love all things stationary and am obsessed with notebooks and paper!!! I also enjoy making really stupid iMovie's that never make much sense."

Welcome to the School Casey Schultz, and we're very much looking forward to working with you!



SCMS head Dr. Mike Heagy and Instrument specialist Tom Allston recently co-authored a paper entitled: "Dual-emissive carbon dots for the sensitive and selective detection of lead ions and differentiation of multiple metal ions." The article was in collaboration with Dr. Xiangcheng Sun of Chemical Engineering and Sun's graduate students, in addition to Richard Hailstone of Imaging science. The article can be found in ACS Applied Optical Materials 2025, 3, 12, 2935-2945

DR. LEA MICHEL EARNS EISENHART AWARD

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That influence led Michel to major in physics and math at Colgate University. While studying abroad in Wales, her professor, who was a neuroscientist, suggested she look into biophysics to continue her academic career. Michel said she trusted his insight and then applied to Ph.D. programs, eventually enrolling at the University of Rochester in biophysics. It was there in her favorite professor's chemistry lab that she pivoted into biochemistry. One day, her advisor was traveling for a conference and tasked Michel with subbing for her class full of 250 students in a large lecture hall. Nervous but exhilarated, Michel taught her first class. In attendance that day was another professor she worked with. He congratulated her afterward and told her teaching was something she could do.

At RIT, along with teaching classes, running a lab, and being on various committees, Michel was named the College of Science's first director of diversity, equity, and inclusion in 2022. She credits strong women mentors for making a huge difference when she was a physics major, where nearly all of the professors were men.

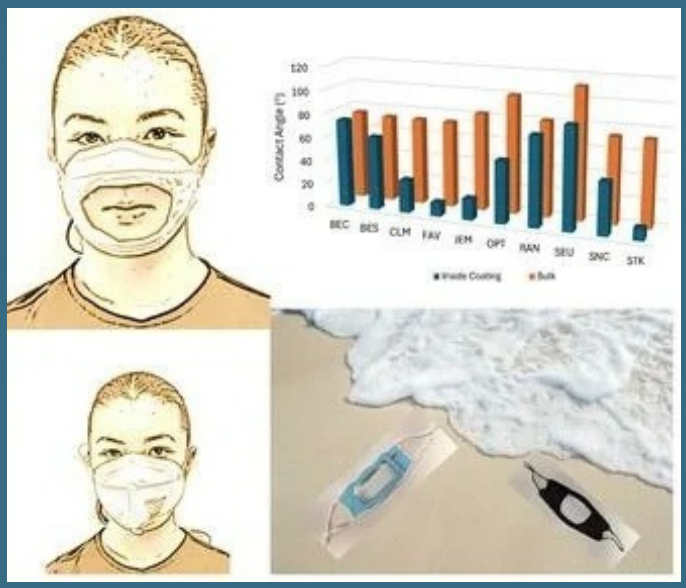
> "Being in front of people, talking about science, it always felt very natural," said Michel. "It was my favorite part of science. I wanted to be with students and become a professor."

Dr. Michel with her research students at ASBMB meeting in Chicago

"When I pick people to join my lab, I pick all different types of students because I know that research isn't just about being smart," said Michel. "It's about perseverance and determination. You've got to really want to do the work, and that is reflected in the person themselves."

Just like trial and error happens in the lab, Michel has learned that teaching is also a learning process. "None of us were taught to be professors," said Michel. "Professors were taught to be scientists. It takes a lot of effort and practice. Just like we work at our science, we have to work at our teaching."

Dr. Miri's Research Team Develops Novel Masks



Polymers Used in Transparent Face Masks—Characterization, Assessment, and Recommendations for Improvements Including Their Sustainability
Polymers **2025**, *17*(7), 937.

Students Katie E. Miller, Ann-Carolin Jahn, Brian M. Strohm, Shao M. Demyttenaere, Paul J. Nikolai, Byron D. Behm, and Mariam S. Paracha worked with Dr. Massoud J. Miri to investigate the properties of polymers used in ten commercial transparent face masks. The chemical composition of the polymers including nose bridges and ear loops was determined by FTIR spectroscopy. The focus of the characterizations was on the polymers in the transparent portion of each face mask. An assessment of the ten masks and recommendations to develop better transparent face masks were made, including improvement of their sustainability.

2025 ASBMB NATIONAL HONOR SOCIETY INDUCTEES

Two of Dr. Lea Michel's research students were both 2025 ASBMB XΩΛ honor society inductees. Third year student **Grace Perna** and fourth year student **Mia Kushner** were recognized nationally for their research, outreach, and ASBMB student chapter involvement. Perna and Kushner were in attendance to receive this honor at the ASBMB National Conference from April 12–15, 2025, in Chicago, IL.

***From left**: Grace Perna and Mia Kusher pose with their awards.*

MYA SOTO '25 - GRADUATION DELEGATE AND MORE!

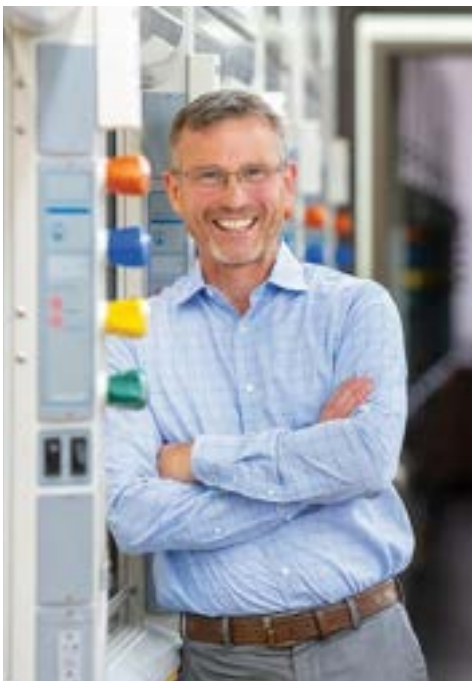
This year, the college chose **Mya Soto** '25 as our delegate for graduation. Soto hails from Seneca Falls, NY, is a fourth-year student Biochemistry major with an Immersion in Global Public Health. She has been supported by a Rochester Academy of Science grant, a prestigious SCMS Pasto Co-op Fellowship, and the McNair Scholars Program. Soto's dedication to research, leadership, and community involvement has earned her numerous national accolades. She has been inducted into the ASBMB National Honor Society, received the ASBMB Marion B. Sewer Distinguished Scholarship, and was named an American Chemical Society (ACS) Scholar. Most notably, Soto received the prestigious ACS Priscilla Carney Jones Scholarship Award, which is granted annually to only one female undergraduate chemistry student in the entire United States. Read on to see that she was also chosen by SCMS as a John WIley Jones Awardee!

MYA SOTO - JOHN WILEY JONES AWARDEE

The 2025 John Wiley Jones recipient for SCMS was awarded to Mya Soto '25. The five academic units of the College of Science must consider the student's academic achievements, citizenship, and contributions to the quality of campus life. Soto's research mentor Dr. Suzanne O'Handley played a large role in supporting her journey. After earning her degree, Soto plans to pursue a Ph.D. in a biochemistry-related field to explore molecular mechanisms underlying infectious diseases.

***At left:** Dr. O'Handley, Mya Soto and plenary JWJ speaker Dr. Sylvester James Gates Jr.*

A NEW AI CHEMISTRY COURSE



This fall, SCMS piloted a new special topics course, Machine Learning and AI in Chemistry (CHEM-489), marking an important step forward in how RIT prepares students for the rapidly evolving scientific landscape. With no established textbooks in this emerging field, the course was built from the ground up, drawing on cutting-edge research and global examples.

Students learned Python programming and used RDKit, a widely used chemistry software tool, to explore whether machine learning models could predict a fundamentally quantum mechanical property (molar absorptivity) using classical molecular descriptors. Working with a large dataset of nearly 20,000 molecules, students discovered firsthand both the power and the limitations of machine learning, gaining critical insight into why chemical intuition remains essential when applying AI tools.

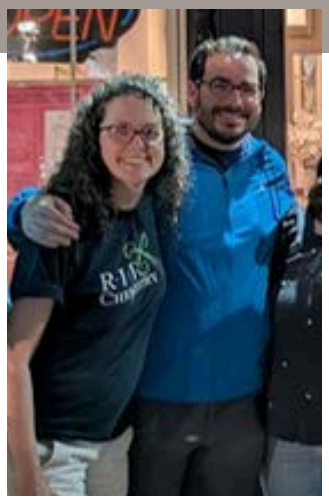
The course also introduced Bayesian optimization, useful for accelerating progress in synthesis projects, and large language models in chemistry, where groups of atomic symbols in molecular formulas play roles analogous to words and sentences in an essay. Thus, chemical meaning is extracted directly from molecular structure rather than natural language. Dr Chris Collison, who ran the course with the help of his postdoc, Dr. Rakesh Suthar, plans to expand the course next fall. Collison says, "this pilot reflects RIT Chemistry's commitment to thoughtfully integrating AI into chemical education and research, ensuring students remain highly competitive for entry-level positions in a changing world."

News from Dr. Goudreau's Research Group

2025 CER Conference @ Tufts

2025 was a busy year for Goudreau's chemistry education research team. In the spring, her group traveled to Boston, MA for a Northeast Chemistry Education Research Conference at Tufts University. **Ryan Colburn** '26, **Silvia Hernandez-Monroy** '27, **Hailey Jordan '27,** and **Katie Miller** '25 all presented their work for the first time! While in Boston they had dinner with alumni from her group: **Austin Kelly** '14, **Brett Granger** '08, and **Kaitlyn Houghtling** '18. None of these alum overlapped in her group and it was such a great dinner having new and old members interact. In April , Ryan Colburn won best poster award at the local ACS symposium at RIT, and Katie Miller was presented with the AIC Senior Achievement Award in Chemistry.

2025 Fall ACS Conference in Washington, DC



Goudreau's 2025 Fall Sabbatical Tour

Above left: Coffee with **Julia Biehler** '21 in Nashville, TN where she is finishing law school at Vanderbilt. Above right, catching up with **Elizabeth Ransey**'09 in her office at Carnegie Mellon University in Pittsburgh, PA where she is an assistant professor.

The Goudreau group also traveled to the Fall ACS conference in Washington, DC. There they caught up with group alum **Anthony Carestia** '13 (photo above). Being on sabbatical in the fall, she went on an 11 university seminar tour showcasing her Sign Language in Chemistry Project, again catching up with more alumni!

A New Edition to REActivities

Dr. Tina Goudreau Collison and Dr. Jeremy Cody recently released a third edition to their lab textbook REActivities. The authors addressed sweeping changes in the chemistry community by eliminating dichloromethane as a solvent, incorporating 10 years of education research around the development of an engaging student-guided experience, and also included some sign language incorporation in chemistry education exercises.

DR. HANS CONTINUES THE TRADITION

Dr. Hans Schmitthenner again submitted a photo of his Annual Molecular Imaging Research Group attending the Redwings baseball game last September. He loves attending on Hawaiin shirt night!

Left to right first row: Emma Morris, Samara de Souza, Christian Edick, Jackie Conley,

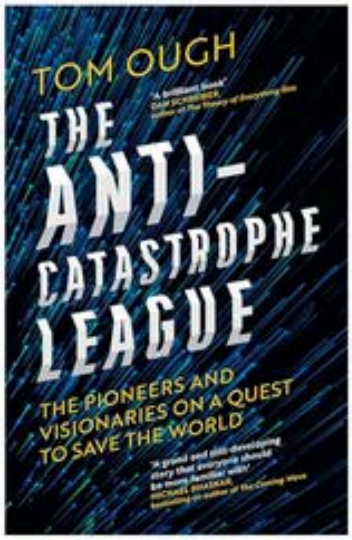
Second row: Joan (Dr. Hans' wife), Dr. Hans, Micah Hrubec, Gabby Redman

DR. KELSEA JONES BS/MS '19 GIVES A SEMINAR

Dr. Kelsea Jones '19 recently completed their PhD work in Inorganic chemistry at Charles University, a renowned Czech university. As an undergraduate and masters student at RIT, Jones worked for Dr. Hans. SCMS and Dr. Hans were delighted to invite Jones back to campus in November to give a talk on their research. Jones' talk was entitled: Macrocyclic Chelators for Sustainable Lanthanide Separations by Selective Precipitation. Neodymium-based magnets are a vital component of modern technology, from smartphones and speakers to electric motors and wind turbines. Despite their name, they require a mixture of lanthanides—often neodymium, praseodymium, terbium, and dysprosium—in order to achieve the desired magnetic properties. Unfortunately, production of these lanthanides currently relies on unsustainable mining practices and solvent-extraction separations. One obvious solution is to recycle these magnets, but the necessary lanthanide separations are notoriously difficult. Jones introduced a class of macrocyclic, dota-derived chelators bearing aromatic pendant arms, which yield interesting aqueous solubility profiles across the lanthanide series and thereby enable lanthanide separations

News from Dr. Kirmani's Research Group

Dr. Ahmad Kirmani's group expanded last year to include 2 postdocs, 5 PhD students, and multiple undergrads. Several of the group members gave talks at the 51st Rochester Academy of Science (RAS) Symposium which was hosted in 2025 by SUNY Geneseo. Kirmani's group published an article in Joule, a high impact Cell Press journal (impact factor 35). Kirmani was also invited to publish an opinion article in Cell Press Device. This was first-authored by Kirmani's PhD student, **Tatchen Buh Kum**. Kirmani gave invited seminars last year at Georgia Institute of Technology, University of Potsdam (Germany), SPIE conference (San Francisco), IEEE PVSC conference (Montreal), & the Interagency Advanced Power Group (IAPG) government panel. Kirmani also shared, "I was also featured in a book! This was a fun recognition where a journalist from the UK reached out to learn more about my ongoing research. He detailed my research in the book *The Anti-Catastrophe League*".



News from the Desk of Dr. Brini

Dr. Emiliano Brini had a very busy 2025. On a personal note, he excitedly shared that not only did he become a US citizen in November, but he also tied the knot with his long-time partner Patrick! A huge congratulations on both milestones!

Relative to his research endeavors, Brini's group comprises five PhD students, three MS students, and three undergraduates. Brini recently led a research collaboration in partnership with SUNY Stony Brook and the University of Florida. This collaborative has been awarded 27,000 hours on the NSF Frontera supercomputer. The project will use MELD-accelerated molecular dynamics simulations to study protein-protein and protein-DNA interactions, with the goal of advancing computational tools for drug design. The work is funded by the NIH and NSF.

News from Dr. Liu's Research Group

*Dr. **Jian Liu** pictured with his research group/ ACS volunteer team*

Assistant Professor **Jian Liu** from chaired the ACS Rochester Collegiate Symposium at RIT in April 2025. This regional research conference brought together undergraduate and graduate students from 8 universities across the greater Rochester region. The plenary speaker for the event was Dr. Phillip Milner from Cornell University. The symposium provided students with a professional platform to present their research, receive constructive feedback, and network with peers and faculty mentors. Notably, **Cassie Bonilla**, a second-year undergraduate researcher in the Liu group, was recognized with the Rochester Section Special Recognition Award for her outstanding volunteer contributions to the event.

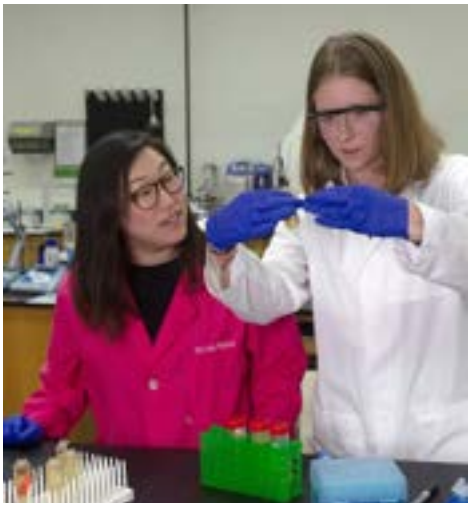
Dr. Liu also served as a Guest Editor for Frontiers in Chemistry, leading a special Research Topic titled "Retroconstruction of of Porous Crystalline Networks for a Sustainable Future." In this role, he oversaw manuscript solicitation and submission, coordinated the peer-review process, and guided editorial decisions to ensure high scientific rigor. This editorial experience also directly informed

In 2025, **Celine Cammarere**, a BS/MS student in the Liu group, published a first-author review article. Through structured mentorship in literature analysis, scientific writing, and peer-review standards, Celine developed a comprehensive review on "water-enhanced CO_2 capture in metal–organic frameworks", meeting the rigor expected of the field.

Attendees of the ACS Rochester Research Symposium

News from Dr. Michel's Research Group

2025 Dr. Maryann Mendel Award

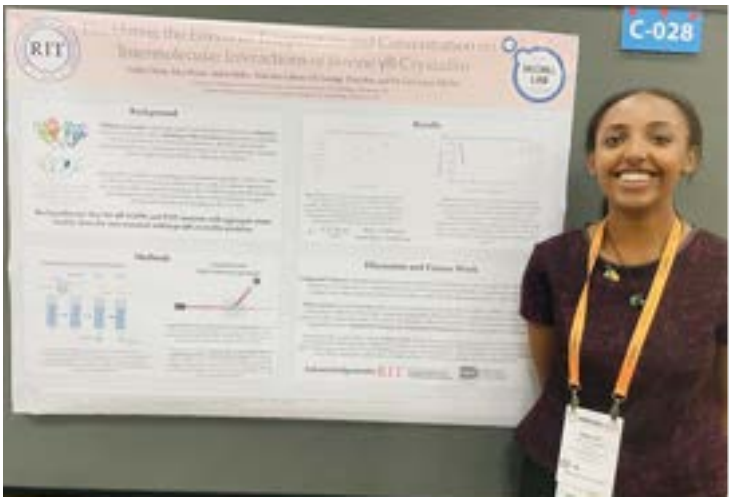


Dr. Lea Michel was recently recognized with the Dr. Maryann Mendel Award in October 2025. This award recognizes significant volunteer efforts of individuals who have served the Rochester Local Section of the American Chemical Society, contributing to the Vision and Mission of the Society through their Local Activities. Congratulations to Dr. Michel on this well-deserved honor and recognition.

2025 was certainly a big year for Dr. Michel and her group. She reports that her students **Grace Perna**, **Halley Deme** (pictured below), **Nikita Robinson**, **Mia Kushner**, **Mya Wynn**, and **Christina Ciko** all attended the ASBMB meeting in Chicago April 2025 and each student presented on their research! She also brought a few students to ABRCMS in November.

The Michel lab also won an **NIH grant** (George Thurston, PI) to conduct research on crystallin proteins in the eye lens and a grant from Sartorius to continue work on bacterial extracellular vesicles.

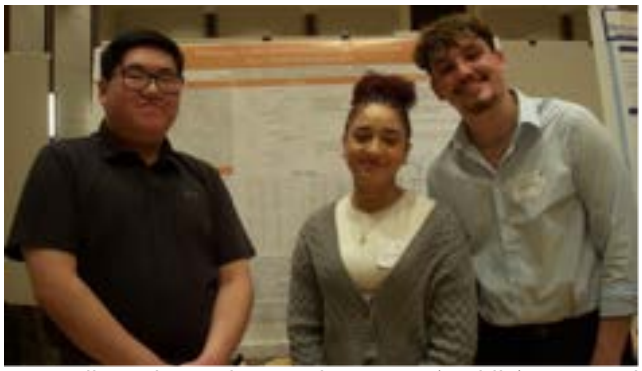
Lastly, Lea's PhD student, **Panteha Torabian**, published her first research article in the International Journal of Antimicrobial Agents, with 8 undergraduate research student coauthors from the Michel lab.



> *I had an awesome experience at ABRCMS2025 in the beautiful San Antonio, TX! I was able to present my research and gain useful feedback and insight that I otherwise would not have. I left with new ideas for my project that I am excited to implement going forward. Thank you to Dr.Lea Michel for helping making this possible for me and being a great mentor and PI both in and out of the lab!*
> -Halley Deme

News from Dr. O'Handley's Research Group

Dr. Suzanne O'Handley and her research group were also on the move in 2025. O'Handley published a **paper** in *Analytical Biochemistry* with many undergrad co-authors: Frick, D.N., Shittu, M., Bock,C. Wardle, Z.P., Rauf,A.A., Ramos, J.N., *Thomson, J.G., Sheibley, D.J., O'Handley, S.F.



O'Handley Lab members Jayla Morgan (middle) presented one poster and Richard Bouck (far right) and Leon Lin (far left) presented another at the RAS meeting last November.

O'Handley's students also presented their work at different conferences all over the country! They presented at the Rochester Academy of Science Symposium, the ASBMB conference in Chicago, IL, the Spring ACS National Symposium in San Diego, CA , the Western NY ACS Undergrad Res Symposium, the RIT Undergrad Res Symposium, the Fall ACS National Symposium in Washington, DC, and the Harrison Howe Award Student Poster Session. Many O'Handley memers also won RAS Research Grants:

- Catherine Cullinane: $400: Phenotypic Studies of a Phosphoglycolate Phosphatase in Staphylococcus aureus
- Delila MacLeod: $600: Characterization of the Nudix Diadenosine Polyphosphatases from M. tuberculosis
- Eva Reilly: $750: Transformation and Expression of Diadenosine Polyphosphatases from M. leprae
- Eva Reilly: $50: Hallahan Award for Excellence in Grant Proposal Writing (RAS)

O'Handley, Delila MacLeod (BS '25) and Richard Bock (BS '25) in Washington, DC

Eva Reilly '27 is delighted by Milli the Mole at the ACS Conference Expo

Dr. Paul Craig is Co-PI on New NSF Award

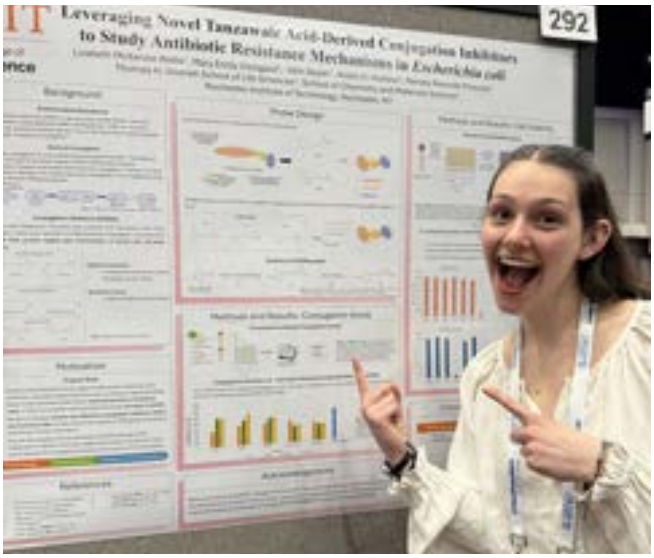
Dr. Craig is working with a team of faculty members from four institutions on a new NSF-funded project:

- Wally Novak, Wabash College, Crawfordsville IN
- Mike Foster, Penn State, State College PA
- Chris Berndsen, James Madison University, Harrisonburg VA

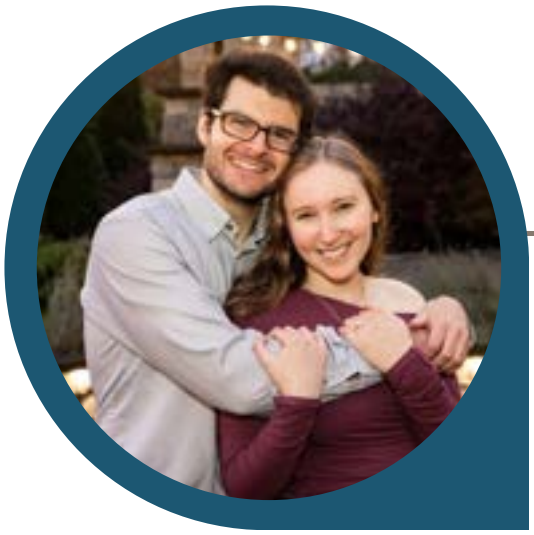
The title of our project is "Collaborative Research: Promoting Computational Literacy in Biochemistry and Molecular Biology Education." Our goal is to help biochemistry and molecular biology faculty members (and other chemists and biologists as well) to see the need for coding in our teaching and research, to develop skills in coding and to learn to teach their students how to code. The project began in October 2025 and will continue for 3 years with $400,000 in total funding.

A Large RIT Student Contingent at ASBMB

Many RIT students attended the National Conference ASBMB in Chicago, IL. It was a fantastic opportunity for them to present their research, make connections in the field, and also do a little sight seeing in the big city!



> At ASBMB, I was able to attend many wonderful talks, poster sessions, and workshops. I particularly liked the Building an Inclusive Teaching Toolkit (BITT) workshop. As a student who wants to pursue a future in teaching and mentorship, this was a very inspiring and engaging workshop. I was also able to attend the women's networking dinner where I was able to listen to and speak to many inspiring women. This was such an inspiring event that I am grateful I was able to attend. I am excited to get more involved with ASBMB!
>
> **-Mary Emily Visingard '25**



GOh Leaders' Lasting Bonds

Recently, two alumni organic chemistry TAs in our Guided Organic Help (GOh) program reached out to Dr. Tina Goudreau who spearheads this program with the following email update.

"*Dear Dr. G, You probably never even realized, but you were the reason Yoni and I finally met! With the help of your superb teaching skills, Yoni and I both became Orgo TAs and on September 1st, 2021, we met for the first time at your GOh session. And guess what? Four years later, that cute Orgo TA proposed to me on November 1st, 2025. And guess what else? I said YES! We knew that in all of our celebrating, we just had to share the exciting news and say thank you for being the invisible string that brought us together. So not only are you a true gift to any student taking Orgo, you are also quite the matchmaker! And in case you needed photographic evidence as proof of your newfound abilities, we attached some pictures too. Sincerely, Talia (Zames) & Yoni (Leiderman)*" It's wonderful when RIT students have chemistry. Congrats!

2025 SCMS Research Scholars

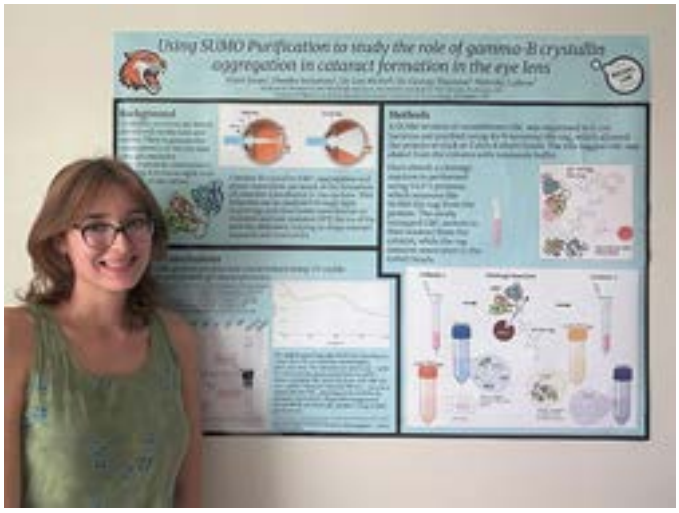
The Chemistry Research Scholars Program at RIT increases the visibility of our research students, fosters a culture of undergraduate research, and promotes undergraduate research. Students must conduct independent research for at least three semesters in SCMS or chemically-related field and have disseminated their work outside beyond the RIT campus. The 2025 SCMS scholars and their mentors are:

Front Row from left: Logan McCurry Mentor: Dr. Gerald A Takacs, Christina Ciko Mentor: Dr. Lea Michel, Olivia Gustafson Mentor: Michael Heagy, Mia Kushner Mentor: Dr. Lea Michel, Mya Soto Mentor: Dr. Suzanne O'Handley, Delila MacLeod Mentor: Dr. Suzanne O'Handley, Guerline Guerrier Mentor: Dr. Lea Michel,

Second Row from left: Grace Perna Mentor: Dr. Lea Michel, Aidan Miller Mentor: Dr. Lea Michel, Liam Almekinder Mentor: Dr. Jeremy Cody, Sebastien Lach Mentor: Dr. Scott Williams, Griffin Pileski Mentor: Dr. Hans Schmitthenner, Mary Emily Visingard Mentor: Dr. Renata Rezende Miranda and Dr. André Hudson, Kristen McDonough Mentor: Dr. Scott Williams, Anna Rooney Mentor: Dr. Hans Schmitthenner (not in photo)

How Pediatric Cataracts Shaped My Scientific Journey

An ASBMB Today article by Grace Jones '27



Sixteen years ago, my mother and I sat in the cold leather chairs of the optometrist's office, my legs not yet long enough to touch the floor. Waiting for my new glasses, I began to take apart the plastic eye model sitting on the desk in front of us. It was one of those clunky older things, about the size of a Magic 8 Ball.

I started by removing the thick outer casing holding the cornea and iris, opening the model up to reveal the small crystal disc of the eye lens. It soon sat in my palm, diffracting light and magnifying the wrinkles in my pudgy, toddler-sized hands. With my mother's encouragement, I spent a lot of time playing with these eye models as a kid. I was enamored.

Before this first trip to the optometrist, my parents noticed my lazy eye when I started kindergarten. A pediatric ophthalmologist diagnosed me with congenital cataracts and recommended a treatment known as intraocular lens, or IOL, implants. Basically, my own eye lenses were replaced with artificial ones — not too dissimilar from the ones in the model. While I don't remember much from this time, my parents vividly recall the anxiety and the stress of such a costly surgery.

Fast-forward to the end of high school, and I had my sights set on one thing: undergraduate research. It was the biggest factor in my college selection process — the light at the end of my Common App — the idea of a life in a lab.

I arrived on campus with this goal in mind and was Googling research labs before I unpacked my socks. You can imagine my surprise when I came across a biochemistry lab studying the protein interactions that cause cataracts. I was convinced it was kismet.

The idea that my passion for science could be used to study a condition that shaped my childhood was invaluable to me, and it drove me to swallow my nerves and reach out to the professor. I interviewed the following week and started research soon after.

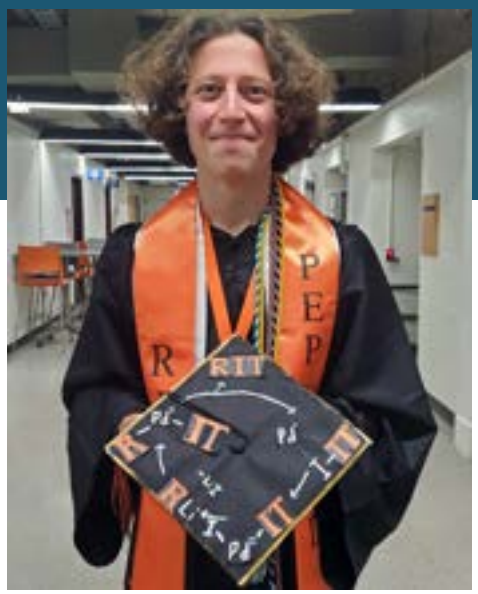
What began as curiosity about an eye model soon turned into hands-on exploration of the very molecules that shape vision. Crystallins are the proteins that make up most of the eye lens. Mutations and posttranslational modifications can alter their interactions, resulting in clouding of the lens, also known as cataracts.

I don't often think about my surgery or my cataracts, but every now and then, when I'm doing research and my sample crashes out into a precipitate, I take a step back. The cataractogenesis my sample undergoes in the lab is a mild annoyance — it means I must restart the protein purification process — but in a person's eye, it can be life-altering and costly. IOL implants are expensive, and the surgery to replace a cloudy lens carries risks, especially in toddlers and young children.

I'm very grateful for my health, the experience and skill of my surgical team, and the resources that my family had so that I could undergo treatment. But, perhaps I'm most grateful for the opportunity to advance our understanding of cataracts through my own research — a challenge I can undertake because of the surgery I had 16 years ago.

My medical history is a testament to the purpose of my biochemical research and a reminder of why science matters: to improve health and livelihoods for all, sometimes including the researchers themselves. My personal experience has fueled my scientific purpose, driving me to cherish my research as a tool for the betterment of humanity.

HAPPY GRADUATION CLASS OF 2025!



Graduation weekend was certainly busy and full of festivities. We were blessed with beautiful weather for families and students to walk from each event hosted across campus. Our College of Science graduation was held in the Gene Polisseni arena. This year 16 Chemistry majors and 14 Biochemistry majors crossed the stage to receive their diplomas. SCMS also celebrated 4 MS Chemistry students as well as 18 MS Materials Science and Engineering students. A buffet reception was held prior to the ceremony in Gosnell. Congrats class of 2025!

2025 ANNUAL SCMS STUDENT AWARDS

Outstanding First Yr Award in Chemistry:
David Lusignan

Outstanding Second Yr Award in Chemistry:
Eva Reilly & Eddie Dykes

Undergrad Award in Analytical Chemistry:
Samantha Crisci

Undergrad Award in Organic Chem:
Micah Hrubec

Undergrad Award in Biochemistry:
Mia Kushner

Undergrad Award in Inorganic Chem:
Kailey Jones

Undergrad Award in Polymer Chem:
Gail Hooke

Undergrad Award in Physical Chemistry:
Liam Almekinder

UG Senior Achievement Award for Chemistry, sponsored by the American Institute of Chemists, Inc.: Katherine Miller

UG Senior Achievement Award for Biochemistry, sponsored by the American Institute of Chemists, Inc.: Aidan Miller

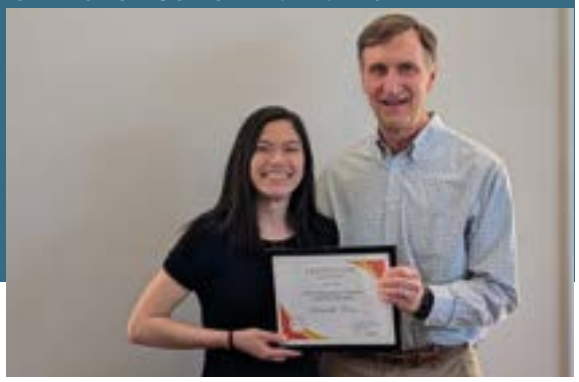
RIT Outstanding Undergraduate Scholar Award:
Katie Miller & Leah Robinson

Terry Morrill Summer Research Award:
Abigail Pettica

Pasto Award:
Micah Hrubec and Grace Jones

David Lusignan & Dr. Hans

Samantha Crisci & Dr. Hornak



Eddie Dykes & Dr. Miri

Liam Almekinder & Dr. Cody

Where Are They Now?

> Once on campus, the encouragement and care I received were instrumental in helping me overcome the challenges of my first year. The support enabled me to thrive and solidified my connection to RIT as more than just a school, it became a home.

OREOLUWA FATIMILEHIN BS '05 CONNECTS BIOCHEMISTRY AND BUSINESS

Oreoluwa Fatimilehin chose RIT for its strong science programs and its welcoming, close-knit environment. It was an ideal setting for her transition from Lagos, Nigeria. After earning a degree in biochemistry in 2005, an MBA in 2007, and a law degree from Arizona State University, she built a successful career that combines her passion for science with business and legal expertise. Today, she serves as a Product Attorney, leveraging her scientific background and business acumen to navigate complex legal and regulatory challenges in the tech industry.

Now at Twilio, a high-tech software company, Oreoluwa works alongside engineers and product managers to bring innovative products to market while ensuring legal and compliance standards are met. Her responsibilities include attending product meetings, reviewing documentation, establishing processes, and drafting terms that govern customer use.

Oreoluwa credits her time at RIT as foundational to her success. "To me, the essence of being a scientist is curiosity, and my experience at the College of Science nurtured and sharpened that curiosity," she says. RIT taught her to ask bold and challenging questions, embrace ambiguity, and approach complex problems with creativity. These skills have been invaluable throughout her career, enabling her to adapt and thrive in dynamic environments.

During her time at RIT, Oreoluwa completed a co-op at a small biotech company in Rochester, where she worked as a research technician. This experience not only deepened her understanding of applied science but also introduced her to the broader dynamics of the biotech industry.

Reflecting on her time at RIT, Oreoluwa highlights several individuals who profoundly influenced her journey. **Dr. Ed Cain**, with his engaging approach to teaching Organic Chemistry, reignited her love for chemistry and deepened her interest in science. Her advisor, Dr. Laura Tubbs, played a pivotal role in guiding her academic and career path. Additionally, Eileen Marron and Dr. Catherine Mahrt Washington provided empathy, encouragement, and unwavering support, helping her transition from RIT to business school and, ultimately, to a career in law.

Oreoluwa encourages current and prospective students to embrace curiosity and persistence in their scientific pursuits. "Success in this field requires the mindset of a true scientist: the willingness to iterate, adapt, and learn from every experiment, whether it's in the lab or in life," she advises. "Be open to exploration, remain curious, and don't shy away from setbacks. They are often the most valuable steps toward discovery and growth."

Where Are They Now?

LEANDER HELD BS'18

Held is currently pursuing his PhD in computational chemistry at UC Berkeley. He is excited to share the news about his first peer-reviewed (and co-first authored) paper in *Inorganic Chemistry*: https://lnkd.in/gYjPY9kw

SPENCER RICHMAN BS ‘20

As an undergraduate, Richman conducted research with Dr. Suzanne O’Handley, where he learned the importance of precision and accountability in scientific work. “Besides making me an excellent pipetter,” he jokes, “it taught me the value of scientific rigor.” Richman now works remotely as a Bioinformatics Software Engineer at Personal Genome Diagnostics, a Labcorp company that develops next generation sequencing (NGS) based tools for precision oncology.

ELIZABETH RANSEY BS ‘09

After earning her PhD at Harvard with Dr. Piotr Sliz , Ransey did post doctoral work at Duke University in the Dzirasa lab. Since 2023, Elizabeth is an Assistant Professor of Biological Sciences at Carnegie Mellon University studying the multifaceted roles of gap junctions.

MICHAEL GRANTA BS '20

Mike is a fourth year PhD student at RIT now working with Dr. Poornima Padmanabhan in chemical engineering. He is excited to share that the poster he presented at the 2025 AIChE Annual Meeting was awarded First Place in the Materials Science and Engineering Division Poster Competition!

TUMININU FANIYAN BS ‘16

Faniyan is a medical technologist in the Molecular diagnostics laboratory at the University of Rochester Medical Center. Tumi earned a BS in biochemistry from RIT and then gained licensure as a clinical laboratory scientist upon graduation.

Where Are They Now?

MOHAMMED HAWSAWI MS'15

Upon completing his MS with Dr. Tina Goudreau at RIT, Hawsawi earned his PhD at Wayne State University with Prof. David Crich. Recently, Mohammed was promoted to Associate Professor of Organic Chemistry at Umm Al-Qura University. Congratulations!

MIKE CATTALANI BS'17

Upon graduating from RIT with a BS in biochemistry, Mike pursued his Doctor of Osteopathic medicine at New York Institute of Technology. He is now a Psychiatry Resident at Brookdale Hospital.

DEVON SHEDDEN BS/MS '19

Devon is now a Lead Scientist at Imperia Batteries specializing in lithium-ion battery technologies. He now has over 5 years of hands-on experience in materials science, electrochemistry, and advanced energy systems. His work focuses on leading teams to deliver scalable, high-performance energy storage solutions for mission-critical Department of Defense (DoD) applications.

MARIAM DZAMUKASHVILI '22

Mariam is excited to report that she started a new position as a QC Chemist Associate at Unither Pharmaceuticals where she is performing routine analytical testing of raw materials, and supporting validation and product Development through non-routine testing.

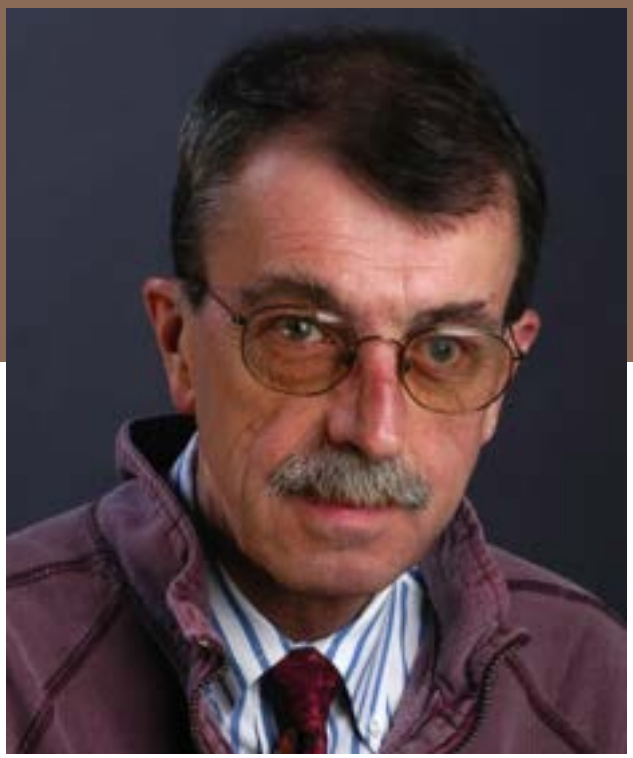
LIAM REILLY BS '20

Liam earned his PhD from Colorado State University in Polymer chemistry and won the 2025 Excellence in Graduate Polymer Research Award from the American Chemical Society. Now Liam works as an Associate Scientist II at Tolmar.

CHRISTINE YEO BS '14

Christine earned her BS at RIT in Biochemistry. After considering medicine as a career, Christine pivoted and has built a successful career in regulatory affairs. Christine has been working as a Regulatory Affairs Associate Manager at Llallemand in Washington, DC.

LOOKING BACK: B. EDWARD "DOC" CAIN



JOINED RIT : 1974

RETIRED FROM RIT: 2005

FUN FACT:
SIGNED ALL OF HIS LECTURES

Dr. Cain graduated from Akron (NY) Central High School in 1960, received his BA from Harpur College (now Binghamton University) in 1964, and earned his Ph.D. in Chemistry from Syracuse University in 1971. After jobs with the Onondaga County Public Health Department and O'Brien & Gere Consulting Engineers, Inc., in Syracuse, Dr. Cain joined RIT in 1974 as Assistant Professor and Chair of the NTID Science Support Team. In 1980, he transferred to the Department of Chemistry at RIT as Associate Professor and Assistant Department Head. He was promoted to full Professor in 1984 and retired in 2005 as Professor Emeritus in 2005. While at RIT, Dr. Cain was a recipient of the Eisenhart Outstanding Teaching Award in 1980 and the Gamma Epsilon Tau (printing) Outstanding Teaching Award and Honorary Membership in 1982.

Ed was the author of "*The Basics of Technical Communicating*" for the American Chemical Society, published several journal articles, and was a member of many professional organizations. He was a grader for Advanced Placement (AP) chemistry exams for six years, proposal reviewer for the National Science Foundation, manuscript reviewer for scientific publications and book publishers. Dr. Cain made a tremendous impact at RIT and since our alumna feature on page 21 commented on his impacts, we thought it fitting to look back at his legacy. Dr. Cain passed away in 2011 and many former students and colleagues fondly shared memories about him.

"Ed was a dedicated teacher and contributed much to the support of deaf science students in the early days of NTID. I always enjoyed our conversations and his dry wit." -Gail Rothman-Marshall

"Ed was my Chair for 6 years on the NTID Science Support Team before moving to RIT's Chemistry Department, where he continued to teach General & Analytical Chemistry to first year deaf and hearing students. He was an outstanding teacher who has trained thousands of students in Chemistry over the years. He continued to stay in touch with NTID and deaf students until he retired." -Glenda Senior

"I was his student in the 70's. he signed, took notes, tutored, and mentored me. he was instrumental in my success which i continue to enjoy to this day. I'm very grateful for all his support and help. He was an excellent teacher too!" - Andrew Baker

"Dr Cain was one of my favorite RIT professors and easily the best Chemistry guy. I'll never forget my first day in his class - seeing an RIT professor in shorts , sandals, and an earring. And he signed all his classes too." -Terri Coleman

"Dr. Cain was a dedicated and gifted teacher. He gave his students his all and continued to teach using sign language through out his years in the RIT Chemistry department. As a friend, he was the best. He entertained us all with stories of his parrot, Helen, his canary, Friar Tuck and and Stella the dog. He had a good sense of humor and kept it until the end. - Gail Binder