

in this issue

Letter from the
Department Head p.2

Cover Story, cont. p.3

Staff/Faculty Updates p.4

SCSE Academy/
Benchtop NMR p.5

HCAMS Perspectives p.6

HCAMS
Perspectives, cont. p.7

SCSE Teaching Award p.8

FBI Internship Program p.9

Senior Students/
Graduating Master's p.10-11

Student Awards p.12-13

Publications p.14-15

The Heikkila Chemistry and Advanced Materials Science Building is Open!

On Friday, August 9, 2019 came a day the chemists and biochemists at UMD have long awaited, the Grand Opening of the Heikkila Chemistry and Advanced Materials Science Building (HCAMS). Hosted by Chancellor Lendley Black and SCSE Dean Wendy Reed, the opening was a remarkable celebration of the hard work of many, many folks who helped with the planning and building of this amazing science resource for Northern Minnesota. The celebration commenced with an open-house and student-led tours of the building, followed by a short program where UM President Joan Gabel, Board of Regents' members Kendall Powell and David McMillan, as well as SCSE Dean Reed, UMD Chancellor Black, and Mr. Kurt Heikkila shared their thoughts and appreciation for the facility and its uses. Even Champ the UMD Bulldog mascot made an appearance, sporting a personalized lab coat with the building's name. An informal reception followed for all those in attendance.



Department faculty and staff moved into the building last January, with research and teaching labs (and the equipment and chemicals they contain) being carefully transferred to and installed in the new building over this past spring and summer. Augmenting these transfers are several exciting new pieces of research equipment, which as part of the new building will significantly enhance our research and teaching efforts (see for example, the discussion of our new benchtop NMR, p. 5). Our first class was taught in the building this summer (Quantitative Analysis) and our research groups are happily settling into their new spaces. For more on faculty and student perspectives on the new building, see p. 6-7.

...cont'd p. 3

Dear Friends and Alumni of UMD Chemistry and Biochemistry,



Greetings! It's my pleasure to write to you with the latest issue of our Chemistry and Biochemistry Departmental newsletter. We delayed the publication of our letter this year to coincide with the exciting grand opening celebration of the new Heikkila Chemistry and Advanced Materials Science Building (HCAMS), which was held on Friday, August 9th.

This past year was certainly an exciting one. In addition to all of our normal activities, we moved Chemistry faculty and staff out of the Chemistry building and into the brand new HCAMS! The Department had occupied the Chemistry building for 70 years, since its construction in 1949. And although renovations of labs and offices occurred periodically over that time, there were certainly many fun discoveries and multiple opportunities for reminiscing, as antique equipment, old chemicals and classic archived documents and photographs were unearthed. In fact, our Department formed an ad hoc "History Committee" in an effort to archive and preserve the many artifacts.

The transition to HCAMS was smooth and rapid. We moved offices in early January. Research labs moved over the spring semester, as research experiments allowed. By summer we were able to move remaining labs, instructional labs, and research instrumentation. The state-of-the-art research labs are large, well illuminated with natural window light, and feature

energy-efficient fume hoods and air conditioning/filtration. A large shared research instrumentation facility, the Ballou Instrumentation Lab, on the ground floor houses multiple exciting research grade instruments. We also look forward to teaching quantitative analysis, environmental chemistry, physical chemistry, inorganic chemistry, and instrumental analysis lab courses for the first time this fall in the new building.

There were many additional accomplishments to be proud of this year. Our faculty published over 50 peer-reviewed research articles, with dozens of student authors (p. 14-15). Our faculty and staff were recognized with numerous college and university awards (p. 4). And again this spring, another outstanding cohort of Chemistry and Biochemistry majors proudly participated in graduation (p. 10). It feels amazing to see our students' hard work rewarded with the achievement of goals and dreams. This class again enjoyed excellent placement in graduate schools and professional programs, and with a robust economy, job opportunities abounded as well.

We greatly appreciate all of your support for our Department and the new HCAMS building over the past year. Your visits, gifts, and letters have been overwhelming. It has been a great privilege sitting in the Chair's office for the past year! And I am excited to begin yet another great year! Please stop by and visit us!

With Best Regards,

Steven M. Berry

Transitions - Fall 2019

The Newsletter of the UMD Department of Chemistry and Biochemistry

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Cover Story, cont.

HCAMS was purposefully built to provide cutting edge research and teaching space in chemistry and materials science, with a further theme of “Science on Display” to highlight its location as one of the first buildings encountered when people enter campus from College Street. The three floors of the building are filled with natural light as a result of windows to both the world outside and the research inside. To augment the labs, collaborative spaces, and offices in the building, the construction includes two major pieces of art, one by the main entrance from the parking lot, the other in the windows by the building’s skywalk entrance from campus. The outdoor art is the statue “Polytropos” by Maria Artemis, which highlights versatility and was inspired by that amazing natural material spider silk. The stained glass piece in the second floor windows, entitled “Molecules” by Paul Housberg, is inspired by the materials studied by many in the building.

The 56,000 square foot building houses the main office of the Department of Chemistry and Biochemistry. The building is also host to the Advanced Materials Center (AMC) main office. There are office spaces for 22 faculty and staff, with 12 research labs and 5 instructional labs. The research labs include computational chemistry labs with the remainder supporting bench chemistry. Fume hoods in the labs feature transparent backs, sides, and sashes, allowing for a very open look as well as additional lab safety. Graduate student work areas are adjacent to the labs, again with generous windows allowing open sight-lines from the hallways, through the workrooms and into the labs. A shared research instrumentation lab located on the first floor, the Ballou Instrumentation Lab, houses an NMR, EPR, IR, GC-MS, LC-MS, and other research grade instruments. The instructional labs located on the second and third floor include facilities for teaching our upper level laboratories, including quantitative analysis, environmental chemistry, physical chemistry, inorganic chemistry, and instrumental analysis lab courses. All research labs, instructional labs, and offices are tied together with additional collaboration spaces. There are three conference rooms, one on each floor, five atrium areas with seating for students, and marker-writable glass walls where impromptu notes and ideas can be recorded.



Other fun items from the Grand opening celebration included the display of a poster featuring a timeline of the history of the Department, as well as a dedication of a time capsule. The time capsule, to be opened in 50 years on August 9th, 2069, includes many items such as photos from the building’s groundbreaking, a photo of the department faculty and staff, and copies of the UMD newspaper and Duluth News Tribune with articles that feature the Heikkila’s and the building. A UMD men’s hockey 2019 NCAA championship ring and a Champ bobblehead doll also made it into the time capsule. Visit us in HCAMS soon to see these items on display before they are sealed!

HCAMS research labs are almost fully set-up and running. A few pieces of research instrumentation are in the final stages of assembly. The instructional labs are being organized for the first time as classes and student lab check-ins will start the first week of the semester beginning on August 26th. We are excited to utilize all that HCAMS has to offer!

Faculty & Staff Updates

Congratulations:



Brian Gute received the 2018-2019 SCSE Teaching Award for his Outstanding Teaching. Brian promotes active learning and creates specialized teaching opportunities for all SCSE Faculty.



Venkatram Mereddy received the Outstanding Graduate Faculty Advisor Award - Awarded to an academic adviser who has gone above and beyond their requirements as an academic adviser at UMD. This person has displayed genuine support and concern for the well-being of the students.



Patty Sutliff Opoien received the SCSE Unit Staff Award for exceptional service in leadership on the job, customer focus, and quality of service.



Jake Wainman received the UMD Pride Award for outstanding faculty/staff from the Office of Sexuality and Gender Equity Initiatives ~ Recognizes an LGBTQIA+ or aspiring ally faculty/staff member who strives for creating a positive climate on campus for LGBTQIA+ individuals.

Welcome:



Jacob Wainman our newest faculty member. Jake joined the department in August 2018 as an Assistant Professor. His expertise is Biological Chemistry, Education Chemistry, and Molecular and Cellular Biophysics.

Welcome:



Jennifer Bucsko, our newest staff member, joined the department in July 2018. Jen came to UMD from a local Digital Marketing Agency where she was the Office Manager for 6 years. Jen has 2 teenage daughters (eek!) Ava and Addison who attend high school in Esko and 2 German Shepard puppies, Eliza and Mabel. She enjoys her daughter's activities, fishing, camping & basically anything outdoors.

Fond Farewell:



Congratulations to John Evans on his May 2019 retirement and 42 years of outstanding teaching, research and service to the University of Minnesota, UMD, and the Department of Chemistry and Biochemistry!

In Memory:



Dr. Raymond Bayer, passed away on October 17, 2018. He received his Bachelor of Science Degree from UMD and established the Robert W. Bayer Memorial Scholarship in 1965 in honor of his twin brother, Robert, who died of a brain tumor. The Bayer brothers graduated from the UMD Chemistry Dept & became dentists.

In Memory:



James I. Swenson passed away on October 5, 2018. Jim graduated from UMD in 1959 with a degree in Chemistry. He worked at Honeywell, Univac, and other companies before beginning his own circuit board prototyping company, Details Inc. Jim and his wife Susan are active philanthropists, supporting many organizations and establishing the Swenson Family Foundation. They have supported students at UMD on full-tuition academic scholarships and summer undergraduate research fellowships since 1994. Over the last 26 years, the Swenson Family Foundation has supported over 400 UMD students. Many of you may have seen the wonderful biography of Jim that was published this summer.

SCSE Academy of Science & Engineering



The Academy of Science and Engineering was established in 2002 to recognize alumni and special friends of the Swenson College of Science and Engineering who have distinguished themselves through their participation, commitment, and leadership in their chosen professions. Our 2018 inductee to the Academy is Minh Chau Nguyen, M.S.

Minh Chau Nguyen graduated from UMD with a Bachelor of Science degree in chemistry in 1998 and a Master of Science degree in organic chemistry in 2000. His first job was at Medtox Lab in New Brighton, Minnesota. Then in 2002, he became a forensic chemist with the Drug Enforcement Administration (DEA), at the Western Laboratory in San Francisco, California.

He is now a senior forensic chemist and analyzes the controlled substances from drug evidence, testifies in court, communicates with special agents and prosecutors, provides training to law enforcement and assists special agents at the clandestine lab. Minh immigrated to the United States from Vietnam only a few years before starting at UMD. He has made numerous visits to his native country to assist with humanitarian relief efforts. For the last seven years, he has served as a translator and trip organizer to deliver medical supplies to Vietnam. In 2007, he worked to provide food, housing and

financial help to a village devastated by a sudden hurricane. From 2008 to 2011, Minh drew upon his forensic chemistry expertise to assist Vietnam's Drug Enforcement Agency and provide training at the National Forensic laboratory in Vietnam.

Closer to home, Minh has helped strengthen the Chemistry and Biochemistry Department here at UMD by providing surplus instruments from the DEA and by introducing undergraduate and graduate candidates to UMD. He currently lives in Pleasanton, about 40 miles east of San Francisco.

Return of the Small "Benchtop" NMR

Many of us remember using the 100 MHz NMR, which the Department owned for instructional and research purposes. The NMR was about the size of a washing machine and made for a convenient learning tool in our organic chemistry labs. Over the years, the Department has also owned multiple other NMRs with large liquid helium cooled superconducting electromagnets. In fact, we recently purchased a new one of these, a Bruker 400 MHz AvanceNEO with fully automated shimming and tuning capabilities. However, in addition to this large instrument, we also purchased a small "benchtop" NMR. With the increased demand for NMR time for research, the benchtop version was an ideal way of diverting traffic. It provides an excellent way to acquire routine ^1H -NMR and even ^{13}C -NMR spectra. The benchtop NMR is a Nanalysis brand "NMReady-60PRO." It features a 60 MHz electromagnet, and while not as powerful as the old 100 MHz NMR, modern technologies allow for good quality data on most simple organic molecules. The NMR is easy to use and located in HCAMS by our organic chemists, where research students can readily use it. Its ease of use has cut down on training and freed up the larger 400 MHz NMR for more specialized experiments. If you're in the market for a benchtop NMR, they may be expensive at ~\$50K, but it will fit easily on your kitchen counter next to the Keurig machine.



M.S. Student Kim Ngo uses the NMR.

HCAMS Faculty & Student Perspectives



My name is Nicole Franklin and I am a senior transfer student studying chemistry. I am currently doing research in Dr. Melissa Mauer-Jones' lab studying plastic leaching. I transferred to UMD after realizing all the opportunities undergraduate students have, including the ability to join research groups and get hands-on

experience in lab settings. These experiences were an important part of my decision to transfer and reach my ultimate goals of higher education. When I was told I would be one of the first students to utilize the new Heikkila Chemistry Advanced Materials Science building, I knew it would be a perfect fit for me.

My summer research with the SURP program has been a fantastic experience, and I attribute much of that to the new HCAMS building. All of the instruments I have used are in one building so my experiments are easy to conduct and are kept in controlled environments. The instrument I have used the most is the Cary 5000 UV-Visible absorption spectrometer in the third-floor chemistry instructional lab. I am excited to learn more about other instruments and how to use them in the future.

The HCAMS building has allowed me to meet teachers and graduate students that I would not have met in my undergraduate course work. The diverse group of people that use this building for their research has been an indispensable tool in learning about topics outside my field of study. Being able to study within the proximity of colleagues and faculty has made reaching out for assistance efficient and comfortable. All the experiences and the diverse environment have helped prepare me for a future in higher education. I am excited to continue doing research this upcoming year in the new state of the art HCAMS building and look forward to spending many long hours within the depths of what I already consider to be my second home.

As a porphyrin chemist, my research deals with the design, synthesis, spectroscopy, and electrochemistry of new and innovative materials for solar energy conversion and storage as well as for molecular electronics and photonics applications. The multidisciplinary nature of my research program relies entirely on complex synthetic



methods together with a wide variety of analytical and spectroscopic techniques. The HCAMS's state-of-the-art facilities not only fulfilled our needs but also opened up new doors for us by offering a perfect place to expand and explore new frontiers in materials science. Our lab is located on the second floor of the HCAMS and is very spacious, consisting of six modern fume hoods including two walk-in hoods, which are ideal for purification of porphyrin materials by a variety of chromatography methods. The fume hoods are equipped with multiple gas lines and independent vacuum pumps/lines for manipulating reactions. Large benchtops provide a perfect place for sample handling. The lab also consists of two alcoves where all our spectroscopic and analytical instruments are located in a clean, controlled environment. The modern lab can accommodate easily up to 8 students and is an excellent place to train young researchers. In my group, each student works independently, has their own fume hood space, and most importantly the modern facilities enable them to handle multiple projects simultaneously. This has resulted in more rapid progress in their respective research projects this past summer. Moreover, we are very excited about the HCAMS Ballou instrumentation lab with Bruker NMR and EPR, which will play a crucial role in understanding the properties of our materials. The HCAMS is elegantly designed with lots of natural light, a wonderful study area for students, and several modern conference rooms to run regular group meetings. Finally, I strongly believe that HCAMS will not only advance and expand the scientific reach of the Department but it also lays a strong foundation to address future challenges in natural sciences.

Prashanth Poddutoori, Assistant Professor

HCAMS Faculty & Perspectives, cont.

Kate Kallevig, Instructor

This summer, the first instructional lab was piloted in HCAMS. Because I had previously taught this quantitative analysis lab in the old chemistry building, I am able to highlight how the design of HCAMS facilitated student learning.



- Most noticeably, all the lab students fit into one room, instead of being spread across two rooms connected by an adjoining door. Having all the students in a single room led to greater student collaboration and discussion, as well as more consistent access to the teaching assistant and lab instructor.

- Despite the consolidation of students into one room, the design of the new lab provided more benchtop space for the students to work. Unnecessary and outdated lab equipment, present in the old chemistry building, was not included on the benchtops in HCAMS.

- The efficient space usage allowed the purchase of new equipment such as drying ovens and benchtop spectrophotometers. Additionally, a room exclusively dedicated to the analytical balances ensured a proper environment for accurate mass measurements. The gas chromatograph instrument had an area dedicated to its usage, along with enough space for students to prepare their samples.

- The stockroom from which the students obtained glassware and other equipment was right next to the lab instead of on a different floor, as was the situation in the old chemistry building.

- The new HCAMS instructional lab also had copious amounts of whiteboard space as well as a projector that facilitated the delivery of prelab lectures with an unobstructed view for the students.

- Throughout the HCAMS building, areas with tables and chairs allowed students to comfortably gather and analyze the data they obtained in lab.



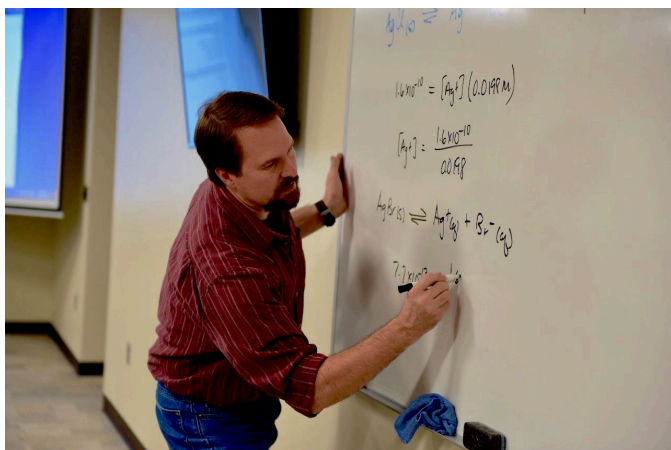
I work with Dr. Kiprof and our work is focused on boron-based compounds that can be used as organic light emitting diodes (OLED). The compounds have potential applications in energy efficient television and cell phone screens and provide richer colors. I plan to graduate in the spring of 2020 with a degree in Chemistry and Biochemistry, and my long-term career plan is to attend pharmacy school and work as a pharmacist in a hospital.

I find HCAMS to be far superior to the old chemistry building. The old chemistry building did not have any area for students to study in, while HCAMS has excellent areas for studying with great views of campus and Lake Superior. The study areas are also near professor offices, which is convenient when you have a quick question. It saves a lot of time and you get a better response than email can allow. The research labs that are in HCAMS are also so much better than the labs that were in the chemistry building. The old building was cramped with fewer fume hoods. The old building was also warm and humid in the summers and making it hard to work sometimes. HCAMS

research labs have a lot more space and hoods to work in. We work without getting in the way of each other. HCAMS also has better temperature control, which is nice in the summer. HCAMS is just so much better than the old chemistry building on every level."

Brad Johnson, Chemistry BS and Biochemistry BA, Class of 2020

Brian Gute Receives 2019 SCSE Teaching Award



It's not every day that your colleagues recognize you for your teaching, so I was incredibly honored to receive the 2019 SCSE Teaching Award. And as the tenth recipient, I'm proud to part of this small cohort. The other members are all people that I respect and admire for what they do to help students learn and for their dedication to student success.

As a UMD alumnus from the early 90's, my interest in chemistry (I was originally a biology major) emerged in Honors General Chemistry, co-taught by Drs. Bydalek and Thompson. Those two had a profound impact on my college and professional trajectory, and indirectly taught me a lot about teaching. Along with others in the Chemistry Department, they supported me and gave me

opportunities that I wouldn't have had at other schools, so it has been a great privilege to return to UMD to teach in a department that has always been near to my heart.

One of the challenges I faced teaching chemistry at UMD beginning in 2008 was class size. Organic Chemistry, with around 36 students, was probably the largest chemistry class I took. Yet my first General Chemistry I class had about 230 students (enrollments that grew quickly to ~300 per semester). Knowing that small class-size had a big impact on my experiences, and the importance of individual student-faculty interactions, I realized that I needed to better engage and interact with my students, even in these large classes.

With lots of help, guidance, and plenty of research, I experimented with various active learning techniques, trying to increase student participation. After plenty of experimentation, I adopted "flipped" teaching – a well-established, evidence-based teaching strategy – and have continued to refine this strategy for classes of around 100 students. Using this model, I spend my time interacting with students one-on-one or in small groups as they solve complex problems. This gives me the opportunity to connect with my students, which helps to improve student motivation, retention and success. I try to reach every student at some point in the semester, and while this doesn't always impact student success in the course, it's important because students want to be heard and want to interact with their faculty. They want to know that they have a place in the course, in their program, and in their field of study; they want to feel like they belong and that they can make important contributions.

I haven't been doing this in a vacuum, and I owe a great deal to supportive department chairs and colleagues who have listened to my stories, shared their own struggles, and provided tips and tricks of their own. It's an exciting time to be teaching in SCSE, with many faculty implementing evidence-based teaching strategies to promote student success. I know that SCSE's newest dean, Dr. Wendy Reed, is supportive of active learning and other important teaching innovations, and I hope that under her leadership we continue to improve our courses across the college, helping more and more students to successfully pursue STEM careers. Personally, I look forward to many more years of innovative teaching and rewarding collaborations with my SCSE colleagues, and to welcoming more deserving faculty into the ranks of SCSE Teaching Award winners.



FBI Honors Internship Program - Nikki Carroll

This past summer I had the opportunity to participate in the Federal Bureau of Investigation Honors Internship Program at the FBI Laboratory in Quantico, VA. I was excited to begin the internship, but nothing could have prepared me for the opportunities and journey ahead of me. On the first day of the internship, my fellow interns and I were sworn in and took an oath as FBI employees at the FBI Headquarters in Washington DC.

Within the FBI Laboratory, I worked in the DNA Support Unit. This unit is tasked with providing oversight and management of the FBI Laboratory's forensic biology programs and initiatives in research, quality assurance, trainings, and information technology. I was assigned to a project which focused on the validation of Rapid DNA for the analysis of ancient and degraded DNA. The project began with the validation of the Rapid DNA analysis system using standard buccal swabs with DNA samples obtained from volunteers within the FBI Laboratory. These DNA samples were tested using both the Rapid DNA and traditional analysis procedures for direct comparison. Once Rapid DNA had been validated for forensic DNA analysis within the FBI Laboratory, we began the validation of this method on ancient and degraded DNA. It was through this project that I spent 10 weeks sawing human bones into pieces for DNA testing. Once we had cut the bones, the pieces would be pulverized using liquid nitrogen or crushed with a hammer (very scientific!), so that we could perform a comparison of the accuracy between the traditional analysis method and Rapid DNA.



Nikki Carroll pictured far left.

While the FBI Honors Internship Program certainly provided me with the opportunity to experience the depth and importance of forensic DNA analysis, there was so much more I was able to explore. In addition to working in the DNA Support Unit, I also had the opportunity to assist with fingerprint analysis as well as volunteer to participate in the validation of a new handwriting analysis system within the FBI Laboratory. Unfortunately, now I can never live the life of a criminal because the FBI has my DNA, fingerprints, and a handwriting sample in their databases.

It truly was a privilege to call the FBI Laboratory my home during my participation in the Honors Internship Program and I had the fortune of creating friendships with college students from across the country. Every weekend we made plans to explore the national capital area. We visited as many of the Smithsonian Museums as possible, including the Air and Space Museum, Natural History Museum, and the National Zoo. We also decided to take our chances at celebrating Independence Day in Washington DC, which included concerts, cultural fairs, and watching the fireworks while sitting at the base of the Washington Monument.



With fellow interns at FBI Laboratory's Family Day Celebration.

My experience with the FBI Honors Internship Program helped me find my passions in public service. I am fortunate to now be working full-time with the FBI in Anchorage, AK where I am able to continue to support investigative and intelligence initiatives across the United States. Every day I am able to go to work knowing that my efforts support an important mission to uphold the Constitution and protect the American people, and I am fortunate to support this mission in a workplace that welcomes individuals from a diverse set of backgrounds and skills. I recommend that everyone, regardless of their path of study, college degree, or personal interests look into the opportunities offered by the FBI Honors Internship Program because there truly is a place for everyone to focus their skills and make a difference through their work.

Graduating Seniors: 2018-2019



Eden Abraham, BS-Biochem
 Joshua Adamek, BS-Chem*
 William Bartemes, BS-Biochem*
 Brandon Bayard, BS-Chem
 Bailey Blazinski, BS-Biochem
 Emma Boehm, BA-Biochem
 Madeline Brown, BA-Biochem
 Nicole Carroll, BS-Biochem, BS-Chem
 Phillip Brown, Chem BS
 Kaylee Cheshire, BS-Chem
 Molly Connor, BS-Biochem
 Matthew Danley, BS-Biochem
 Colin Davis, BA-Biochem
 Micaela Den Hartog, BS-Biochem, BA-Chem*
 Nathan Dunaway, BS-Biochem, BA-Chem
 Brandon Engelkes, BA-Biochem
 Kaitlyn Erola, BS-Biochem
 Joseph Everson, BS-Biochem
 Elijah Farley, BS-Chem
 Liam Fawcett, BS-Biochem, BS-Chem
 Emily Fish, BA-Biochem
 Sara Fisher, BA-Chem
 Samuel Freeman, BA-Biochem
 Sara Garland, BA-Chem

Savannah Haataja, BS-Biochem
 Evan Hedeem, BA-Biochem
 Noah Holden, BA-Biochem
 Christopher Huss, BS-Chem*
 Halie Ido, BS-Chem
 Emma Kauffman, BA-Biochem
 Taylor Kern, BA-Biochem
 Kaija Kottke, BS-Biochem, BS-Chem
 Scott Larson, BS-Chem
 Connor Laule, BS-Biochem, BS-Chem
 Jonghwa Lee, BA-Chem
 Swita Li, BS-Biochem*
 Christin Libal, BS-Biochem, BS-Chem*
 Alexandria Loneman, BS-Biochem, BA-Chem
 Logan Marquez, BA-Biochem
 Kristen McBride, BA-Biochem
 Maxwell McNulty, BA-Biochem
 Lauren Messerschmidt, BS-Biochem
 Debora Midence, BA-Biochem
 Ryan Mosentine, BS-Biochem, BA-Chem
 Olivia Neville, BS-Biochem, BS-Chem
 Madison Nohner, BS-Biochem*
 Jack Norman, BS-Biochem, BA-Chem

Opeyemi Omotoyinbo, BS-Biochem
 Emma Pero, BS-Biochem, BA-Chem
 Samuel Quiney, BS-Biochem
 Bryan Reutzel, BS-Chem*
 Kyle Ross, BA-Biochem
 Jacob Sawyer, BS-Biochem, BS-Chem*
 Lydia Sayers, BS-Chem*
 Travis Sundberg, BA-Biochem
 Mengmeng Tian, BS-Biochem
 Morgan Tinquist, BS-Biochem
 Chad Torkelson, BS-Biochem, BS-Chem
 Nicolas Vattendahl Vidal, BA-Biochem
 Amanda Vu, BA-Biochem
 Laura Wadell, BS-Biochem
 Jacob Wilcox, BS-Biochem
 Nadhi Woliye, BA-Chem
 Steven Zakrajsek, BA-Biochem

* With Distinction (Departmental or University Honors)

Master of Science in Chemistry Program Graduates: 2018-2019

The Master of Science in Chemistry degree program at UMD provides an excellent opportunity to acquire and develop advanced technical expertise and problem-solving skills expected of today's chemical and biochemical professionals. Coursework is designed to provide a firm fundamental basis for students going into a variety of chemical specialties in both professional and academic settings. Following is a list of students who are completing their Master's degree over the 2018-2019 academic year:



Top Row (L to R): Benjamin Boe, Maeve Ryan, Alvin Burrows, Daniel Zoltek, Cody Makitalo

Bottom Row (L to R): Marcy Merritt, Boi Tran, Melissa Jarvi, Robert Miller, Anh Cong, Lisa Ito, Ellen Cooney, Michael Shea, Tanner Schumacher

If you would like to support the UMD Department of Chemistry and Biochemistry and any of its current missions, please use the giving envelope located in the center of this newsletter. If desired, please note any specific unlisted program you would like to contribute to (HCAMS Building, UMD Chemistry and Biochemistry Department Fund, etc.) via the "Other" option. Thank you!

Student Awards

Our department is fortunate to be able to recognize our outstanding and deserving students. Former students, faculty, and friends of the department established some of these awards; others are from organizations in the field. Award details can be viewed at <https://scse.d.umn.edu/about/departments-and-programs/chemistry-biochemistry-department/scholarships-awards>.

2018/2019 UNDERGRADUATE AWARDEES:

Swenson Family Foundation Scholarships for Academic Excellence

Jordyn Chafer, Leah Higgins, Anna Peterson, Rayann Rehwinkel, Madelayne Seyffer, Cody Staydohar

Achievement in Organic Chemistry (ACS) Award

Christopher Huss

Achievement in Inorganic Chemistry (ACS) Award

Brandon Bayard

Achievement in Physical Chemistry (ACS) Award

Christin Libal

Achievement in Environmental Chemistry (ACS) Award

Roselynd Lin

Achievement in Organic Chemistry (Dept) Award

Ke-Chin Chen

Peterson Memorial Scholarship

Claudia Ramjatten

Lake Superior Section of ACS Outstanding Senior

Christopher Huss, Madison Nohner

The American Institute of Chemists Outstanding Senior

Lydia Sayers

F.B. Moore Academic and Leadership Award

Christopher Huss

General Chemistry Award for Excellence

Kennedy Antczak, Connor Barton, Moriah Cebulla, Sara Dingmann, Grace Ellingworth, Jaise Skinner

Warren F. Davis Award for Excellence in Biochemistry

Ly Chhun, Kylie Clark, Elsie Johnson, Aleya Steckel, Sarah Vind

Catherine E. Cox Scholarship for Chemistry & Biochemistry

Emily Hanson

James H. Maguire Scholarship

David Eaton, Grant Jackson, Marissa Jensen, Jenna Swenson

Undergraduate Analytical Chemistry Award

Jenna Swenson

Undergraduate Biochemistry Award

Jennifer Fournier, Christin Libal

Robert Bayer Memorial Scholarship

Nicole Franklin, Abaynhe Worku

Larry C. Thompson Inorganic Chemistry Award

Kaitlyn Erola

James C. Nichol Scholarship

Bryan Reutzel

Casmir Ilenda Award for Outstanding Undergraduate Research

Emma Pero, Matthew Bohn, Olivia Neville

Dr. Nathan and Elaine Ballou Scholarship

Mark Delong, Alexis Doucette, Alexa Molin, Dien Nguyen

Departmental Honors

Joshua Adamek, Claire Baetzold, William Bartemes, Micaela Den Hartog, Christopher Huss, Swita Li, Christin Libal, Madison Nohner, Bryan Reutzel, Jacob Sawyer, Lydia Sayers



Student Awards, cont.

Departmental Outstanding Service Award
Matthew Danley, Alexis Doucette

Chemistry and Biochemistry Outstanding Undergraduate Teaching Assistant
Liam Fawcett

2018/2019 GRADUATE AWARDEES:

John C. Cothran Memorial Fellowship
Anh Cong, Lisa Ito, Cody Makitalo, Maeve Ryan

Moses Passer Graduate Fellowship
Melissa Jarvi, Robert Miller, Samuel Stadem, Boi Tran

UMD Siders Chemistry Graduate Fellowship
Benjamin Boe

SCSE Outstanding Graduate Teaching Assistant
Ellen Cooney, Melissa Jarvi, Cody Makitalo

Dept. Outstanding Graduate Teaching Assistant
Alvin Burrows, Vadim Ianaiev, Lisa Ito, Faith Murphy

CAMPUS AWARDEES:

University Honors

Joshua Adamek, Swita Li, Lauren Messerschmidt, Bryan Reutzel

SCSE Student Commencement Speaker



Elijah R. Farley graduated with a BS in chemistry & BA in philosophy. He worked with Assistant Professor Jacob Wainman in the Department of Chemistry & Biochemistry. Their research looks to teach students to become better at independent experimental design. Elijah is a former president of the Chemistry & Biochemistry Club. He was an active member of the Queer and Allied Student Union (QASU) organization. He sees graduate school in his future, but wants to work in the chemistry industry first and spend quality time with his dog, Ivy.



2018-2019 Department of Chemistry and Biochemistry Awardees

Research Publications

- Organic Chemistry: a Two-Semester Course of Essential Organic Chemistry (First Edition). Zhdankin, V.V.; Grundt P.; Cognella Academic Publishing: San Diego, 2018.
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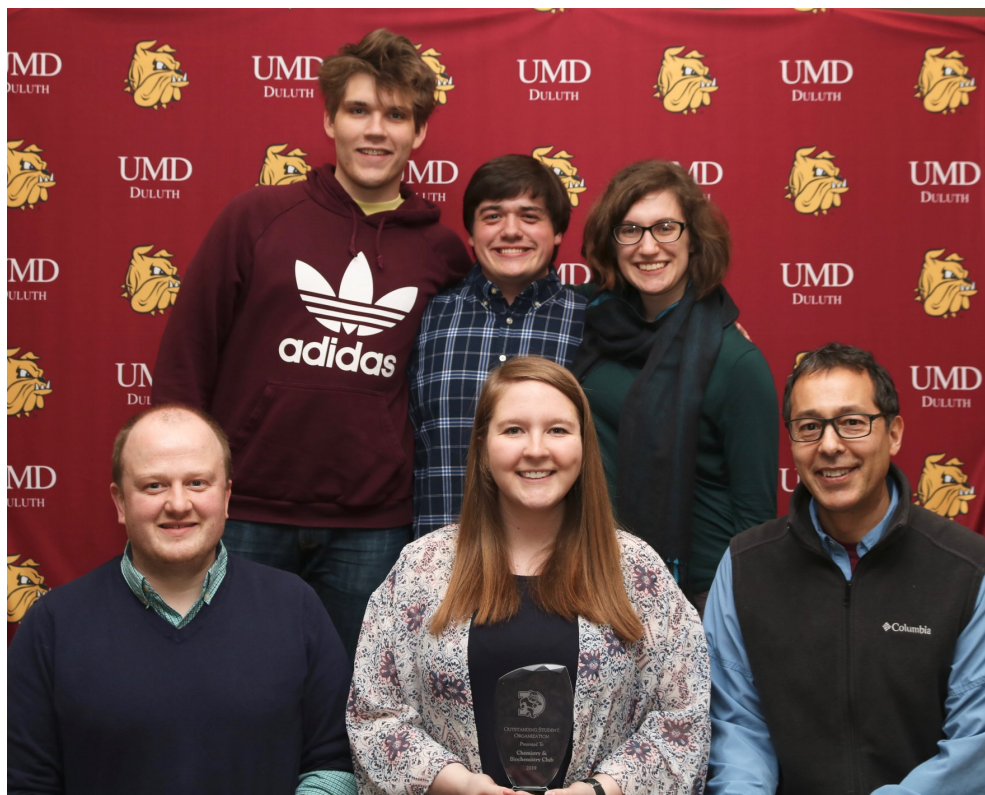
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