

Transitions

*University of Minnesota Duluth
Department of Chemistry and Biochemistry Newsletter*

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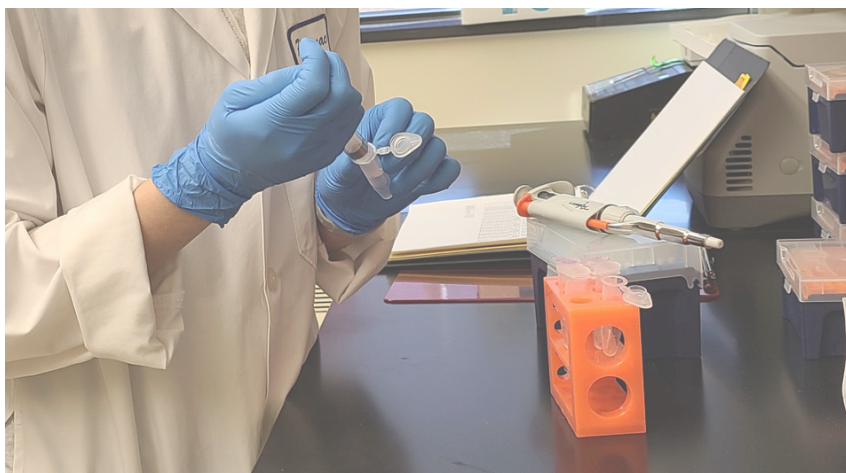
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A Year of Distanced Learning

The 2020-2021 academic year was an unusual one for the Department. We planned during the summer of 2020 for as much face-to-face learning as possible. As the summer progressed, however, we saw 3 ft physical distancing requirements extend to 6 ft spacing requirements, which ultimately required on-line learning to be the primary mode of course delivery. For example, the largest lecture hall on campus, Kobika Lecture Chemistry 200, has a normal maximum seating capacity of 396. With 6 ft physical distancing, the seating capacity was reduced to 65. Or the Chem 150 lecture room was reduced from 75 seats down to 17 seats. The effect of physical distancing requirement for most lecture instructors was that courses could not be in-person. Most faculty in the Department, therefore, delivered their lectures by pre-recording them, or through regular live zoom lectures.

On the other hand, through some ingenuity and redesign, we were able to accommodate the chemistry and biochemistry lab courses in a mostly in-person format. The lab capacities, thanks to the modern designs of the new Swenson Science Building (SSB) and the new Heikkila Chemistry and Advanced Materials Science building (HCAMS), were reduced only in half.

con't pg.3

Greetings Alumni and Friends!

Dear Chemistry and Biochemistry Department Friends,

I hope this edition of Transitions finds you happy and healthy! On behalf of the Department, it's my pleasure to provide you all with this update through our annual newsletter. The cover story of this year's Transitions (p. 1-4) will bring you up to speed on our COVID-adjusted operations. Although there were challenges, and numerous times of uncertainty, there were many victories that our faculty, staff, and students celebrated along the way. We are particularly grateful for all the support you've provided through a challenging academic year. Your encouragement, gifts, and kind thoughts helped the Department persevere through the year!



Amongst the many silver linings to last year's teaching challenges was a rapid learning of new teaching styles, required by all instructors. Due to physical distancing restrictions in classrooms, our faculty and staff had to instead largely teach and interact with students remotely. We, therefore, became adept at using instructional software to teach and engage students in new ways. Two inset stories feature creative lab designs that faculty developed for online lab courses (p. 7-9). We also came up with some inspired ways to honor our graduating seniors, and hold our spring Senior undergraduate Symposium (p. 3-4).

In spite of COVID restrictions, our faculty and students published a lot of research and submitted many new grant proposals. We again collectively published dozens of peer-reviewed research articles, with many student coauthors (p. 21-23). We also welcomed two new faculty to our ranks (p. 5)!

This coming fall has a continued atmosphere of caution, however, we are committed to engaging the students in in-person programming. Armed with the experiences of last year, as well as with excitement about newly-learned pedagogical techniques, we are all the more eager for a return to the classroom this fall.

Thank you for your support as we look forward to a new academic year!

Best Wishes,

A handwritten signature in black ink that reads "Steven M. Berry". The signature is written in a cursive, flowing style.

Steven M. Berry

Cover Story, Cont.



Instead of accommodating 16 or 18 students per lab section, physical distancing required capacities of 8 or 9 students at a time. This allowed lab instructors to split the lab enrollments in half, and schedule half the students in a face-to-face experiment one week, and the other half of students the next week. Some experiments were moved online for the off-weeks. Overall, students experienced half of the hands-on labs this way, which we counted as a win given the circumstances.

The positive side of all the online learning meant that all faculty were forced to not only learn new software programs but become proficient with them. In addition, most faculty attended workshops, conferences, seminars, and/or webinars on remote learning and online pedagogy. There has long been a desire by UMD to offer a few entry-level courses to non-traditional, or continuing-education kinds of students who are not in the area or who require an online course due to job or other limitations. As a result of the rapid forced move to online by COVID, we catapulted our Department and UMD ~10 years forward when it came to providing online courses for students. As an example, we had colleagues develop online courses or lab modules for General chemistry, Organic chemistry, and Analytical chemistry. Although the plans for these courses after COVID is still unclear, the aim is that one day we would be able to offer a small selection of online courses for students requiring this specialized experience. Please see the inset articles on the General Chemistry Take-home lab kits that were developed over the last year (see page 7), as well as the Analytical chemistry groups efforts with online lab modules (see page 9).

Seminar, Spring Symposium, and Graduation

The modes of instruction remained the same from the fall semester to the spring semester of 2021: online for most lectures, with a mix of in-person and online for labs. In addition to impacting instruction, COVID precautions required us to redesign a few key events that are unique to the Chemistry and Biochemistry Department. Friday afternoon Seminar Series: Our seminar series moved to entirely remote speakers. We utilized zoom to its full capacity by accommodating over 100 viewers on Friday afternoons. In addition to our list of local speakers or graduate students, were able to host speakers from the University of Toronto or the University of Tennessee, locations that ordinarily would be cost-prohibitive. These speakers were able to visit with our faculty during the day prior to their seminars, albeit all meetings were on Zoom.

Spring Symposium and Banquet: We held our Spring symposium entirely remotely in the spring of 2021. Normally the event occurs on a full Saturday, where students deliver presentations in parallel sessions throughout the day, and the day concludes with a banquet for students, families, and friends. The 2021 Symposium was not in person, however, students still presented PowerPoint talks on a wide range of literature or undergraduate research. Student presentations were held throughout the week of April 20-23. Each day we held two zoom blocks, with one morning and one-afternoon session. Six or so students presented at each session with faculty, staff, and other students attending as they could. The student talks were evaluated by a team of judges, with the top three students honored with Casmir Ilenda, outstanding Undergraduate research awards. We of course were unable to conclude the event with a banquet. However, we concluded the symposium week with a keynote research talk by Prof. Erin Carlson, of the University of Minnesota Twin Cities Department of Chemistry. Dr. Carlson spoke of her current research projects exploring new antibiotics, as well as her interesting path to academia.

cont'd...



Dr. Erin Carlson
University of Minnesota
Twin Cities Campus
Department of Chemistry
Keynote Speaker at our Spring Symposium

Graduation: The Spring 2021 graduation was also moved to an online format for the UM system. This decision had to be made during the winter, because of how long it takes to plan the graduation ceremony, and at that time the progression of COVID was unknown. In early April, as the availability of vaccines was rising, and the state of Minnesota was relaxing restrictions on gathering sizes, our department made a last-minute decision to honor our graduating seniors in person, at a nearby outdoor park.

We rented Lester park, and quickly sent out an RSVP request to our graduating class of Chemistry and Biochemistry majors, as well as graduating MS students. We allowed our graduating students to invite family and friends. We met on a Wednesday afternoon during finals week at the Duluth City park. The weather turned out to be a perfect ~65 oF and sunny, which was a pleasant surprise during the unpredictable Duluth springtime. We enjoyed attendance from about 10 graduate students and over 30 undergraduate students. We introduced all the students and said a few words about their post-graduation plans if it was known to them. We gifted to all the students a congratulations Beaker Mug filled with candy. Many folks ended up staying and chatting for over 2 hours, thanks to the nice weather and friendly company of all who participated.

The year with distanced and online learning was a challenging one to endure. There were however numerous fun victories celebrated along the way, with our successful seminar program, fun spring symposium week, special graduation celebration held outside in beautiful city park, and the plethora of new pedagogical techniques and resources developed by our Chemistry and Biochemistry Department faculty and staff.

Transitions Committee

Editor: Peyton Carlstrom

Committee Members: Steve Berry (Chair), Jennifer Bucsko, Elizabeth Austin-Minor

Transitions is published for alumni, donors, and friends of the Department of Chemistry and Biochemistry at the University of Minnesota Duluth.

Send all correspondence to our email: umdchem@d.umn.edu

Faculty and Staff Updates

Congratulations:



Dr. Erin Sheets was promoted to Associate Dean.



Dr. Jacob Wainman was a recipient of the 2021 SCSE Young Teacher Award. This award sponsored by Dr. James P. Reihl recognizes faculty who have made special contributions to teaching.

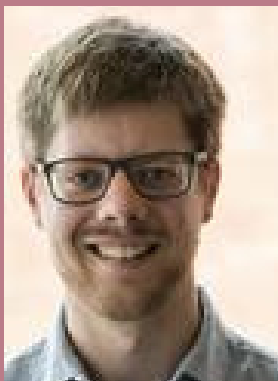


Dr. Joseph Johnson was named Associate Department Head.

Welcome:



Dr. Anna Lee is a new assistant professor in the department. Her research interests are next-generation materials and devices applicable to sustainability and health.



Dr. Luke Busta is a new assistant professor in the department. His research interests are plant chemistry, combining chemistry and genomics to understand natural products.

Fair-well wishes:



Randall Helander we wish you a happy retirement and thanks for all that you have contributed to our college, department, and the lives of everyone we serve. Randall began work in the department in September of 2008. He was the primary support person for our labs and instruments in Chemistry (NMR, GC-MS, among many others), working closely with faculty, staff, TA's, and RA's. He was the recipient of the Chancellor's Outstanding Service Award in 2013. He was a key facilitator for many projects including our smooth and rapid move into HCAMS and out of Chemistry last year. Randall looks forward to more time in the great outdoors with family and friends.

In Memory



Larry Thompson passed away peacefully with family at his side in Scarborough, Maine on September 15, 2020. Larry attended college at Willamette University, earned his Ph.D. at the University of Illinois at Urbana-Champaign, and joined the chemistry faculty at UMD in 1960. For the next 43 years at UMD, Professor Thompson was an outstanding friend, colleague, mentor, leader, and teacher. He was a key part of the Chemistry MS degree program, established in 1964. During his career, Professor Thompson was known internationally as an expert in the coordination chemistry and spectroscopy of Rare Earth elements. He made significant leadership contributions during his career, including serving as the Department Head for 13 years.

He was revered by his students and colleagues for the rigor of his courses, his enrapturing chemistry stories, and his generous mentorship. For his hard work and brilliance as a scholar and teacher, he received the Sabra S. & Dennis L. Anderson Scholar/Teacher Award. Professor Thompson retired from the Department of Chemistry in fall 2003. So many friends, family, and alumni donated to the Larry C. Thompson Inorganic Chemistry Award, in his memory, that this is now an endowed award fund. If you would like to make a gift in memory of Dr. Thompson you may do so here <https://z.umn.edu/GiveUMDChemAndBiochem> or please contact Carrie Sutherland at csutherl@d.umn.edu.



Warren Davis passed away peacefully on Sept. 27, 2020. He was born in Duluth and graduated from Duluth's Central High School in 1942. He served in WWII before graduating from UMD in 1949 with a Chemistry degree. He worked as a chemist at NASA for the majority of his career, until retiring in 1985. Warren F. Davis included a bequest through his estate to create an endowed chair in the Department of Chemistry and Biochemistry. His gift will significantly enhance our efforts to recruit and support faculty. In addition, he created a scholarship program for senior biochemistry majors who have demonstrated academic excellence.

Online General Chemistry

Evolving Curriculum: Remote Laboratory Courses

Following the unprecedented onset of the COVID-19 pandemic in Spring of 2020, faculty leading chemistry laboratory courses were left with few alternatives for lab exercises. Most pivoted their instruction to exercises involving data analysis, watching chemistry videos, and computational chemistry. The downside of these alternatives is that the students did not get an opportunity to carry out vital experimental lab techniques that can only be attained by performing the experiments in person.

Dissatisfied with this learning experience, we set a goal of developing an “At Home” General Chemistry Laboratory curriculum that would provide students safe, hands-on experiences to learn laboratory skills while at home. We, therefore, created a new curriculum, based on our existing lab exercises, which retained the rigor expected of a college chemistry laboratory course. In this curriculum, students would use basic laboratory equipment, glassware, and instrumentation to collect, record, and report data from real experiments, and then analyze and interpret these data. Moreover, we sought to design this curriculum such that the laboratory materials and chemicals needed would fit within the existing laboratory fee, thereby protecting students and the department from additional expenses.

The work for this challenging project was funded through a proposal co-written by a team of General Chemistry faculty and staff, including Eve Metto, Jacob Wainman, Brian Gute, Romesh Lakhan, and Neil Weberg. Given the unprecedented challenges these instructors and staff were already facing to adapt their other courses to remote learning, the team identified Victoria Fringer, a recent UMD Chemistry M.S. graduate, as an outside consultant to complete the project. Ms. Fringer’s MS thesis was co-advised by Dr. Melissa Maurer-Jones and Dr. Jacob Wainman: one project (under Dr. Maurer-Jones) involved studying the impact of plastic materials and additives on model bacteria, while the other (under Dr. Wainman) involved developing, implementing, and assessing a General Chemistry Laboratory curriculum.

The experience Ms. Fringer gained through these projects perfectly positioned her to develop the at-home general chemistry lab curriculum. During her education research project, Ms. Fringer gained familiarity with the tenets of Backward Design, the current best practice for designing a new course. She already had created learning objectives, designed assessments, and (most relevant to this project), created learning experiences and materials that align with the objectives and assessments. Her more traditional benchwork research experience with Dr. Maurer-Jones gave her the keen awareness of crucial skills that students need in their undergraduate laboratory experience.

Under the guidance of Ms. Fringer, the team’s efforts resulting in a year-long general chemistry laboratory curriculum (i.e. General Chemistry I and II Labs), complete with take-home lab kits and the accompanying online course materials. Ms. Fringer designed a low-cost, easy-to-ship, laboratory kit containing all of the glassware and instrumentation necessary to complete both semester’s laboratory activities. Students are required to provide a few additional household items, such as distilled water or an almond. In addition, students are expected to have access to a smartphone (for example to use as an at-home spectrophotometer).

The curriculum is composed of experiments specifically tailored to learning objectives and fundamental laboratory skills in an introductory course. For example, the first experiment exposes students to the range of laboratory equipment provided in their kits while they practice correct measuring techniques. As the curriculum continues, the exercises become more advanced in technique and analysis, on a schedule that follows the complimentary General Chemistry lecture course.

cont'd...

Online General Chemistry, Cont.

While the curriculum is modified, the critical skills and concepts are consistent with those of the in-person UMD general chemistry laboratory courses. For example, one lab has students quantify the amount of food dye in a sports drink using a calibration curve and Beer's Law. In contrast to the in-person experiment, the at-home experiment uses syringes in place of graduated cylinders and a smartphone as the spectrophotometer. The take-home kit includes a dye standard solution, test tubes, syringes, and a cuvette, while the students provide distilled water, a sports drink, a cardboard box, and a smartphone with RGB analyzing app, to complete the experiment. This laboratory exercise was adapted from work published in 2016, years before COVID-19, by Tom Kuntzleman and Erik Jacobson, providing a simple alternative for teaching Beer's Law.

In the summer of 2021, this online general chemistry lab curriculum was piloted for the first time. Students were shipped kits (see picture below) and they completed the exercises from home. The activities were supported with weekly "check-ins" with UMD teaching assistants and principal faculty members. During the online sessions, students connected with UMD faculty and were able to see lab techniques demonstrated and share laboratory best practices. The sessions also fostered a sense of community where students connected and supported each other despite not being physically in the same lab space. Overall student experience with the lab kits was extremely positive. End-of-course evaluation responses indicated that all students would agree, strongly agree, or very strongly agree that the remote lab experience was well organized and to recommend the online course to fellow students.

Strategies similar to that described above were used to adapt other common General Chemistry Laboratory exercises into at-home versions, resulting in a full curriculum that was first implemented in summer of 2021. This development was a part of a push for better laboratory experiences in non-traditional laboratory spaces, a movement that has gained momentum as a ripple effect of COVID-19. Going forward, we hope the development of robust at-home general chemistry lab kits will create opportunities for non-traditional students to continue their education while working full-time, an opportunity that did not exist at UMD until the COVID-19 crisis of 2020.



Chemistry at-home lab kits

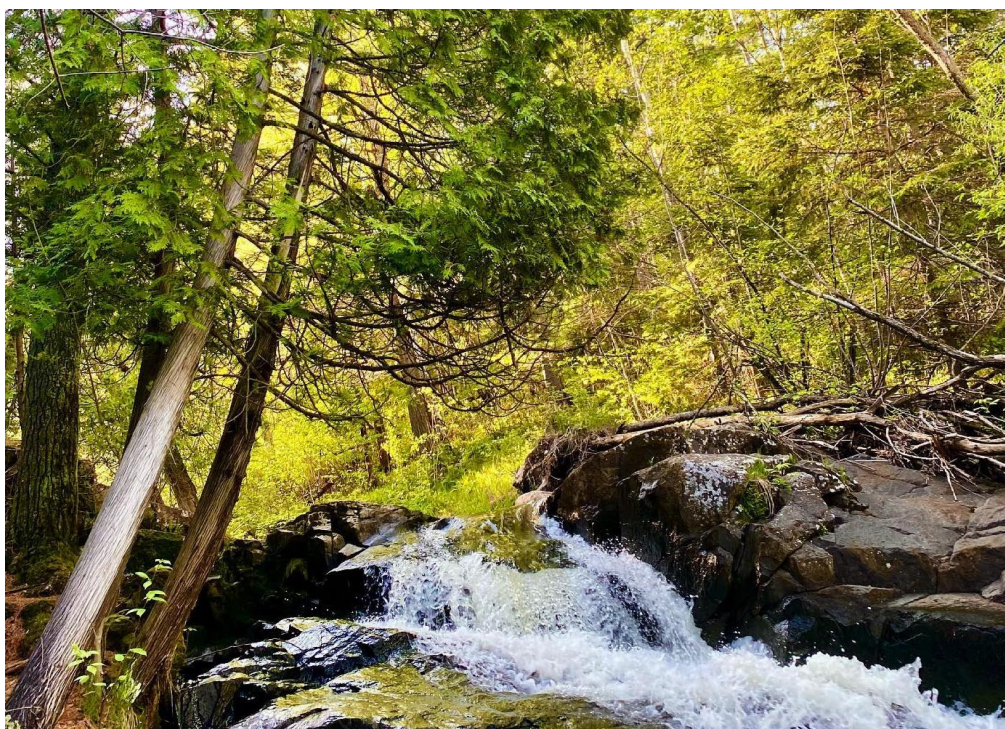
Joselyn Hartman Class of '24

Online Analytical Chemistry

When we think of analytical chemistry, sophisticated instruments and calibrated glassware often come to mind. So, when it was announced that the summer 2021 offering of our introductory analytical chemistry lab course “Quantitative Analysis Laboratory” was to be administered online, it was initially challenging to think of a way for students to gain experience with high-accuracy methodology in an at-home setting. Undaunted, Assistant Professor Dr. Melissa Maurer-Jones took on this challenge together with a team that included Drs. Eve Metto and Luke Busta as well as UMD undergraduates Liz Pardoe and Khoi Pham.

Over several months in the spring of 2021, the team researched, brainstormed, and refined ideas for analytical chemistry experiments that could be performed in a household setting. Liz and Khoi tested and honed the experimental protocols. While doing this, they identified a small but versatile collection of equipment that could be used to perform many basic quantitative analysis experiments including pH measurement, basic statistics, chemical separation, as well as quantifying vitamin C and calcium in household products. With the analytical equipment in hand, these experiments could be performed in a household setting, but how could all the equipment be distributed to the students?

Using an assembly line, the team packaged up more than 20 take-home analytical chemistry kits that included more than 20 pieces of equipment and nearly a dozen chemicals and reagents in each kit. Students took these boxes home at the end of the spring semester or the boxes were sent through the mail, resulting in each student having a fully functional analytical chemistry set that included beakers, volumetric flasks, pipettes, a pH probe, a balance, and chromatography plates. Given that some of these items were more expensive than those in the take-home General chemistry kits (see accompanying article), we asked students to send back the pH probe and balance by return mail. This keeps the cost down for the students and the department. Going forward, we are eager to build on the at-home analytical chemistry lab modules we deployed this summer in case the need arises to use them again in the future. We do have long-term plans to develop some entry-level chemistry courses for non-traditional college students, such as those returning to school in the midst of a career change. This is a growing area of education that UMD has been behind the curve on for many years. Due to all the required online teaching during COVID, we are now well-poised to design such courses going forward.



Dr. Elizabeth Austin-Minor Takes on Sabbatical



Q: So where were you in 2019-2020?

A: Oh, I was on sabbatical.

Q: Oh really, what was that all about?

[Image above: Dr. Elizabeth Austin-Minor taking a Saturday tour in France of the neighboring countryside]

A: See, sabbatical is a chance to learn new things to bring back to UMD; it's also a chance to catch up and reset a bit on research and teaching. I got lucky, most of my travel was planned for fall and winter and I wanted to write in spring and summer. I got my travel all done before COVID hit.

Q: Oh where did you go?

A: I went to the University of Montana first to work with colleagues in Dr. Mike DeGrandpre's lab group. This group makes and tests sensors for measuring pH and carbon dioxide levels in water (oceans, lakes, and rivers). I got to work with these sensors in a nice trout stream and also learn to process lots of data from Lake Superior. We are interested in how increases in atmospheric carbon dioxide are affecting natural waters, in terms of pH and buffer capacity.

After that, in November I spent a bit over a week in Aix-en-Provence, visiting CEREGE (Centre Européen de Recherche et D'Enseignement Des Géosciences de L'Environnement). There I met with researchers studying microplastics in the Mediterranean. I helped with a student project where the students had visited us on Lake Superior and were using our techniques on samples from the Lake as well as the Mediterranean. I also gave 2 presentations and got to tour a really nice accelerator mass spectrometry (AMS) facility. The AMS facility is used to radiocarbon date organic stuff in waters, rocks, and trees. In January I went to England as an invited speaker at a Royal Society Workshop on Freshwater Dissolved Organic Matter (DOM). There about 45 very active researchers in the field got to stay at a country house (sort of like those in Bridgerton or the Secret Garden) and to talk science for several days. I learned lots and maybe taught others a little bit too. After all that travel, it was back home to Duluth to write. In spring 2020, I sat at my dining room table and became the lead author on 2 papers, one on microplastics (Minor et al., 2020, Science of The Total Environment 744, 140824. <https://doi.org/10.1016/j.scitotenv.2020.140824>) the other on DOM and based upon my talk at the Royal Society Meeting (Minor & Oyler, 2021, Biogeochemistry, <https://doi.org/10.1007/s10533-020-00733-z>). The family cat and dog seemed very happy to help randomize my notes and to add some type-o's to my papers... (con't on pg. 11)

Dr. Elizabeth Austin-Minor sabbatical Cont.,

In Summer 2020, having missed the pivot to online learning in Spring 2020, I took a course in online teaching. It was very helpful in giving practical tips and also taught me some good teaching theory as well.

Then came Fall 2020 and time to start using some of the stuff I learned on sabbatical!



[Image above: Senior Scientist Cory Beatty from the University of Montana showing Liz Minor how to set up for the river sampling station.]



UmdDepartmentofChemistryAndBiochemistry



umdchemandbiochem



UMDDepartmentofChemistryandBiochemistry

Stay Connected with us!



Social Media Storm

Keeping up with the Chemistry and Biochemistry Department on Facebook, Instagram, and YouTube!

For the past year, communication through social media has been one of our frequent channels to communicate with friends afar of the Chemistry and Biochemistry department. Jennifer Bucsko, Peyton Carlstrom, and Carrie Misuraco all staff within the Chemistry and Biochemistry department have worked towards building and connecting with our online community. A tool that has been amazing for us is a graphic design platform called Canva. Canva allows its users to create a deeper story with an image for its audience by allowing the user to manipulate the images in many ways with filters, text, and more. Memorable posts from the last year (there are too many to share so we will name a few!) can include highlights we've created for our students such as graduate students, student workers, and most recently our 2021 Chemistry Summer Undergraduate Research program cohort!



Highlights

[Please see one of our most recent highlights, Elizabeth Pardoe, a 2021 SURP student on the left.] Throughout the year, it has been a different way of connecting with our UMD community. These highlights have allowed us to learn more about our students. With their approval, we learn where they are from, what their aspirations are after graduation, or what their favorite summer activity is in Duluth. Why is this information important you may ask? We want to share a key piece in what makes our department successful and that is our students!

It's fun to learn more about why each student chose Duluth to begin their academic journey and what they enjoying doing outside of the classroom!

Where to connect with us

Wondering where you can find these awesome highlights and Chemistry and Biochemistry happenings? We post weekly on our Facebook, Instagram, and monthly on YouTube! Friends all over the globe can connect with us this way. To our excitement, this has also expanded our Chemistry Master's program recruitment, as our social media has reached some applicants to our program which sparked their interest to apply!

Besides Facebook and Instagram, YouTube has expanded the marketing efforts of our department. Faculty member and assistant professor, Dr. Luke Busta graciously created several videos that highlight our research, study areas, students, and student clubs. Come find us virtually today!

Grad Spotlight



CORWIN DEETZ

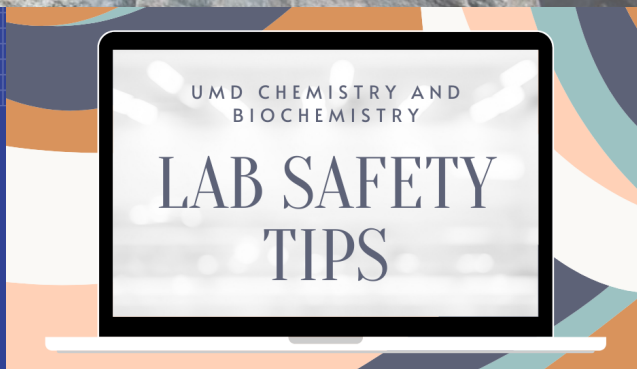
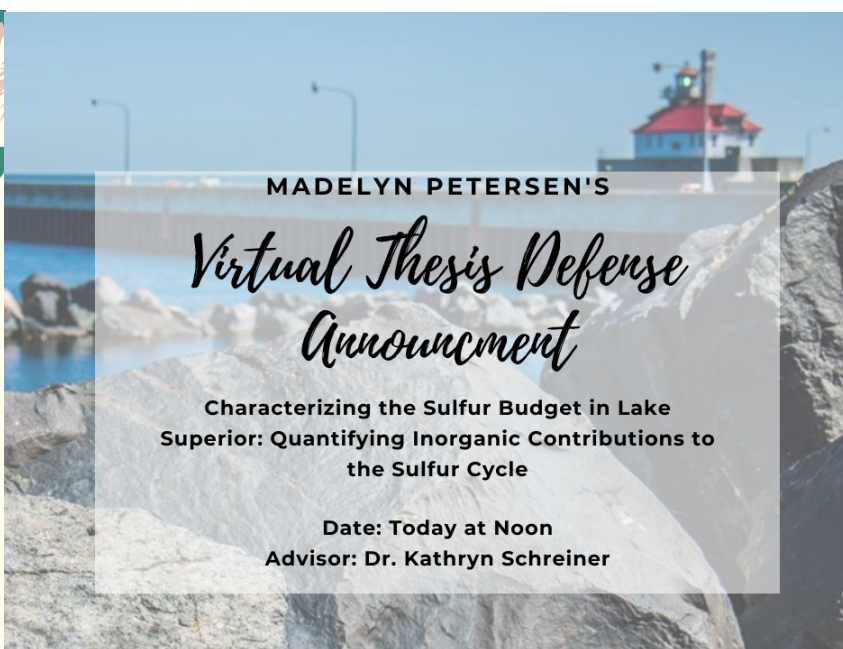
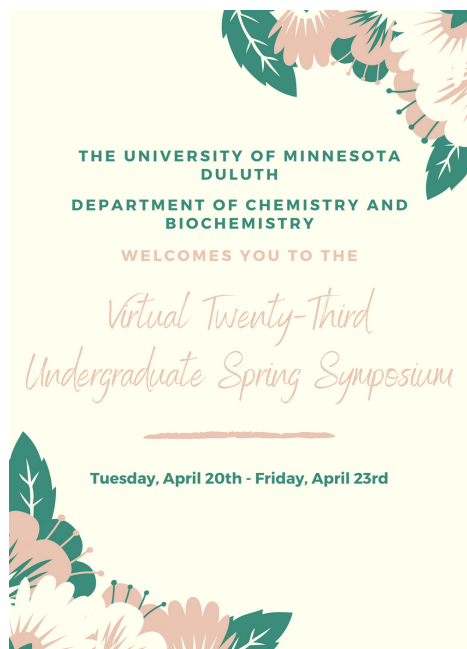
Hometown:
Rice Lake, WI

Hobby:
Play my guitar poorly.

Favorite thing to do in Duluth:
Have a fire on cold nights with friends.

My research:
I do research on plasmonic nanoparticles and how we can use the properties of these particles to enhance current spectroscopic technologies and biosensing techniques.

Social Media Storm - Take a peek at some of our past posts!



Society of Chemists and Biochemists & Chemistry Club



Students enjoying their end-of-the-year party! There were hotdogs, burgers, goodie bags, and lots of snacks to bring home afterwards.

Society of Chemists and Biochemists & Chemistry Club



Students enjoying a night out for their bonfire event.



Exploding pumpkins? Yes! Students await patiently for Instructor Romesh Lakhan's exploding pumpkins experiment!

Graduating Seniors: 2020-2021

BACHELOR OF ARTS

Hailee Faith Albers, Biochemistry
Kaitlyn Altman, Biochemistry
Nathaniel Becker, Chemistry
Eli Belschner, Biochemistry
Rachel Bennett, Chemistry
Rachel Berosik, Chemistry
Tara Bolton **, Chemistry
Amy Bowman, Biochemistry
Kallie Brownlow, Biochemistry
Jennah Brygger, Chemistry
Nathan Budde ***, Biochemistry
Ly Chunn, Chemistry
Lynsey Cooper, Biochemistry
Katelyn France (University Honors), Chemistry
Gunnar Frahm ***, Chemistry
Jake Giermann, Chemistry
Ryan Good, Chemistry
Sarah Hammerlund, Chemistry
Camille Harmer ***, Biochemistry
Emily Hennen, Biochemistry
Aaron Hess, Chemistry
Sam Himes ***, Chemistry
Hailey Horvath, Biochemistry
Benjamin Iesalnieks, Chemistry
Aliciarose John (University Honors), Chemistry
Elsie Johnson, Biochemistry
Kara Johnson, Biochemistry
Alyssa Klancher *, Biochemistry
Chloe Larson, Chemistry
Lauren LeBourgeois, Chemistry
Megan Lehto, Biochemistry
Riley Luebben, Biochemistry
Sam Mark, Biochemistry
John McClay ***, Chemistry
Michael McParlan II, Chemistry
Alexa Molin, Chemistry
Dannah Nephew, Biochemistry
Duc Nguyen, Chemistry
Jacqueline Obeidzinski, Chemistry
Kari Olson, Chemistry
Steven Peterson, Chemistry
Elias Polovina, Biochemistry
Matthew Prudhomme, Biochemistry
Madeline Reid, Biochemistry
Amir Sadrati, Biochemistry
Jadin Schiller ***, Biochemistry
Thomas Schweitzer, Biochemistry

BACHELOR OF ARTS CONT.

Samuel Scott, Chemistry
John Shortreed, Chemistry
Jacob Soucy, Biochemistry
Aleya Steckel (University Honors), Biochemistry
Thi Ta **, Biochemistry
Emmanuel Tetteh-Jada +, Chemistry
Nicole Tiedman, Biochemistry
Jonathan Tigner, Chemistry
Litzzy Torress Miranda, Biochemistry
Jordan Turnquist, Chemistry
Sarah Vind ***, Chemistry
Tiffany Welsh, Biochemistry

BACHELOR OF SCIENCE

Isabel Bibeau, Biochemistry
Grace Bishop, Chemistry
Tara Bolton **, Biochemistry
Gabriella Brinkley, Chemistry
Jennah Brygger, Biochemistry
Raven Buckman, Chemistry
Isabella Castle, Biochemistry
Alexis Catt (University Honors), Biochemistry
Ki-Hyuk Cha, Biochemistry
Ly Chunn, Biochemistry
Seoyun Choi, Biochemistry
Reid Davidson, Chemistry
Gunnar Frahm ***, (University Honors), Biochemistry
Katelyn France (University Honors), Biochemistry
Jake Giermann, Biochemistry
Sarah Hammerlund, Biochemistry
Eva Hendrickson, Chemistry
Aaron Hess, Biochemistry
Sam Himes ***, Biochemistry
Scarlet Hoffman +, Chemistry
Noah Holzer, Chemistry
Benjamin Iesalnieks, Biochemistry
Tanner Isaacs, Biochemistry
Kelsey Kerfeld, Chemistry
Shannon King ** (University Honors), Biochemistry
Chloe Larson, Biochemistry
Colyn Leary, Chemistry
Sebastian Laureano, Chemistry
Lauren LeBourgeois, Biochemistry
John McClay ***, Biochemistry
Michael Mcparlan II, Biochemistry
Alexa Molin, Biochemistry
Erik Morey, Biochemistry
Hannah Mueller ***, Biochemistry

Graduating Seniors: 2020-2021

BACHELOR OF SCIENCE CONT.

Duc Nguyen, Biochemistry
Alisha Nordman, Biochemistry
Jacqueline Obeidzinski, Biochemistry
Kari Olson, Biochemistry
Sarah Orro, Chemistry
Steven Peterson, Biochemistry
Samuel Scott, Biochemistry
Benjamin Serre, Biochemistry
John Shortreed, Biochemistry
Soren Sjerven, Biochemistry & Chemistry
Emmanuel Tetteh-Jada +, Biochemistry
Hnuklue Thao, Biochemistry
Cortni Thill, Biochemistry
Jonathan Tigner, Biochemistry
Irene VanBaalén, Biochemistry
Sarah Vind ***, Biochemistry
Alexis Ward, Biochemistry
Kaitlyn Wolf, Biochemistry

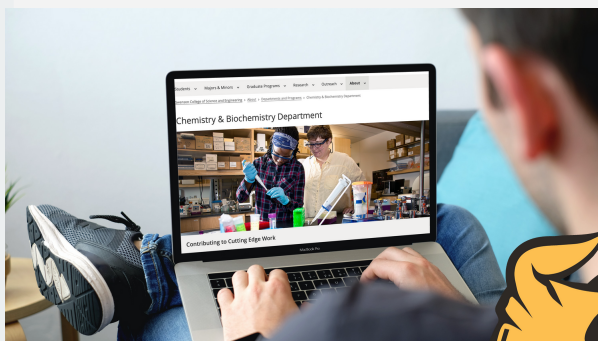


* Denotes cum laude

** Denotes magna cum laude

*** Denotes summa cum laude

+ Denotes departmental honors



Want to learn more about the programs we offer? Visit <https://scse.d.umn.edu/about/departments-and-programs/chemistry-biochemistry-department>



Congratulations to all the UMD graduates!

Graduating Chemistry Masters Students: 2020-2021

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.

The following is a list of students who completed their Master's degree over the 2020-2021 academic year:

Valerie Bruner, Advisor; Dr. Kathryn Schreiner
Victoria Fringer, Advisors; Dr. Melissa Maurer-Jones & Dr. Jacob Wainman
Greeshma Kumpati, Advisors; Dr. Joseph Johnson & Dr. Venkatram Mereddy
Jeffrey McVay, Advisor; Dr. Steven Berry
Thomas Mundhenke, Advisor; Dr. Melissa Maurer-Jones
Jack Norman, Advisor; Dr. Venkatram Mereddy
Kassidy Rodriguez, Advisors; Dr. Joseph Johnson & Dr. Ahmed Heikal
Sam Stadem, Advisor: Dr. Paul Kiprof



Duluth's iconic lift bridge, illuminated with maroon and gold in honor of our graduating Class of 2021!

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 <http://scse.d.umn.edu/about/departments-and-programs/chemistry-biochemistry-department/scholarships-awards>.

General Chemistry Award for Excellence

Jasmine Baerg, Timothy Haas, Anna Muellner,
Holly Norha, Jenny Ruliffson, Trinh Tran

***Undergraduate Award in Organic Chemistry
(ACS)***

Gunnar Frahm

***Inorganic Chemistry Undergraduate Award
(ACS)***

Hannah Mueller

***Undergraduate Award in Physical Chemistry
(ACS)***

Kari Olson

***Undergraduate Award in Environmental
Chemistry (ACS)***

Gabriella Brinkley

Undergraduate Analytical Chemistry Award

Susannah Swenson

Undergraduate Biochemistry Award

Sarah Vind

American Institute of Chemists Award

Noah Holzer

Lake Superior Section of ACS Award

John McClay
Kari Olson

***Larry C. Thompson Inorganic Chemistry
Award***

Michael McParlan

UMD James C. Nichol Scholarship

Grace Bishop

Richard D. Wilson Scholarship

Bridget Beyer

***Warren F. Davis Scholarship for Excellence in
Biochemistry***

Madison Larson
Jonas Mellan

F.B. Moore Academic & Leadership Award

Katelyn France

Ballou Scholarship Honoring John C. Cothran

Meredith Reynolds
Zachary Sexe
Jaise Skinner
Susannah Swanson
Thi Ta

Robert Bayer Memorial Scholarship

Kevin Elvine

***Catherine E. Cox Scholarship for Chemistry
and Biochemistry***

Amber McRae

Peterson Memorial Scholarship

Sandra Wawersich

James H. Maguire Scholarship

Jack Namyst
Michaela Sanger
Nicholas Zosel

***Casmir Ilenda Award for Outstanding
Undergraduate Research***

Katelyn France
Noah Holzer
Alexis Ward

Student Awards

Departmental Honors

Grace Bishop
Gabriella Brinkley
Raven Buckman
Katelyn France
Noah Holzer
Michael McParlan
Alexis Ward

University Honors

Alexis Catt
Katelyn France
Aliciarose John
Shannon King
Dannah Nephew
Aleya Steckel

SCSE Outstanding Graduate Teaching Assistant Award

Devin Edge
Liam Fawcett
Adeesha Jayathilaka
Janna Quick

Department of Chemistry and Biochemistry Outstanding Graduate Teaching Assistant Award

Althea Amaris
Matthew Danley
Nathan Dunaway
Christopher Huss
Chioma Nwachuku
Naoto Tozaki

Department of Chemistry & Biochemistry Best Graduate Student Seminar

Brandon Bayard

Department of Chemistry and Biochemistry Outstanding Undergraduate Teaching

Assistant Award

Grace Bishop
Raven Buckman
Sarah Hammerlund
Sam Himes
Shannon King
Sebastian Laureano
Lauren LeBourgeois
Michael McParlan
Alexa Molin
Kari Olson
John Shortreed
Sarah Vind
Alexis Ward

Summer Undergraduate Research Program

Taylor Abrahamson
Syeda Ali
Gabriel Gracza
Tyler Mendonsa
Jack Namyst
Elizabeth Pardoe
Meredith Reynolds
Tanner Swenson
Emma TenPas
Sandra Wawersich
Samantha Westlund
Matt Wittmer

Outstanding Service Award

Brandon Bayard
Gunnar Frahm
Soren Sjerven



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Department of Chemistry and Biochemistry
University of Minnesota Duluth
1038 University Drive
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