

SUNY Oswego Dept. of Chemistry 2016-2017

Letter from Chair-Dr. Fehmi Damkaci:

I would like to thank two of our alumni who started an endowment program to support summer research students. One endowment was established by Peter, '75 and Andrea Bocko,'73 and other endowment was set by an anonymous alumnus. Due to our increasing student enrollment as well as several new faculty hires, our summer research activities have increased, which is a good problem, and we needed more support for our students who would like to perform summer research with our faculty. We believe that best way of educating future chemists is providing more research opportunities both during the academic year and in the summer. Any support from our alumni in that regard is highly appreciated by our department. I will ask for you to utilize your company's matching donation policies to help these young minds. All your donations go directly to our undergraduate and graduate students for their summer stipends or research related expenses.

Since the opening of Shineman Center, we have seen a surge in the number of incoming freshman majors in our department, which has been around 60 on an annual basis the last 2-3 years. As a result of this, we graduated our biggest class this year; 34 chemistry students. This can be regarded as good news, it gives us an opportunity to educate more future chemists, however also a challenge in terms of space, faculty, and funding.

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All the new hires, Dr. Matthew Baker, organic chemist, Dr. Sue Haddadi, forensic analytical chemist, and Dr. Julia Koeppe, biochemist, all had a very good start, in terms of research and teaching in their first year at SUNY Oswego. In order to better serve our increasing student body, we have added an 11th tenure track line and hired Dr. Thomas Brown, inorganic chemist.

We would love to have you come by the department for a quick visit or seminar. Summers are more vibrant than ever at our department. If you would like to stop by and talk to our summer research students, please arrange a visit on Monday, when we have summer research lunch get-togethers, which provides a great opportunity for you to meet all summer researchers. Our students are always eager to learn from our alumni to help shape their future.

Also, we are always looking for our alumni to come to campus to serve as guest speakers throughout the school year, if you are interested, please drop us an email to set up your visit.

There is so much exciting news related to our faculty and programs; such research funding, publications, sabbaticals, summer research, new collaborations, and international trips. Please enjoy reading our annual newsletter and continue to support SUNY Oswego Chemistry.

Dr. Fehmi Damkaci Chemistry Department Chair

Chemistry Alumni Return to Campus



Photos by Jim Russell

After receiving his BS in Chemistry from SUNY Oswego, **Dr. Owen McDougal ('92)** went on to earn his Ph.D. in Organic Chemistry from the University of Utah in 1998. His Ph.D. dissertation was Conus Peptides Investigated by Nuclear Magnetic Resonance Spectroscopic Methods. Dr. McDougal is currently a Professor and Chair of Organic and Natural Products Chemistry at Boise State and is also the Founding Editor and Chief of AIMS Molecular Science. He came back to campus on October 7th to talk to our undergraduates about graduate school opportunities at Boise State. He had lunch with the Chemistry Club and was given a tour of Shineman Center by Dr. Bendinskas. Dr. McDougal gave a lecture to the department entitled *"Veratrum californicum: Of One-eyed Sheep and Hedgehogs"*. The corn lily (a.k.a. *Veratrum californicum*) grows in the mountains of Idaho. This plant gained national recognition when in the 1950's sheep herders noticed unusually high rates of lambs born with cyclopean-type malformations. He taught us all about his research to obtain bioactive alkaloids from this plant.

One of his classmates Karen Ruth Sgarlata (BS '90, MS '92) who works as a Forensic Chemist at the Onondaga County Center for Forensic Sciences made the trip up to Oswego for his talk and to reconnect and reminisce on the good old days. Karen has taken many of our SUNY Oswego students on over the years for internships at the Syracuse crime lab. *Photos by Jim Russell*



Front row: Dr. Hartwick, Frances Nucero, Dr. Evans. Back Row: Sheila Cooley, Mallory Bower, Dr. Thomas Brown, Kim LaGatta ('17), Dr. Sue Haddadi, Caden Bonzerato ('17), Connor Landers ('17), Lukas Benjamin ('17), Shaun Henderson ('18) Dr. Jeff Evans ('86) Chief Executive Officer of PharmAssist Inc, came to campus in March along with his Chief Scientific Officer Dr. Richard Hartwick and HR Director Frances Nucero. Dr. Hartwick presented to our Analytical chemistry course "Analytical chemistry in a Regulated Environment". The group took a tour of Shineman and met with students and staff over lunch to talk about career opportunities at PharmAssist Inc. The group attended the campus career fair that evening. The company was founded 28 years ago is an analytical support company for the drug industry. The have ~30 employees and hope to expand this summer. They told the students that CHE 322 is their most important chemistry course; never have they met an unemployed Analytical Chemist. They stressed to the students the importance of regulations, good science, and guality work in the industry. Dr. Richard Shineman was Dr. Evan's general chemistry professor. Their visit was sponsored by the Center of Experiential Learning and Career Services.

Congratulations to Ethan Green '17 who was recently hired there as an Analytical Chemist.

Faculty and Staff

Matthew Baker, Assistant Professor, Organic Chemistry

matthew.baker@oswego.edu PhD., The Pennsylvania State University, 2014 B.A., Alfred University, 2009

Research Interests: Design and synthesis of stimuli-responsive polymers and materials. Specific applications include polymers with sensing capabilities; biodegradable and environmentally friendly plastics; and industrially relevant materials.

Updates: Dr. Baker was hired as a tenure-track organic chemistry faculty member and has just completed his first academic year at Oswego. As a result, this past year he has been busy setting up his lab and initiating his research projects. He has worked with 3 undergraduates and one graduate student thus far. This past year Dr. Baker has received three internal grants and submitted an external grant to the American Chemical Society- Petroleum Research Fund. Additionally, one of Dr. Bakers undergraduate students was awarded the *QUEST* Sigma-Xi SUNY Oswego Chapter ORSP Award for Excellence for her work presented at this year's *QUEST* Symposium.

Kestutis Bendinskas, Professor, Biochemistry

kestutis.bendinskas@oswego.edu Post-doctoral fellow, John Hopkins University, 1997 Ph.D., Bowling Green State University, 1996 B.S., Mendeleev University of Chemical Technology, 1991

Research Interests:

-to explore effects of metals on human health, *i.e.* omics of lead (Pb), cadmium, mercury, arsenic in kids and steel mill workers in Oswego and Syracuse in the USA, Kolkata in India, and Tbilisi in the D.R. of Georgia;

-to study metal-binding properties of proteins, *e.g.* the quenching of fluorescence of alpha-macroglobulin due to its binding to Pb;

-to use detection methods to measure stress biomolecules in novel matrixes, such as cortisol in hair of military veterans or patients of tropical diseases in Ecuador;

-to develop modern biochemistry teaching laboratory experiments; we are now working on CRISPR.

Update: Kestas is most proud this year of his Capstone students Tessila Abbott, Ethan Green, Samantha Henderson, Dylan Charland, Tatiana Gregory, who worked hard and presented their results at Quest. Amanda Daulagala worked as a research tech full time for quite a few weeks finishing an unbelievable number of ELISA experiments establishing very interesting and also unexpected effects of vacations on several biochemical markers in 63 subjects. Great news: Dylan and Amanda chose to go to grad-level schools. Dr. Bendinskas and two of his former students, Jess Blodgett and Dan Walter published an article entitled "Both Hair Cortisol and Perceived Stress during Fall Exams Decrease after the Winter Break" in *Austin Biochemistry* in 2017, in which 20 of our own Capstone students volunteered to participate as study subjects. Kestas ran five active external grants this year, and finished three of them. Dr. Bendinskas traveled to the D.R of Georgia to present at Tbilisi University and to establish new collaborations with the medical and scientific teams on the ground to study effects of heavy metals on steel mill workers' health. Three grant applications were submitted to NIH and CDC. He continued serving as the Editor-in-Chief of *American Journal of Undergraduate Research (AJUR)*. My thanks go to you- for reading our newsletter!





Thomas Brown, Assistant Professor, Inorganic Chemistry <u>thomas.brown@oswego.edu</u>

Ph.D., University of Nevada, Reno, 2016 B.S., University of California, Davis, 2011

Research Interests: Photoemissive copper(I) coordination compounds for use in optoelectronics. Metallophilicity between closed-shell metal ions and the resulting photoluminescence.



Update: Tom started his independent academic career as a Visiting Assistant Professor during the 2016-2017 academic year. He was very fortunate to have two amazing research students developing photoemissive copper(I) species in his lab. The group's hard work has laid the foundation for his research. This research was presented by a graduating senior, Alexandra Mars, at Quest 2017. Alexandra completed her degree requirements in May 2017 and now has the honor of being the group's first alumna. Tom received the Faculty Teaching and Research Collections Grant from the university library which added four new chemistry titles to the collection. He was also very fortunate to be accepted as participant in SUNY Oswego's Early Start Program. This program provided him support to develop a competitive external research grant. In addition to the two regional research conferences he attended, Tom also attended an IONiC Workshop for developing pedagogical materials for inorganic chemistry. As a result of the workshop, he had two pieces published on the Virtual Inorganic Pedagogical Electronic Resource (VIPEr) website. Last, but certainly not least, Tom was ecstatic to accept a tenure track position as an Assistant Professor at SUNY Oswego and will continue to contribute his research and teaching to the Laker community.

Martha Bruch, Professor, Physical Chemistry

martha.bruch@oswego.edu Ph.D., University of Delaware, 1984 B.S., University of Delaware, 1978

Research Interests: Nuclear magnetic resonance (NMR) spectroscopy, high performance liquid chromatography (HPLC) and polycyclic aromatic hydrocarbons (PAH).

Update:

Dr. Bruch has been active in Zonta, an international organization dedicated to advancing the status of women. She performed chemistry demonstrations and sponsored hands-on activities at a celebration of International Women's Day in March, sponsored by Zonta. She also participated in various fundraisers for Zonta to support college scholarships for women, for both traditional and non-traditional students.



Fehmi Damkaci, Associate Professor, Organic Chemistry <u>fehmi.demkaci@oswego.edu</u> Post-doctoral fellow, Boston College, 2004-2006 Ph.D., University of Maryland, College Park, 2004 M.S., University of Maryland, College Park, 2000



Research Interests: Research Interests: Synthesis of designer polymeric nanoparticles to act as targeted drug delivery systems, from water, total synthesis of heterocyclic natural products with medicinal and/or structural importance, and copper and iron catalyzed reactions, including heteroaryl couplings, heteroaryl ring formation, and C-H activation, using NPPA derivatives as ligands.

Updates: Fehmi Damkaci's research group started a new collaborative research project with SUNY Albany Cancer Research Center on developing polymeric nanostructures acting as targeted drug delivery systems. Due to collaboration, a senior PhD student worked in SUNY Oswego and helped is students during the project development phase. The collaboration resulted in a R15 NIH grant application which is currently under review, if funded, will fund several graduate and undergraduate students as well as a postdoctoral researcher at SUNY Oswego. Dr. Damkaci worked with ten undergraduate and graduate students on several research projects. In 2016-17, Damkaci and his research group have two published paper s and have two accepted papers as of August 1, 2017: 1- "Synthesis and metal-ion uptake properties of a new dithiocarbamate-base resin" Water, Soil, Air 2017, 228-286 (w/ Dr. Niri as co-author). 2- "Total Synthesis of Diabetes Drug Rosiglitazone for an Advanced Undergraduate Organic Chemistry Laboratory Course" Chemical Educator, 2017, 22, 66-69. 3- "N-Picolinicamide Derivatives as Ligands in Ullman Type C-O Coupling Reaction" Tetrahedron Letters, 4- Increasing retention rates with peer-mentorship program in General Chemistry" (w/ K. Gublo as co-author). Dr. Damkaci presented his research at National ACS conference in Philadelphia in August 2016 and will present at ACS conference in Washington DC in August 2017. His students also presented their research in regional chemistry conferences throughout the year. Dr. Damkaci continues to manage institutional NSF-STEP grant (around \$860,000), and its 4-year cumulative showed great retention rates by using peer-mentorship program within freshman labs. Juniors and Seniors are placed in freshman labs as peer mentors (in addition to TA) to help them with their work as well as questions regarding major, courses etc. Kristin Gublo coordinates the peer-mentorship program for all science departments. In addition, Dr. Damkaci had \$22,500 external grant for high school summer research program. It served 16 students and three teachers by five faculty in STEM fields. Dr. Damkaci continues to support as co-PI for the DoE FIPSE grant for \$2.8 million to implement collaboration among five organizations for transfer student success. In addition, Dr. Damkaci acted as co-PI for the following NSF proposal: 1- NSF grant titled "common problem pedagogy" with four other colleges for \$300,000 (granted), 2- NSF grant titled "Development of course based research experience in research" for \$218,000, not granted, 3- NSF grant titled "Electrophoretically Deposited Nanoparticle Heterostructures for the Investigation of Nanoscale Interfaces and Application in Photovoltaics" for \$279,000, not granted, 4- NSF grant titled "SUNY Oswego Measuring Academic Productivity (SUNY Oswego MAP): What Works for Whom? for \$250,000, not granted. In addition, Dr. Damkaci submitted an NSF grant titled STEM Transfer Success at SUNY Oswego which is not granted but received high remarks, for \$1,485,000, which will be submitted again in the next round

Shokouh Haddadi, Assistant Professor, Forensics & Analytical Chemistry <u>shokouh.haddadi@oswego.edu</u>

Education: PhD in Analytical Chemistry University of Waterloo, 2008 MS Tabriz University, 1999 BS Azad University, 1995

Research Interests: Chemical Analysis of Latent Fingerprints, Forensic Drug Analysis, Arson Analysis



Updates: Academic year 2016-2017 was a busy, and yet enjoyable year for me as a new tenure-track faculty. I taught criminalistic chemistry, forensic science, and analytical chemistry courses during the fall and spring semester. I am grateful that we purchased and installed a new GC and a new IR instrument for the forensic science lab and we can design better experiments for this course. During the last year, I continued conducting research in the area of forensic chemistry, working with five capstone students. I will be presenting the results of one of our research projects at the 254th ACS national meeting in Washington, D.C. this summer. I am also working with two students on another project which has received the challenge grant this summer. I also enjoyed serving as the capstone/assessment coordinator, being in touch with capstone research students and research advisors, and getting to know staff and faculty of other departments during the last year, which was a new experience for me. Thanks to the support I received from our wonderful faculty, staff, and students, the first year went quite well and I am looking forward to another productive year!

Webe Kadima, Associate Professor, Analytical & Biochemistry

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Post-doctoral fellow, University of California, Riverside, 1987–1989

Ph.D., University of Alberta, 1986

M.Sc., University of Montreal, 1982

B.S., University of Montreal, 1980



Research Interests: The investigation of plants used to treat diabetes in the Democratic Republic of Congo (DRC) involving clinical studies in the DRC and biochemical studies at SUNY Oswego.

Updates: We have continued to investigate the mechanisms of plants used to treat type 2 diabetes in the Democratic Republic of Congo (DRC). Last year, I shared that the work of three capstone students had confirmed that an aqueous extract of the stem bark of the Musanga cecropioides inhibits three enzymes involved in three different pathways that lead to hyperglycemia in people with type 2 diabetes -digestion, gluconeogenesis and glycogenolysis. The full characterization of the inhibition of glycogen phosphorylase a by Musanga cecropioides was completed by Steve Duran, a senior undergraduate student. Steve also initiated the work on the isolation of the inhibitors; he will continue this work during the fall semester, 2017. Miranda Berrios, another capstone student initiated work on the isolation of alpha-glucosidase contained in Musanga cecropioides. Both, Steve and Miranda, presented their work at SUNY Oswego QUEST Conference 2017. This year, the work of a MS student, William Nunez, has confirmed that Musanga cecropioides also inhibits glucose-6-phosphatase, key enzyme in gluconeogenesis. Last summer (August 2016), I was a happy to participants in the NSF sponsored Chemistry Collaborations, Workshops, and Communities of Scholars (cCWCS) on "Medicinal Plants: A Healthy Supplement for the Chemistry Curriculum" held July 31-August 5 at the Tuskegee University. I returned to the DRC this summer (June-July, 2017) again. My activities there included collection of plant materials needed for our research at SUNY Oswego, a seminar given at the University of Kinshasa, and service at the Medical Center Mwinda, where I will administer hemoglobin A1C test to the small group of diabetic patients. On other fronts, I was invited to facilitate a workshop at The Implicit Bias Think Tank Conference organized by the Jackson State University ADVANCE program on March 21 and 22nd.

Julia Koeppe, Assistant Professor, Biochemistry

julia.koeppe@oswego.edu

Education:

Postdoctoral fellow, Oxford University, England, 2006-2010 Ph.D., University of California, San Diego, 2006 B.S., Hope College, Michigan, 2001



Research interests: Protein interactions involved in activation and regulation of innate immunity. Protein interactions linking blood clotting and inflammation. Structure-function relationships in enzymes. Creating research-based curricula for biochemistry teaching labs.

Updates: I enjoyed my first year in the Chemistry Department. I set up my research lab and worked with four students during the academic year and another five students over the summer. I taught various biochemistry courses and a graduate course on enzymes, and I was able to attend two conferences. The first was the annual meeting of the Biophysical Society in New Orleans in February. During the summer, I also attended an international meeting of the Biophysical Society in Edinburgh, Scotland in July. At both meetings, I presented posters on my work studying protein interactions related to activation of complement proteins in the immune system. I also received a collaborative NSF grant with faculty at six other institutions in which we are designing a new research-based curriculum for biochemistry labs. We are creating a semester-long project in which students will use a combination of computational and wet-lab experiments to study and assign functions to enzyme structures from the Protein Data Bank for which there is no known function. As part of this project, Vanessa Wiltsie and I attended a bootcamp on antimicrobial resistance at the Protein Data Bank at Rutgers University in June. I will be continuing to work on my projects looking at protein interactions that are important to the immune system and structure-function relationships in enzymes in the coming academic year.

Vadoud Niri, Assistant Professor, Analytical Chemistry vadoud.niri@oswego.edu Post-doctoral fellow, University of North Dakota, 2009-2010 Post-doctoral fellow, University of Waterloo, 2004-2008 Ph.D. in Analytical Chemistry, University of Tabriz

Research Interests: Dr. Niri's research group has been focusing on developing new sampling/sample preparation and analytical methods for monitoring chemical pollutants, which negatively affect public health and the environment (air, water, soil and sediment media) and investigating the efficiency of possible removal/remediation techniques for these compounds.



Update:

During the last year, Dr. Niri has been active in research by supervising 5 graduate students and 11 undergraduate students in their research projects in the area of analytical chemistry. His research group worked on different projects such as chemical analysis of electronic cigarettes, analysis of microbial volatile compounds from mold samples, VOC removal by indoor plants, and analysis of local, store, and organic fruits and vegetables for their metal and pesticide contents. He has been collaborating with Dr. Damkaci, Dr. Haddadi, and Dr. Schneider from chemistry department as well as Dr. Schummer from Biology department. He has published one paper in Water, Air, & Soil Pollution journal and submitted another paper for publication. In addition to presentations in on-campus conferences such as QUEST and Summer Scholars Symposium, Dr. Niri and his students have presented the results of their works in regional and national meetings. He also had a press conference during 252nd American Chemical Society National Meeting in Philadelphia, PA explaining his project on VOC removal by indoor plants and answering questions asked by media which was also addressed in several newspapers and websites.

Publication:

"Synthesis and metal-ion uptake properties of a new dithiocarbamate-base resin" H. Sarikahya, R. Scalzo, A. Alawaed, W. Schwab, V. Niri, and F. Damkaci, Water, Air, & Soil Pollution, 228 (2017) 286.

Presentations (presenters are underlined):

- <u>Vadoud Niri</u>, Geoffrey Peterson, Timothy Jones, Diana Rispoli, Daniel Stitt, Shokouh Haddadi, Monitoring Volatile Organic Compound Removal by Common Indoor Plants Using Solid Phase Microextraction and Gas Chromatography-Mass Spectrometry, 252nd American Chemical Society National Meeting, Philadelphia, PA, August 21-25, 2016 (Oral presentation).
- <u>Hasan Sarikahya</u>, Rachel Scalzo, Abdulkhaliq Alawaed, William Schwab, Vadoud Niri, Fehmi Damkaci, Removal of Heavy Metal Ions by a Polymer Matrix Containing Dithiocarbamate as a Chelating Group, 252nd American Chemical Society National Meeting, Philadelphia, PA, August 21-25, 2016. (Poster presentation)
- 3. <u>Timothy Jones</u>, Geoffrey Peterson, Vadoud Niri, Qualitative and quantitative analysis the vapor of electronic cigarettes, ACS Northeast Regional Meeting 2016, Binghamton, NY, October 5-8, 2016 (Oral presentation).
- 4. <u>James Calvert</u>, Hilda Posada, Vadoud Niri, Analyzing heavy metals in the soil samples of local farms in Oswego NY, ACS Northeast Regional Meeting 2016, Binghamton, NY, October 5-8, 2016 (Oral presentation)
- 5. <u>Kimberly E. LaGatta, Kerina K. Herard</u>, Shokouh Haddadi, Vadoud Niri, Analysis of drugs used in facilitated criminal acts, ACS Northeast Regional Meeting 2016, Binghamton, NY, October 5-8, 2016 (Poster presentation).

Casey Raymond, Associate Professor, Inorganic Chemistry

<u>casey.raymond@oswego.edu</u> Post-doctoral fellow, Northwestern University, 1996–1998 Ph.D., Colorado State University, 1996 B.S., Michigan State University, 1991



Research Interests: Solid-state inorganic chemistry, metal oxide, boron chemistry, crystallography, brewing science, fermentation science, and food science.

Updates: I was invited to present the sugar analysis research that Jeff Schneider and I have been working on at the Biennial Conference on Chemical Education in Greeley, CO. Melissa and I took the opportunity to visit former student (Los Alamos National Laboratory and University of Wyoming) and family in the southwestern US. Don't worry, we ate a lot of excellent, chile-based food on that trip. The research project on polychaclogenides encountered a few obstacles, but I believe that project should be moving forward smoothly in the coming year with a one continuing undergraduate student and a new undergraduate student. The undergraduate student working on the LC-ECD analysis of sugars learned a lot about method development and troubleshooting as her optimized system from May 2016, completely failed in September 2016. She worked to develop a new method, based on a different LC column, but we concluded in early spring to purchase a replacement for the original column. By late April we were finally *Cont.*

obtaining data similar to the previous year. Sometimes, that's how research goes. I applied for and received a SUNY Innovative Instruction Technology Grant to create tutorial materials on techniques to create questions in Blackboard and other on-line course management systems. I have presented the initial portions of this information at a Winter Breakout Workshop on campus. In late April, the Director of the Honors Program (Gwen Kay) was elected to serve a two-year term as the SUNY Faculty Senate President. As a result, I have been appointed Acting Director of the Honors Program for the next two years. This will take me away from the classroom half time, but I'm looking forward to working more closely with all of the honors students and the faculty involved with the honors program. Jeff Schneider and I taught our fermentation science course and took 12 students to Amsterdam in May. The trip went very well and this year we included a cheese making workshop which the students enjoyed. When the students flew home, Melissa and I traveled to the Alsace region, via Basel Switzerland, for a few days of scouting the potential of a future class destination. Lastly, I was honored to receive the President's Award for Excellence in Teaching this past year. The supporting comments from students that I saw were greatly appreciated, especially as I am just doing the job I love teaching.

Jeffery Schneider, Associate Professor, Analytical and Environmental Chemistry jeffery.schneider@oswego.edu Ph.D., Dartmouth College, 1992 M.S., University of Wisconsin-Milwaukee, 1985 B.S., University of Wisconsin-Milwaukee, 1981

Research Interests: The determination of arsenic and lead in soils of Rice Creek Field Station, kinetic and equilibrium studies of novel water-soluble porphyrins, and the study of carbohydrate composition of beer.

Updates:

Kristin Gublo, Instructional Support Specialist

kristin.gublo@oswego.edu M.S., SUNY Oswego, 1999 B.S., SUNY Oswego, 1996

Updates:

Kristin is responsible for providing all reagents and equipment for our laboratory courses and the training of the teaching assistants. She provides lab safety training workshops each semester to the chemistry faculty, graduate students and undergraduate research students. Kristin serves as the department's Advisement

Coordinator, Coordinator of the General Chemistry Peer Mentor Program, a First Year Advisor and Academic Probation Advisor. She presented "Implementation of a peer mentor program in the general chemistry labs" at the ACS regional NERM conference in Binghamton, NY on October 6th. She teaches three sections of a "Freshmen Chemistry Seminar" course in the fall semester for our incoming majors. This course provides incoming students a gateway to chemistry course to help smooth their transition and provide opportunities to build a strong cohort of support. She teaching a Chemical Safety course in the spring semester. Kristin works closely with our Career Services office to provide our majors with career exploration field trips and alumni visits. This year she helped to plan a field trip to the Sunoco Ethanol Plant in Fulton and alumni visits from Dr. Owen McDougal ('92) and Dr. Jeff Evans ('86). She serves as the club advisor for both the Chemistry Club and the Pre-optometry club. Kristin is active in various committees on campus including fundraising, advisement practices, orientation, and the Chemical Hygiene Plan committee. She continues to supervise ~ 6 work study students per year. Her family is her "spare time". Ryan is going into 7th grade and Emily will be starting 4th grade this fall. Their new addition is a Bichon/Shih tzu mix puppy named Toby. Her husband Ed (Oswego alumn '95/97) has been with Thermopatch Inc. in Syracuse for 13 years as their Operations Manager.

Fred Scoles, Instructional Support Technician

fred.scoles@oswego.edu B.S., Ohio State University M.S., Ohio State University







Quest Photos



The Bendinskas Group: Sam Henderson, Tessila Abbott, Ethan Green, Dylan Charland, and Tatiana Gregory



The Damkaci Group: Diana Rispoli, Matt Waszkiewicz, Theron Richardson, and Thomas Sobiech



Miranda Berrios-conducted research with Webe Kadima



Gary Ellis and Nicholas Joannides-conducted research with Julia Koeppe



Quest Sigma Xi SUNY Oswego Chapter / ORSP Award Best Chemistry Presentation: Kim LaGatta & Kerina Herard-conducted research with Sue Haddadi and Vadoud Niri



Quest Sigma Xi SUNY Oswego Chapter / ORSP Award Best Chemistry Poster: David Snell-conducted research with Vadoud Niri

Career Exploration Field Trip



Ray DeRonde '12 (Tour Guide), Eusebio Omar van Reenen ('20), Dr. Thomas Brown (Chemistry), Michael Kelkenberg ('17), Kaitlyne Hernandez ('20), Ethan Green ('17), Karen Gonzalez ('20), Ryan Smith ('18), Sheila Cooley (Compass), Dr. Kestas Bendinskas (Chemistry)

The Sunoco Ethanol plant in Fulton NY has ~80 employees from accountants, managers, chemists, and chemical engineers. They are located in the old Miller plant. They produce 80 million gallons of ethanol per year from 30 million bushels of corn (30% of it is New York State crop). Their byproducts are also recovered and sold; dried distilled grain which is a high protein food for cattle and chicken, corn oil, and carbon dioxide.

1 bushel of corn will produce:

- 2.7 gallons of ethanol
- 17 lbs of feed
- 18 lbs of CO2

0.07 gallons of corn oil

Our tour guide Roy DeRonde is an Oswego alumn with a degree in Business Administration and a MBA degree. He taught the students all about the chemistry and the processes involved from converting the corn to ethanol. The company is looking to expand and create more jobs this year through the production of barley to sell to local microbreweries.

The trip was sponsored by the Center for Experiential Learning and the Chemistry Department.

Visit <u>sunocoethanol.com</u> and click on the careers tab to learn more.

Biochemistry Major Earns 2017 Chancellor's Award

Congratulations to Tatiana Gregory, one of four SUNY Oswego students that received the 2017 SUNY Chancellor's Award for Student Excellence. The Chancellor's Award for Student Excellence honors SUNY students who have best demonstrated and been recognized for their integration of academic excellence with other aspects of their lives, which may include leadership, campus involvement, athletics, career achievement, community service or creative and performing arts.

Her campus involvement while maintaining academic excellence as a Biochemistry major is impressive. She has held a RA job on campus for three years, was President of SAVAC, a tutor in OLS, involved in numerous clubs such as Colleges against Cancer, ODK National Leadership Honor Society, the Chemistry Club, the Honors Student advisory board, the Zoological Student Association, the Red Cross Club, and the Improv-Comedy Troupe. She has held a variety of leadership positions in these organizations as well.

Tatiana did research with Dr. Kestas Bendinskas on "The Psychosocial and Physiological Consequences of Taking and Not Taking Time Off". She also participated in our study abroad Global Laboratory program where she worked in a cardiovascular pharmacology laboratory in Brazil. She has over 780 hours as an EMT with SAVAC, has shadowed surgeons for over 100 hours, has 250 hours of volunteering at Red Cross blood drives, and has directed CPR training for 180 students on this campus. She has been recognized on campus making the President's and Dean's list numerous times, received a STEM Scholarship, a Presidential Scholarship, and the Director of the Year award for her SAVAC work.

View Tatiana's video at:

https://www.oswego.edu/news/story/tatianagregory-2017-suny-chancellor%E2%80%99saward-winner



At the award ceremony in April in Albany, Tatiana with Chancellor Nancy Zimpher and Kathleen Evans (photo from SUNY facebook page)

News from Alumni

Gary Baker (BS '95) was recently granted tenure and promoted to Associate Professor in the Department of Chemistry at the University of Missouri.

Anthony Nigro (BS '00) is employed at Biddle Sawyer in New York City as the Director of Business Development. He is living in Northern NJ.

Katie Miloski (BS '05, MS '08) received a promotion with Metrohm USA to Senior field service specialist. She specializes in not just installing and training on IC but all the technologies they sell in the Northeast, emphasis on potentiometric titration. She is now living in Queens, NY

Patricia Sattelberg (BS '08) recently was hired as a Quality Assurance Validation Specialist for Regeneron Pharmaceuticals in Troy, NY. Regeneron Pharmaceuticals specializes in commercial production and development of monoclonal antibodies for various diseases. In addition to a new career, she also recently got married in May 2017 and is about to move into her first house in September.

Rachel Koenigstein '10, '08 received her MSEd in 2010 from Oswego. She lives in Long Island and teaches Chemistry and Science Research in Westchester NY. Some of her students participated in Genius Olympiad 2017.

Tyler Maxon OD (BA '11) is President at National Eye Care, Inc. It is a nationwide eye care company dedicated to developing custom designed vision care programs and innovative products and services that meet the unique eye care needs of institutional, government, and military agencies.

Sylwia Stopka (BS '12) will be graduating with her PhD from the George Washington University this fall. Her work entails developing new ambient and vacuum based mass spectrometric techniques for biomedical and plant biology research. This summer she worked at Pacific Northwest national lab (PNNL) through a collaborative effort in exploring biology nitrogen fixation through plant and soil bacteria relationships. They are in the process of coupling their Laser ablation electrospray ionization MS technique with a 21 Tesla FTICR for single cell analysis.

Nick D'Alessandro (BS '13) earned his doctorate in Physical Therapy from Upstate. He is working for VNA Homecare making home visits as a physical therapist. He works with a different number of patient populations including those with joint replacements, neurological disorders, post motor vehicle accident, balance impairments, and even those transitioning from one living environment to another. Currently, the area that he is most frequently working in is southwest Onondaga county including Nedrow, Onondaga Hill, Marcellus, and Skaneateles, but is beginning to transition into Cayuga County as VNA expands the areas they cover. Adam Szymaniak (BS'13) is in his 4th year of a PhD in Organic chemistry at Boston College in the Morken Research Group. His group works on developing new methods for the catalytic, enantioselective synthesis of organoboron compounds.

Jesse Vanucchi (BS '13) has been with Novelis Corporation for 4 years, an aluminum production plant located in Oswego. He was recently promoted to Sr. Process Laboratory Technician in Process & Product Quality Development. He leads a team of Laboratory Technicians to complete quality testing of automotive, can body, and specialty products using automated tensile testing/robotics, X-Ray Fluorescence, Gel Permeation Chromatography, and Inductively Coupled Plasma Optical Emission Spectrometry.

James Calvert (BA '14) is working at International Flavors and Fragrance down in Manhattan as a lab technician.

Jordan Cook (BA '14) is currently in his fourth year of optometry school at the Pennsylvania College of Optometry. His first rotation site will be at a VA in Wilkes Barre, PA. I. He is currently in the negotiating process of buying a practice in Elmira, NY his home town. He is very thankful for the education and guidance he received at Oswego.

Joe Starr (BA '14, MS '16) is working as a Quality Control Laboratory Technician at VanDeMark Chemical Inc. in Lockport, NY. VanDeMark manufactures phosgene derivatives and is North America's leading producer of merchant phosgene.

Tom Bodnar -Kwiatkowski (BS '15) is pursuing a PhD in Biochemistry at The Ohio State University. He will be a third year graduate student researching the stimulation of vesicle trafficking and repair responses during muscle sarcolemmal membrane injury as a potential therapy for various muscular dystrophies in the Dr. Noah Weisleder lab. Before going to OSU, he was not entirely convinced that he would enjoy graduate school and the heavy expectations of research that come with it. Fortunately, he quickly delighted in the jungle-like research community at OSU and found his niche working on a project he greatly enjoys. After he graduates he hopes to become an academic researcher in biochemistry. He wrote "The chemistry program at Oswego truly prepared me for graduate school and I appreciate all the faculty who enthusiastically supported me and other chemistry students throughout college".

Aderson Chui (BA '15) after graduating from Oswego, he worked in NYC for a while as a paralegal. He just finished his first year of law school at the University of Connecticut Law School.

Brett Corbett (BS '15-biology major) stopped by Shineman for a visit this year. He is working as a Chemistry and Environmental Technician at James A. Fitzpatrick Nuclear Power

Amanda Daulagala (BS '16) was accepted to the Medical University of South Carolina into its PhD in Neuroscience program

Sean Lyons (Adolesc Ed 7-12 Chem BS & Chem BA '16, Adoles Ed Chem MSED 7-12 '17) will be starting his first job this fall a chemistry teacher at Norwich High School.

Chemistry Club News

The club started off the school year with a Chemistry Faculty vs. Students Softball Game/Ice Cream Social at the Lee Hall fields on Friday September 9th. And the winning team was...........Faculty/TAs!! Congratulations to both teams. It was so much fun! MVP for team Faculty goes to Dr. Thomas Brown and MVP for team Undergrads goes to Theron Richardson. Special thanks to Campus Recreation and Chemistry Club for putting on a great event.





The club sponsored two Program in a Box ACS Chemistry Webinars. One was the "The Chemists Code for Success" in the fall and the other was "The Chemistry of Sports" in the spring. They celebrated the holidays this year with a Chemistry Themed Pumpkin Carving Contest, a Chemistry Themed Christmas Ornament Contest, and a Chemistry Valentine Sale. The students raised enough money this year from the Valentine sale to purchase 50 boxes of breakfast cereal for Human Concerns, a food pantry in Oswego. The club donated a Chemistry themed basket to raffle off in the campus's Baskets of Caring event held in November to raise money for the local United Way. Congratulations to junior chemistry major Eynna Qian for winning the basket.



The club helped sponsor a fall Graduate School information program, and various meet and greets with our guest speakers throughout the school year. This gave students an opportunity to learn about graduate school and careers all over the country. The club threw an end of semester party each semester, celebrating the accomplishments of our graduating seniors They ended the school year with T-shirt design contest and gave out free shirts to all in attendance at their May party.

Congratulations and a "Big Thank You" to our 2016-2017 Chemistry Club Officers for a Fantastic Year

President: Alyssa Aldrich (will be headed to University of Buffalo for her PhD in the fall)

Vice President: Gabriel Odugbesi (will be headed to Iowa State for his PhD in the fall)

Secretary: Thomas Sobiech (will be headed to University of Buffalo for his PhD in the fall)

Treasurer: Laura Smith (will be returning for the fall and graduating in December of 2017)

Club Advisor: Kristin Gublo

Pre-Optometry Club News

In the fall semester, the club invited to campus an admission's representative from Salus University. Mellissa Tran spoke to our pre-optometry students about Salus's admissions and program requirements.

In the spring semester, they invited a SUNY Optometry school representative to campus, Christian Alberto, to talk to the pre-optometry students about that school's requirements.

Two of our seniors graduated in May and they will be starting in Optometry programs in the fall. Dana Mitchell is headed to Salus University and Marianna Butera will be going to SUNY Optometry. We wish them each the very best in their future career and thank them so much for their dedication, mentoring, and leadership to our club.





Pre-Optometry Club Officers 2016-2017

President: Dana Mitchell Vice President: Jenna Kasza Secretary: Marianna Butera Treasurer: Bianca Fernadez

Club Advisor: Kristin Gublo

Throughout the spring semester they organized a used prescription eyewear drive on campus for OneSight, a charitable program dedicated to helping the world to see. They were able to collect over 60 pairs of glasses from faculty and students on campus. Congratulations to our raffle winner Tienna DeRoy-a junior Chemistry Major who won an I-tunes gift card for participating.



In February, they worked alongside the chemistry club to make and sell chemistry valentines to raise money to buy food for Human Concerns, a local food pantry. Nice job everyone on a great year!



Department's Spring Awards:



Willy G. Schuh Outstanding Senior Award: Zachary Bennett



ACS Senior Organic Award: Theron Richardson



Anthony VanGeet Scholarship: Michael Kelkenberg





Pearle Monroe Scholarship: Kyle Pollicove



ACS Analytical Award: Cahmlo Olive



ACS Inorganic Award Kimberly LaGatta



ACS Physical Chemistry Award & POLYED Organic Award: Kyler Anderson



Outstanding Peer Mentor Award: Sierra Plemenik



Dean's Writing Award: Jesse Mazur



2016-2017 Chemistry Degree Candidates

August 2016

Jeremy Seaton

Chemistry BA

Chobani Quality Control Lab

December 2016

Hilda Posada Nathaniel Stemmler Cydney Ward

May 2107

*Tessila Abbott James Abraham Alyssa Aldrich Lukas Benjamin *Zachary Bennett Miranda Berrios Caden Bonzerato Ellen Bryant *Marianna Butera Dylan Charland *Kevin Clark *Gary Ellis Makayla Foster Ethan Green *Tatiana Gregory Samantha Henderson Breanna Hovt Jocelynn Jakaub Nicholas Joannides **Timothy Jones** *Michael Keleknberg *Kimberly LaGatta **Connor Landers** Alexandra Mars *Jesse Mazur Gabriel Odugbesi Cahmlo Olive Christopher Pacelli Sierra Plemenik MaryCatherine Rice *Theron Richardson *Diana Rispoli Jonathan Ross Thomas Sobiech *lain Thompson **Brian VanHorne** Matthew Waskiewicz

Geoffrey Peterson Christopher Pitts Andrenna Sykes Will Nunez Biochemistry BS Chemistry BS Chemistry BS

Biochemistry BS Chemistry BS Biochemistry BS Biochemistry BS Biochemistry BS Chemistry BA **Biochemistry BS** Chemistry BA Chemistry BA **Biochemistry BS Chemistry BS** Chemistry BS Chemistry BS **Biochemistry BS Biochemistry BS Biochemistry BS Biochemistry BS Biochemistry BS Biochemistry BS Biochemistry BS** Chemistry BA Chemistry BS **Biochemistry BS** Chemistry BA Chemistry BS Chemistry BS Chemistry BA Geochemistry BS Chemistry BS **Biochemistry BS** Chemistry BS **Chemistry BS Biochemistry BS Biochemistry BS Biochemistry BS** Chemistry BS **Biochemistry BS**

PhD at Florida Institute of Technology

SGS Galson Labs-Metals Analyst PhD at University at Buffalo

SUNY Optometry OD SUNY Oswego MS SUNY Oswego MS Process Scientist at Regeneron RIT MS Analytical Chemist at PharmAssist

Laboratory Alliance of CNY, Tech. Assistant

Quality Control at Pharmline Inc. SUNY Oswego MS

SUNY Oswego MS Downstream Research Scientist at BMS

PhD at Iowa State SUNY Oswego MS

Emory University MPH SUNY Oswego MS LECOM Pharmacy Contract Pharmacal Corp

PhD at University at Buffalo MD at Upstate Medical

Associate Scientist at Bristol-Myers Squibb Research Assistant at Norwich Pharma Services









*Graduated with Department honors

MS

MS

MS

MS

Conferences:

ACS Philly

Chemistry students Brandon Ladd, Walter Paz Orozco and Thomas Sobiech accompanied chemistry faculty members Fehmi Damkaci and Vadoud Niri to the 252nd American Chemical Society National Meeting in Philadelphia. Ladd, a chemistry major, presented the research "Removal of Heavy Metal lons by a Polymer Matrix Containing Dithiocarbamate as a Chelating Group," developed under Damkaci's guidance. Biochemistry majors Sobiech and Paz Orozco. presented the research "Synthesis of 1,3,4-Oxadiazole and 1,2,4-Triazole-3-Thione Derivatives." Dr. Damkaci gave a talk describing the results of the STEM peermentorship program, which is sponsored by an NSF STEP grant. Dr. Niri gave a talk titled "Volatile Organic Compound Removal by Common Indoor Plants Using Solid Phase Microextraction and Gas Chromatography-Mass Spectrometry" that garnered considerable international media attention after Washington Post columnist Sarah Kaplan blogged about it in "Speaking of Science."



Several students of Vadoud Niri, Shokouh Haddadi and Fehmi Damkaci presented their research at the 41st Northeast Regional Meeting of the American Chemical Society in Binghamton. Dr. Niri's students James Calvert presented on "Analyzing Heavy Metals in Soil Samples of Local Farms in Oswego, NY," and Tim Jones on "Qualitative and Quantitative Analysis of the Vapor of Electronic Cigarettes." Dr. Haddadi's students Alyssa Aldrich and Gabriel Odugbesi presented on "Investigating the Background Interferences of Carpet Substrates in Accelerant Identification," and Kim Lagatta on "Analysis of Drugs in Facilitated Criminal Acts." Dr. Damkaci's students Brandon Ladd presented on "Removal of Heavy Metal Ions by a Polymer Matrix Containing Ditiocarbamate as a Chelating Group," and Thomas Sobiech on "Copper Catalyzed Hydroxylation of Aryl Halides to Generate Phenols." Additionally, chemistry instructional support and advisement coordinator Kristin Gublo presented at the conference on "Implementation of a Peer Mentor Program in the General Chemistry Labs."





Two of our Freshmen Scholarship recipients from the Fall '16 incoming class:

Shown here: Chemistry majors Dylan DiGrazia and Zachary Peirson with Dr. Schneider



Photo by Jim Russell



Congratulations to the 2017 WR Grace Summer Internship Recipient:

> Dillon Spall ('18) Biochemistry major

The 2016 Summer Scholarly and Creative Activities Symposium:

This took place September 9th in the Sheldon Hall Ballroom. It was a great opportunity for the community to check out student research and creative projects completed over the summer by Challenge Grant Recipients, Global Lab Students and other summer scholars at SUNY Oswego. Over 50 student projects were featured.





Amanda Daulagala conducted research with Dr. Webe Kadima

Gabriel Odugbesi and Alyssa Aldrich with Dr. Sue Haddadi





Christopher Pitts and Andrea Jemmott conducted research with Dr. Vadoud Niri

Thomas Sobiech conducted research with Dr. Fehmi Damkaci

Visiting Guest Lecturers

Dr. Casey Raymond invited **Dr. Tom Albrecht-Schmitt** to campus on March 1st to give a talk on "The Chemistry of Plutonium". While he was here, he met with the Chemistry Club to talk about graduate school opportunities at Florida State where he is Gregory R. Choppin Chair in Chemistry & Director of Center for Actinide Science & Technology. His research is focused on the synthesis, structure elucidation, spectroscopy, and structure-property correlations in f element materials.



Front Row: Dr. Schneider, Dr. Albrecht-Schmitt, Dr. Raymond Back row: Christopher Pitts, Gabriel Odugbesi, Kim LaGatta, Chris Pacelli, Chris Emproto, Brenden Thompson, and Ryan Smith

Dr. Matthew Baker invited his former REU advisor Dr. Benjamin Miller a faculty member at the University of Rochester Medical Center to campus in March to give a talk "Designed RNA-Targeted Compounds for Altering Protein Recoding in HIV". Our students learned about his interdisciplinary research group and opportunities at U of R during a Chemistry Club sponsored lunch. Dr. Miller was the one that inspired Dr. Baker to want to pursue his PhD.



Dr. Kestas Bendinskas invited **Dr. Stephen Glatt** who is the Director of the Psychiatric Genetic Epidemiology & Neurobiology Laboratory at Upstate Medical University to campus in April. The title of his talk was "Biomarkers for Neuropsychiatric Disorders". His research involves the latest efforts to identify valid biomarkers for these disorders, in the hope to facilitate earlier identification and intervention.

The student had the opportunity to learn about summer fellowships and graduate programs offered at Upstate. His visit was sponsored by the Upstate Medical Lecture Series.

Featured Alumni Publications:

From Joshua Malone (BS '14)

Regioselective Functionalization of Enamides at the α-Carbon via Unsymmetrical 2-Amidoallyl Cations Mirza A. Saputra, Nitin S. Dange, Alexander H. Cleveland[†], Joshua A. Malone[†], Frank R. Fronczek, and Rendy Kartika^{*} Department of Chemistry, Louisiana State University, 232 Choppin Hall, Baton Rouge, Louisiana 70803, United States *Org. Lett.*, 2017, 19 (9), pp 2414

Effects of Solvent and Residual Water on Enhancing the Reactivity of Six-Membered Silyloxyallyl Cations toward Nucleophilic Addition Joshua A. Malone, Alexander H. Cleveland, Frank R. Fronczek, and Rendy Kartika^{*} Department of Chemistry, 232 Choppin Hall, Louisiana State University, Baton Rouge, Louisiana 70803, United States *Org. Lett.*, 2016, 18 (17), pp 4408–4411

Dr. Miller, Dr. Baker, Dr. Damkaci, and Dr. Niri

Award Winning Faculty

2017 President's Award for Scholarly and Creative Activity

Dr. Kestas Bendinskas received the President's Award for Scholarly and Creative Activity which honors tenured faculty for exemplary mastery of subject matter, effectiveness in teaching, and scholarly and creative achievements. He has attracted more than \$5 million in research funding from such agencies as the National Science Foundation, National Institutes of Health and National Institute of Environmental Health Sciences. Dr. Bendinskas has worked with 15 graduate students and more than 60 undergraduates to provide research experience, and has published 14 articles in peer-reviewed journals.

2017 SUNY Oswego President's Award for Teaching Excellence

Dr. Casey Raymond received the 2017 SUNY Oswego President's Award for Teaching Excellence. He received support from more than a dozen colleagues and alumni for his 14 years at Oswego challenging, supporting and inspiring his students.

He specializes in inorganic and materials chemistry, X-ray crystallography, and fermentation and food science and serves as the director of the college's Honors Program.



Dr. Bendinskas with research student Ethan Green '17 at May Commencement



Dr. Casey Raymond in his research lab. Photo by Jim Russell

Genius Olympiad:

This summer marked the seventh year of the GENIUS Olympiad at SUNY Oswego, an international high school project competition about environmental issues (https://geniusolympiad.org/). In 2017, it hosted 1020 students and mentors from 68 countries and 37 states. Students competed in science, art, business, robotics, visual and performing arts, and creative writing. GENIUS robotics was a new competition this time that provided students an understanding of the role of engineering and research in environmental issues, said Dr. Fehmi Damkaci, a member of Oswego's chemistry faculty and the founder and director of GENIUS Olympiad.









Alumni

If your company has any internship or co-op opportunities for our current students, please reach out to us. Same with any job postings for BS or MS chemists. We would be more than happy to advertise the positions to our students.

Please keep in touch and send us updates for next year's newsletter.

Our address is: SUNY Oswego Department of Chemistry 296 Shineman Center 30 Centennial Drive Oswego, NY 13126

Department Secretary: Christine Finnegan (christine.finnegan@oswego.edu) Phone: 315-312-3048

Would you like to join our Oswego Chemistry Alumni Group on Linked in? Simply send a message to Kristin Gublo through her Linked in account. What a fabulous way to reconnect with old classmates and help our recent grads network in the field.



Back row: Timothy Jones ('17), Kaitlyn McCue ('17), Mary Catherine Rice ('17) Front row: Gary Ellis ('17), Cahmlo Olive ('17), Thomas Sobiech ('17)

Currently we have ~75 members.

Linked in

Thank you!

We would like to thank our generous alumni that made donations to our department last year. We used this money to support extra programs and to purchase equipment for our laboratories. Thank you very much.

If you are interested in making a gift to the college to support the department, you can go to alumni's secure on-line website (www.oswego.edu/givenow). To allocate the donation to our department, simply specify "Other Designation". You have four options available: Chemistry Department, a Chemistry Scholarship, the Augustine Silveira, Jr. Research Scholarship Fund, or the Chemistry Summer Research Fund. Checks can be made out to "Oswego College Foundation, Inc." and can be mailed to: University Development, 219 Sheldon Hall, Oswego, NY 13126. Please write your designation in the memo line.



Summer 2017 Chemistry Research Students & Faculty Members