

## 2015 Undergraduate Student Award in Environmental Chemistry

The Division of Environmental Chemistry sponsors annual awards to full-time undergraduate students currently enrolled in an education institution in chemistry, environmental engineering or other programs emphasizing environmental chemistry. These students must have completed or be completing one full year of study at their current institution by the date of announcement of the awards (May). The award consists of a one year membership in the ACS Division of Environmental Chemistry and a certificate. Awardees will be publicized in the Division website ([www.acsenvr.com](http://www.acsenvr.com)). The Division of Environmental Chemistry is pleased to announce this year's awardees:

### **Lia Cattaneo**

Department of Civil and Environmental Engineering & Environmental Science  
University of Virginia

Lia is a third-year undergraduate student double majoring in Environmental Science and Environmental Engineering at the University of Virginia. She is an exemplary student at the top of her class. She also engages in research at the level of a seasoned PhD student and is already making important contributions in both of her majors. Her passion is climate change and she has already carried out meaningful research studying (in separate independent projects) the nitrogen cycle and the carbon cycle with a focus on ways to make both more sustainable. Lia will graduate with several peer-reviewed journal publications to her credit reporting on work carried out in the labs of Jim Galloway, Deborah Lawrence, Lisa Colosi and Andres Clarens. Lia plans to pursue a PhD after graduating from UVA and I speak for all four of us when I say that Lia has an exceedingly bright future in our field.

Andres Clarens  
Associate Professor

### **Jordan Ragon**

Department of Chemistry  
Tennessee Technological University

Jordan is an applied chemistry major currently conducting environmental research in the Chemistry Department at Tennessee Tech. She is studying the UV-Vis spectroscopic characteristics of soil humic substances. She has presented her research at the local level, as well as at the National ACS meeting in Denver, CO.

Amanda J. Crook  
Instructor of Chemistry

### **Justin Schueller**

Department of Chemistry and Biochemistry  
University of Wisconsin-La Crosse

Justin is one of our top chemistry majors overall and certainly our best student amongst this year's senior Chemistry with Environmental Science Concentration majors. He has done very well in all of his coursework and performed research in atmospheric chemistry.

Aaron Monte  
Professor and Chair

### **Colleen K. MacGilvray**

Department of Chemistry  
Wake Forest University

Colleen is truly passionate about both learning and teaching in all aspects of the environmental sciences. For instance, she created, wrote curriculum, and taught children about environmental conservation. In addition, she led interactive programs aimed at educating the general public on environmental issues including on barrier island ecology.

Willie L. Hinze  
Professor of Chemistry

**Calvin Macemore**  
Department of Chemistry  
Appalachian State University

Calvin is dedicated to his studies and began his senior research in his junior year. He is studying a local urbanized watershed and is responsible for monthly sample collections and analysis of suspended solids, metals, chloride, nitrate, and sulfate. He hasn't missed a sample collection yet, in spite of freezing temperatures, slick stream banks, leaking waders, and Saturday field work. All this, on top of quantum mechanics exams and instrumental lab reports. His data set will be a solid one that can be used to make recommendations about management of urbanized watersheds.

Carol Babyak  
Associate Professor

**Nicholas Rogers**  
Department of Chemical, Biochemical and Environmental Engineering  
University of Maryland Baltimore County

Nicholas was selected for his contributions to ongoing research efforts focused on using excitation-emission matrices (EEMs) of dissolved organic matter as a tool for understanding urban water resources. He has independently run hundreds of EEMs for a variety of surface waters (and other samples), while also building his own Matlab codes to process and correct the raw fluorescence data. With this experience, Nicholas has become an EEM expert and is currently involved in three different projects involving DOM. Nicholas has presented his research findings at several regional meetings and is poised to present at the International Water Association Natural Organic Matter 6 conference (Malmo, Sweden) in September 2015. He will also be included as a co-author on an upcoming manuscript submission. Nicholas has excelled in the classroom environment earning a 3.90 GPA in our challenging Chemical Engineering curriculum. Furthermore, his pleasant and helpful disposition has helped him to quickly emerge as a leader; in fact, he serves as President for the UMBC chapter of the American Institute of Chemical Engineers and the UMBC Honors College.

Lee Blaney  
Assistant Professor

**Haley Argersinger**  
Department of Chemistry  
Alfred University

Haley spent the summer of 2014 completing an independent research project examining chemical controls over natural organic matter (NOM) aggregation in solution using dynamic light scattering, ultimately proposing a mechanistic model that involves a balance between ionic strength effects and the saturation of NOM bridging sites by multi-valent cations. She presented this work at the spring ACS National Meeting in Denver, CO and is the co-author on a forthcoming publication. Haley has also contributed to a collaborative Department of Energy project examining the structure, morphology, and interfacial behavior of NOM and smectite-NOM composite materials in contact with aqueous fluids.

Geoffrey M. Bowers  
Assistant Professor

**Kelly M. McCabe**  
Department of Chemistry and Biochemistry  
University of South Carolina

Kelly is completing a very demanding double major in chemistry (ACS certified) and marine science and is at the top of her class. At the same time she is conducting research related to carbon sequestration and ocean acidification. She has received a USC Magellan grant to evaluate methods of measuring organic phosphorus in the ocean to help contain nutrient availability for carbon uptake. In addition, she has received a NOAA summer fellowship to work up oceanic and atmospheric carbon measurements collected from a free vehicle "glider". The work will support modeling of carbon dynamics in the surface ocean.

Virginia Rogers  
Assistant to the Chair

**Juliana Laszakovitz**  
Department of Chemistry  
University of Mary Washington

Julia began doing research as a freshman on the photochemistry of natural organic matter. Over the past three years, she has played a central role in making our lab productive and moving the science forward. Julia has become somewhat of a junior expert in aquatic environmental photochemistry; she has mastered experimental and analytical techniques for determining reactive transients, and authored research proposals of high quality. Presentations of her work at regional and national ACS meetings have been well received, and I am looking forward to preparing our first manuscript together this summer. Julia is among the hardest working young researchers I have ever known. She faces any and all research challenges with determination and resilience, doubling and tripling her efforts whenever it is needed.

Charles Sharpless  
Assistant Professor

**Abigail Thayer**  
Department of Chemistry & Biochemistry  
Ohio Northern University

Abigail has completed two full years of environmental chemistry research, focusing on source tracking of wastewater in agricultural watersheds. She has excelled in learning new techniques in electrochemistry and radiochemical analysis. Abigail has distinguished herself by receiving an NSF Graduate Research Fellowship as she continues her education in environmental science, pursuing a doctorate.

Dr. Christopher Spiese  
Assistant Professor

**Kristy Ann Northrup**  
Department of Chemistry  
State University of New York  
College of Environmental Science and Forestry

Kristy is in the Honors Program at the State University of New York, College of Environmental Science and Forestry (ESF), and will complete her BS degree in May 2015 with a 3.7 GPA and a dual degree in Environmental Science and Chemistry. Each program is challenging in and of itself; the combination is extraordinary because of numerous rigorous courses required for each major. She has excelled as a soil science undergraduate teaching assistant and as a volunteer at the Plant Materials Center in Cape May, NJ. Kristy's ESF Honor's project is focused on developing subaqueous soil survey maps in Barnegat Bay, NJ, to delineate the relative distributions of metals and other soil properties to assess their potential impact on plant growth and development; she will also characterize soils for the national soil survey database. To gain a breadth of experience in Environmental Chemistry, Kristy participated on a five-day research cruise aboard the R/V Hugh Sharp in the Delaware Estuary, where she assisted Drs. David Kieber (ESF) and David Kirchman (U. Delaware) in their NSF-funded research on photo heterotrophic bacteria and organic-matter photochemistry. Overall, Kristy is a model student through her actions and positive demeanor, with a strong research acumen. She is motivated, a self-starter and she has contributed tremendously to the quality of life and education at ESF.

Dr. David J. Kieber  
Professor and Associate Chair

**Marta Viscut**  
Department of Chemistry and Environmental Engineering  
University of Colorado, Boulder

Marta is a senior at the University of Colorado, Boulder. She is pursuing dual BS degrees in Environmental Engineering and Chemistry. Her research deals with the application of fluorescence spectroscopy for the characterization of dissolved organic matter, which represents a complex mixture of organic compounds in water. Marta will be pursuing her PhD in the area of environmental photochemistry.

Fernando Rosario-Ortiz  
Assistant Professor

**Jennifer Bowen**

Department of Chemistry  
Chapman University

Jenny is the first Chemistry/Environmental Science double major at Chapman University. Her research has focused on characterization of CDOM and carbon cycling in local wetlands and northern peatlands. Jenny has given 17 regional, national, and international presentations on this work (4 oral) and currently has three manuscripts in preparation. Jenny has also held numerous student leadership and student representative positions while at Chapman. This includes serving as president of the student ACS chapter and serving on the Chancellor's Student Advisory Board. She has been accepted into a number of Ph.D. programs in Environmental Science or Engineering.

Dr. Elaine Schwartz  
Head of Chemistry Faculty

**Dallas R. Mosier**

Department of Chemistry  
Sant Francis University

Dallas is an excellent student, whose high GPA is a good indicator of her overall abilities. She is an important part of my undergraduate research team performing a longitudinal environmental research project. We are studying the efficacy of an Open Limestone Channel to remediate Acid Mine Drainage from an abandoned coal mine. Dallas' part of the research project requires her to use our atomic absorption spectrometer to measure the amounts of calcium, magnesium, and iron in the mine effluent. Her efforts have lead to three poster presentations already and will ultimately lead to a publication with her as a co-author.

Edward P. Zovinka  
Professor of Chemistry

**Kelsey Berrier**

Department of Chemisrty and Biochemistry  
James Madison University

As an honor's student at James Madison University, Kelsey has been doing undergraduate research on nitrogen and phosphorous nutrients in lake sediments with Professor Dan Downey for two years. In recognition of her many academic accomplishments, Kelsey was elected to membership on Iota Sigma Pi, National Honor Society for Women in Chemistry. Kelsey presented her research at the 17th Annual Undergraduate Research Symposium-UMBC and the JMU Spring Symposium. Kelsey's honor's thesis is titled "Analysis of nitrogen and phosphorus nutrients in lake sediment." Her career plans, after earning an analytical chemistry Ph.D., are to work either in forensic toxicology or environmental chemistry.

Richard D Foust, Jr  
Professor of Chemistry & Biochemistry

**Austin Evans**

Department of Chemistry and Biochemistry  
The University of Tulsa

Austin was selected for the undergraduate award for his intellectual ability, his commitment to a career in environmental chemistry and his commitment to environmental community service. Austin has a perfect GPA, has been doing research in green chemistry and is a leader in the TU Blue Thumb, a volunteer organization dedicated to public education about water conservation and to the monitoring of the water quality of urban-impacted streams in Oklahoma. In additional, Austin is treasurer of the local Student Affiliates chapter of the ACS.

Gordon H. Purser  
Professor of Chemistry

**Virginia Hoyt**

Department of Environmental Science  
Lafayette College

Virginia is a junior studying environmental science who became interested in environmental chemistry her freshman year. That summer, she performed water chemistry research with Professor Steven Mylon. She has also taken and excelled in environmentally-themed courses in chemistry, geology, and biology. Her team's research project on biodiversity in local wetlands won first place in Lafayette's 2014 Multidisciplinary Environmental Poster Session. Virginia is a student leader in the Lafayette chapter of Take Back the Tap, an organization focused on reducing disposable water bottle use on campuses nationwide.

H. David Husic  
Larkin Professor and Head of Chemistry

**Tania Benavides**

Department of Chemistry & Biochemistry  
Stephen F. Austin State University

in several chemistry courses, Tania maintained the highest average, and her chemistry knowledge and laboratory techniques are outstanding. Tania was the student instructor for several of my freshman chemistry courses and did exceptional work in this capacity, demonstrating chemistry knowledge and the ability to confidently explain it well. Tania was one of the best SI leaders I have ever had. Consequently, I invited her to assist on an environmental project aimed at quantitatively investigating targeted anion and metal species found in Lanana Creek within the Nacogdoches area. This research has been carried out for approximately two years to develop a baseline for the targeted species that can be used later for controlling/modifying urban runoff. Tania's project was selected as one of the spotlight presentations at the SFA Undergraduate Research Conference. Tania has the intellectual ability, attitude, and traits necessary to succeed in any career path she desires after graduation. It has been a great honor to have the opportunity to teach and work with such a wonderful student.

Michael A. Janusa, Ph.D.  
Chair, Dept. Chemistry & Biochemistry

**Chelsey Stear**

Department of Chemistry  
Saint Vincent College

Chelsey is a senior environmental chemistry major with a strong academic background. She has taken courses in advanced environmental chemistry and method of environmental analysis along with the standard chemistry curriculum. Chelsey is a conscientious student who does well in her classes and labs. Last summer she had an internship with the Pennsylvania Department of Environmental Protection and plans to pursue a career in environmental chemistry. Her senior project is investigating the leaching of metals from new and used motor oil into water. She has significant lab experience with the ICP-AES as part of this project. Overall, Chelsey will be a wonderful environmental professional in whatever direction she pursues.

Jason K. Vohs  
Associate Professor and Chair of Chemistry

**Bryan Voigt**

Department of Chemistry  
Gustavus Adolphus College

Bryan is a top student in our department who began doing environmental research as a first-year student. He worked with a senior chemistry major to learn the Competitive Ligand Exchange – Solid Phase Extraction method which was used to determine the binding constant of methyl mercury (MeHg) to different types of dissolved organic matter (DOM). Few MeHg-DOM binding constants exist despite DOM being a primary transport agent of MeHg in terrestrial and aquatic systems. Bryan tested the method with two reduced sulfur ligands and several DOM isolates and successfully determined binding constants for hydrophilic and hydrophobic DOM fractions.

Jeff Jeremiason  
Associate Professor of Chemistry and Environmental Studies

**Mark Bickley**

Department of Chemistry  
Towson University

Mark Bickley is a senior with majors in Chemistry and Medicinal Chemistry. Mark is also a member of the Honors College. Mark has completed five semesters of undergraduate research. His research projects have explored the reactivity of aqueous chlorinating and brominating agents toward aromatic compounds present in environmental and biochemical systems. Mark's research productivity has been exceptional. In 2014, Mark presented a poster at the ACS National Meeting in San Francisco. Mark is also a co-author on two peer-reviewed publications. In addition, Mark is scheduled to defend his undergraduate honors thesis in the Spring 2015 semester.

John D. Sivey  
Assistant Professor

**Michelle Samson**

Department of Chemistry  
Albion College

Michelle is nominated for her dedication to the advancement of environmental chemistry through her studies on the fabrication of composite materials for the removal of contaminants from natural waters.

Kevin Metz  
Associate Professor of Chemistry

**Leonard Bernas**

Department of Chemistry  
Florida Institute of Technology

Leonard has performed exceptionally in the classroom and laboratory. He has participated in several research projects related to his double majors of biochemistry and education. Lenny is currently studying the effects of silver nanoparticles on the growth of elodea, a freshwater plant, for his senior thesis. The environmental fate of silver nanoparticles and their impact on vegetation are of concern due to the increased use of silver nanoparticles in consumer products. Lenny has worked independently during all stages of this project, from selecting the topic to interpreting the results. Most notably, he developed a procedure for growing the plants and selected analytical methods which allow him to collect data from multiple sources (AA, UV/vis, total chlorophyll, etc.).

Kurt Winkelmann  
Associate Professor

**Jasbir Deol**

Department of Chemistry  
Wesley College

Jasbir is an honors biological chemistry senior. She excelled in chemistry and completed three research projects. One is published in the Journal of Analytical Methods in Chemistry, one is submitted to the Journal of International Education Review, and a third project, analyzed phosgene derivatives utilized as post emergence herbicides. Jasbir's research efforts received support from an Institutional Development Award (IDeA) from the National Institute of General Medical Sciences (NIGMS) at the National Institutes of Health; a National Science Foundation (NSF) Experimental Program to Stimulate Competitive Research grant; a NSF S-STEM Cannon Scholarship program; and the State of Delaware.

Malcolm J. D'Souza, PhD  
Professor of Chemistry and Associate Dean of  
Interdisciplinary/Collaborative Sponsored Research

**Nikoletta I. Tsiarta**

Department of Environmental Science and Technology  
Cyprus University of Technology

Nikoletta is a full time forth year undergraduate at the Est department with a GPA of 8.65/10. She is a dedicated scholar (ranked top of her class every year) and a committed young researcher working with novel advanced oxidation technologies for water purification. Because of her high academic performance, she received several scholarships including from the Cyprus State Scholarship foundation. To further her lab skills and knowledge, Nikoletta received a grant to spend three months in AUM, Spain. So far she has shown great leadership skills, dedication and motivation to advance in the environmental field.

Dr. Maria G. Antoniou  
Lecturer

**Shawninder Chahal**

Department of Chemical Engineering  
McGill University

Shawninder has shown excellent insight for and commitment to environmental aspects of science and engineering. Last year, he conducted research to determine the effect of different types of engineered nanoparticles on the activity of extracellular nutrient-cycling soil enzymes. His contributions to this work led to co-authorship of two journal publications that will be submitted for publication in Environmental Science & Technology in April 2015. For his work on these projects, Shawninder was awarded Best Poster in the Water and Environment category at McGill's 2014 Summer Undergraduate Research in Engineering (SURE) Poster Competition. Shawninder will continue to work in the Biocolloids laboratory during Summer 2015 on a new project examining nanoparticle interactions with model cell membranes (supported lipid bilayers). After completing his undergraduate degree, Shawninder plans on pursuing a Master's degree in Chemical Engineering at McGill University. Impressively, Shawninder has maintained a first class academic record (CGPA of 3.96/4.00), putting him on the Dean's Honour List, and earning him the Leonhard Paasuke Scholarship in Engineering.

Dr. Nathalie Tufenkji  
Associate Professor and Canada Research chair

**Kristina Schiavone**

Department of Chemistry  
The College of Wooster

Kristina has distinguished herself in her coursework and research experiences. She conducted research in the fate of antidepressants in wastewater treatment sludge to determine the best practices to reduce these pharmaceuticals from reaching the environment via land application. Her advisor was Dr. Melissa Schultz.

Paul Edmiston  
Theron and Dorothy Peterson Professor of Chemistry

**Jason Payne**

Department of Chemistry  
Western Kentucky University

Jason has demonstrated a remarkable dedication to the development of "green" synthetic procedures in the field of nanoparticle development for biological applications. The methods employed omit the usage of toxic organic solvents, and is based upon the principles of the usage of environmentally safe aqueous solvent. This methodology has been refined to such a point that a patent (US 8,257,670 B1) has been granted to the environmentally friendly synthesis protocol, which Mr. Payne has helped to establish as a standard protocol for all laboratory synthetic procedures.

Rajalingam Dakshinamurthy  
Associate Professor, Graduate Chair  
Biochemistry Program Coordinator

**Sean Morgan Jones**  
Department of Chemistry  
University of Redlands

Sean has been doing undergraduate research with Dr. Rebecca Lyons since his sophomore year. Sean is an enthusiastic student and avid learner. He applies himself to his studies with the fervor that one would expect from a graduate student. He truly shines in the lab and the field. He has contributed tremendously to the research efforts of the Lyons research group by designing novel instrumentation and apparatus. He has also co-authored a paper on his work with plans to write a second journal article by graduation.

Rebecca Lyons  
Assistant Professor

**Tatum Zurawski**  
Department of Chemistry and Biochemistry  
University of Detroit Mercy

Tatum was selected for this award by the department for her contribution to a research project with Dr. Kendra Vans at the University of Detroit Mercy. Tatum has used both GC-MS and GC-MS for the analysis of pesticides and their metabolites in water. In addition to participating in this research project over the past two years, Tatum is also an excellent student and a member of our division I women's soccer team.

Elizabeth S. Roberts-Kirchhoff  
Associate Professor of chemistry and Biochemistry

**Alexis Kerl**  
Department of Physical Sciences and Mathematics  
Mount Saint Mary's University

In the summer of 2013, Alexis volunteered to work for 6 weeks within my research lab and was part of the team who pioneered the environmental study of PAHs (polycyclic aromatic hydrocarbons) in the Los Angeles area through the bio-monitoring of tree leaves. Since then, she has led the project (a group of 6 students), guided and trained many of her peers through experimental procedures, data analysis and presentations. She has presented her work at many conferences, including two national (Dallas and Denver) and local ACS meetings. Thanks to Alexis' hard work, the PAH's project is now close to completion.

Dr. Sylvine Deprele  
Associate Professor

**Merrill Peyton Dilbeck**  
Department of Civil and Environmental Engineering  
University of South Florida

Peyton has worked as the laboratory manager in the USF Environmental Engineering laboratory since he was a freshman. Peyton has gone far beyond a student work-study role, making sure all new students are welcomed, trained and oriented to laboratory routines and procedures. He communicates frequently with students and faculty working in the lab. Peyton has expressed a career interest in water and sanitation in the developing world. In this capacity he traveled to Togo last summer to assist with an aquaponics project implementation with one of our collaborators, Morning Star Fishermen. Peyton has also assisted with several laboratory research projects, most recently focusing on thermal pretreatment of algae to improve methane yields during anaerobic co-digestion with livestock waste. This project has required him to operate bench and pilot-scale anaerobic digesters, photo-bioreactors for algal cultivation, thermal treatment stages, and chemical and data analysis. He has developed deep insights into the physical, chemical and biological processes involved and has shown an ability to communicate the project goals, methods and findings to a variety of audiences. He has presented several posters on this topic at USF student research events. A paper on this topic has recently been accepted for a platform presentation at the WEF/IWA Residuals & Biosolids Conference.

Sarina Ergas  
Professor



**Amber Kramer**

Department of Chemistry  
California State University Channel Islands

Amber is driven and exemplary as an undergraduate research student. Her work has focused on measuring mercury in seafood to determine if increasing amounts in the environment have translated to an increased amount in the food chain in recent decades. She is an excellent peer mentor and makes the other students she works with better. Amber has presented her work at regional and national meetings, and is working on a manuscript where she is first author on the work. She is one of the most talented undergraduates I have worked with in my laboratory.

Simone Aloisio  
Professor and Chair of chemistry

**Benjamin Christopher Schulze**

Department of Civil and Environmental Engineering  
Rice University

Benjamin is an exceptional undergraduate student researcher deserving of more recognition than we can personally give him. He is a brilliant and motivated student, as reflected by his outstanding grade point average in our challenging undergraduate program. His contributions to our research on the formation of particulate matter in Houston, TX have been critical to the success of our analysis. These contributions include day-to-day operation of our High Resolution Time of Flight Aerosol Mass Spectrometer that is deployed on a mobile sampling facility, literature reviews, data analysis, production of publication-quality graphics, and development of a zero dimensional chemical model to simulate nighttime oxidation of biogenic compounds in the atmosphere. All of these tasks have been performed at or above the graduate level. As a result of these efforts, we expect him to be lead or co-author on several peer-reviewed manuscripts. These facts underscore his potential for a very bright future.

H. Will Wallace/Robert J. Griffin  
Post Doctorate Research Associate/Professor

**Avis Francis**

Department of Chemistry and Biochemistry  
University of Massachusetts Dartmouth

Avis has been involved in a research projects, examination of bisphenol A and its analogues and their photo degradation in natural water. Lynn has written a good review paper on this research topic. This Spring, she submitted a mini-grant proposal to seek support for her research in this project. Her proposal was excellent and funded by the University Provost Office. She has produced some good results in this research and will present them in the Northeastern Section of American Chemical Society Annual Meeting in June, 2015. She is also preparing a manuscript from her research for a journal publication.

Yuegang Zuo  
Professor

**Hayden Tse**

Department of Civil and Environmental Engineering  
Virginia Polytechnic Institute and State University

Hayden Tse is an exceptional undergraduate researcher with a strong interest in advanced biological wastewater treatment. He is always eager to hunt for new knowledge and is developing ability to design and conduct scientific research independently. He is working to use attach-growth microalgae as a post-treatment process for nutrient removal from the treated effluent from bioelectrochemical systems. He came up with a very interesting idea of combining carbon cloth with ultrafiltration membranes to form three-stage barriers for separation of biomass from the final effluent. This approach has potential benefits in reducing fouling of ultra filtration membranes.

Zhen (Jason) He  
Associate Professor