College Chemistry Achievement Awards

March 23, 2023

The College Chemistry Achievement Awards are presented annually by the Chemical Society of Washington to outstanding seniors majoring in chemistry and biochemistry from each of the area colleges and universities.

Alison Carroll George Mason University Hao Jing	Alison is a phenomenal chemistry senior who is the recipient of the Mason Excellence Scholarship and ACS Physical Chemistry Award. Being on the Dean's list since 2019, Alison maintains an excellent record in both coursework and research with great potentials to become a rising star at the undergraduate level. Alison has very strong motivations to perform research and highly independent in the hypothesis-driven projects. She works very hard and efficiently with her lab mates on the data acquisition and analysis. As the second author, Alison published her first peer- reviewed research article in Nanoscale Advances (impact factor 5.598) titled "Facile Aqueous Synthesis of Hollow Dual-Plasmonic Hetero-Nanostructures with Tunable Optical Responses" that was featured as the Front Cover of the journal. In addition, Alison was the National Undergraduate Winner of Summer Student Symposium for the DEVCOM (U.S. Army Combat Capabilities Development Command)-Army Research Laboratory, the winner of SEDD (Sensors and Electron Devices) Summer Student Competition and the winner of Energy Sciences Division Student Symposium with ALC (Adelphi Laboratory Center). In summer 2022, Alison participated in NSF Research Experience for Undergraduates (REU) program at Department of Chemistry, Rice University under the supervision of Prof. Stephan Link on the project of chemical sensing with chiral nanoparticles. Due to her exceptional performance, Alison was invited to present at the research symposium organized by Rice Univ. and Research and Leadership Enabling Discoveries in Chemical Nanoscience (RLEAD) Program selected Alison as the first prize recipient in 2022. Her remarkable and brilliant success is evidenced by receiving numerous offers for Graduate School, such as UW Madison, Georgetown, Rice, VCU, etc. With George Mason University Department of Chemistry's highest recommendations for the CSW Award, Alison will have a bright future with her dream aspiring to be a scientist with special interests in nanomaterials.
Joshua Cooksey University of Maryland College Park Prof. Kwaku Dayie	It's a pleasure to recommend Joshua Cooksey, a senior Biochemistry major, destined to be a scientific leader. For 2 years, Josh has been working in the Dayie group at UMD. He is currently finishing up a modified synthesis of fluorinated uracil, combining organic synthesis and enzymatic synthesis to make isotopically labeled (2 H, 13 C and 19 F) RNA oligonucleotides. These will be valuable for multi-nuclear and multi-dimensional NMR to probe the 3D structure and dynamics of large RNA molecules. Joshua has the intellect, curiosity, drive, and training to make important contributions in RNA biophysics or other areas going forward as a graduate student; he's been accepted to MIT and Yale graduate programs so far.

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Shannon Ganley University of Maryland College Park Leah Dodson	Shannon Ganley is a Chemistry/English double degree candidate who plans on graduate work in Chemistry. She is working in the relatively new group of Asst. Prof. Leah Dodson on developing methods for reproducing the conditions of astrophysical objects in the research laboratory, empowering them to study astrochemical reactions at relevant temperatures and pressures. The relevant temperatures and pressures are both very low, so this is a tremendous technical challenge, especially in a new lab. According to Prof. Dodson, Shannon has taken to the work like a fish to water: she has done everything from designing optical cavities to CAD to programming to machining. She maintains an excellent GPA whilst doing a double degree, TAing, leading the UMD ACS student chapter, and volunteering and outreach.
Jennifer Guo Georgetown University Steven Metallo	Jennifer Guo is an outstanding student, researcher, and scientific citizen. Jenn started conducting research in her first semester at Georgetown. Jenn quickly became integrated in the lab and an enthusiastic contributor to a project. Jenn remained engaged in research (including throughout the COVID remote period) until her early graduation this December. Upon returning to in-person lab in her third year, Jenn began her Honors Thesis focused on under standing aspects of the underlying chemistry and energetics of biomolecular liquid-liquid phase separation. The topic integrated concepts from physics, chemistry, and biology. Jen was exceptional in wading, undaunted, into this complex area; working to understand piece by piece the important components of the system. Jenn's thesis work on the phase separation of Laf-1 RGG demonstrated dramatic effects of cosolvents on the stability of the Laf-1 condensates and pointed to the specific involvement of pi-pi interactions in stabilizing the system. In addition to being an outstanding researcher, Jenn has also been an excellent citizen in the department and her community. She served as a Chemistry Department tutor for general and organic chemistry as part of the Chemistry Club and as a teaching assistant for multivariable calculus as well as volunteering with One Tent Health in DC.

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Nora Houseman The George Washington University Dr. Joseph Meisel (Research supervisor)	Nora Houseman is a current senior at the George Washington University graduating in May of 2023 with a Bachelor of Science in Chemistry and a minor in Public Health. She began research under the mentorship and guidance of Dr. Joseph Meisel, using organic synthesis techniques to build molecular scaffolds to study and target protein-protein interactions and disease pathways. Nora has earned honors from the Madeleine Reines Jacobs Scholarship and through the 2022-23 CCAS Summer Lab STEM fellowship, sponsored by the GW Chemistry Department and Columbian School of Arts and Sciences, respectively. Nora is a member of the university's Division I Gymnastics team, where she balances 20-30+ hours a week of training, practice, travel, and competitions with a rigorous course load and extracurricular activities. Nora also serves as the team's volunteer coordinator, facilitating and tracking community engagement opportunities with various local organizations. In her senior year she collaborated directly with the organization Cards for Hospitalized Kids to create an interactive station at home competitions where fans and students could create cards for hospitalized children. Nora works as an Organic Chemistry and Biochemistry tutor in the athletic department for fellow student athletes. Following graduation, Nora plans to attend medical school and has a particular interest in emergency medicine and medical research.
Melinda Huynh St. Mary's College of Maryland Dr. Shanen Sherrer	Melinda Huynh is a recipient for the Chemical Society of Washington College Chemistry Achievement Award from St. Mary's College of Maryland. As a phenomenal senior Biology and Biochemistry major with a Neuroscience minor, Melinda demonstrates excellence in the classroom, research and through community engagement in numerous ways. Besides maintaining a competitively high GPA, she is currently completing an independent senior research project with Dr. Daniel Tobiansky within the Department of Biology. As an active member within the American Society for Biochemistry and Molecular Biology student chapter called Biological Organization of St. Mary's Students (BOSS) for at least 2 years and current student president of the St. Mary's ACS club, Melinda has helped these clubs stay very active on campus during the pandemic. She accomplished this by taking lead on a few key events while coordinating other student efforts on activities hosted by the club. In addition, Melinda has demonstrated a passion for science outreach both on campus and within her community. For example, Dr. Shanen Sherrer witnessed Melinda's science outreach activities as part of BOSS including sharing biochemistry-related topics with the local community as an unpaid tutor, participating in National Chemistry Week, contributing to the St. Mary's County Public School's STEAM Festival, facilitating workshops for the annual STEM-ING event in collaboration with local organizers, and serving as a judge for the St. Mary's County Science Fair. Notably, Melinda was very hands-on in conducting demonstrations and providing explanations to different audiences during National Chemistry Week events and the 2021 STEAM Festival. Based on these academic and extracurricular achievements and the numerous informal activities in which she participates, Melinda has had a largely positive impact on classroom discussions, community engagements and research.

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Adrian Kalaw Georgetown University Paul Roepe	Adrian has an exceedingly deep commitment to biochemical science and has been doing research in the Roepe laboratories at Georgetown for over two years. His research has centered on understanding the structure and function of different isoforms of the Plasmodium falciparum chloroquine resistance transporter (PfCRT) protein. This a central problem for scientists trying to understand how malarial parasites become resistant to antimalarial drugs. His work has included making and studying site directed mutant PfCRTs as well as performing depth molecular energy minimization of PfCRT structure imbedded in membrane that is bound or not bound to chloroquine. Comparing these in detail is a major advance. Adrian has also helped to introduce use of a new artificial intelligence algorithm in the Roepe labs that is called “alphafold” which allows scientists to solve for three dimensional structure of proteins using only their linear amino acid sequences. Adrian is also a deeply caring young man that donates considerable time in service to others. While at Georgetown he has volunteered at Capital Caring Health and the Georgetown University Center for Social Justice.
Patricia Kwiatek The Catholic University of America Dr. Aaron Barkatt	The recipient of the College Chemistry Achievement Award for 2023 from The Catholic University of America is Patricia Kwiatek. Patricia is a strong student who will graduate in May with a B.S. in Chemistry and an Interdisciplinary minor. Patricia is a research student in environmental chemistry, and this is her fourth semester doing research in this area. Her research involves novel materials for use in applications related to sustainability and environmental protection, in particular advanced varieties of sulfur concrete. Her research has resulted in advances in this area and has opened new avenues for study, including the possibility of incorporating wastes originating in the textile industry to reinforce concrete, development of safe and effective alternatives to additives used to stabilize this type of concrete, possible application to the removal of toxic metal ions from water, and possible relevance to devices used in energy storage. Patricia has presented her results in a poster presentation in April 2022 the Catholic U Research Day and later at the June 2022 MARM (Middle Atlantic Regional Meeting) of the American Chemical Society, where she won an award for her poster presentation. Several publications stemming from her research are in preparation and her work will serve as a basis for future projects. Her contributions to this research include careful and methodical development and implementation of improved experimental techniques and identification of promising approaches for synthesis and characterization of new types of sulfur concrete. In summary, Patricia’s innovative ideas and excellent experimental skills have contributed to the development of a novel area of research in the sustainability and environmental research program at Catholic U.

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Annie McAllister George Mason University Dr. Lee Solomon	Annie is the ideal chemistry student. She is smart, hard-working, and always a positive presence in the lab. Since meeting her, she has excelled in everything she has done and has a bright future ahead of her. In the lab, she is working on a project designing ribose and glucose sugar binding sites into de novo proteins. This work has immense implications to diabetes research as it can help develop new blood screening technologies as well as interventions to clear sugars from the body. This project has already earned her a talk at the NCUR conference - with her attendance being sponsored, and she will likely get a first author paper as an undergraduate. She has also received the intensive OSCAR URSP summer fellowship, sponsoring her to do research. For this project she has had to learn a bevy of techniques encompassing computational and in vitro experiments. Despite how different these types of techniques are, Annie has excelled in mastering both. She can now design a protein from scratch, run the tests in silico, determine the best candidate, purify it and characterize it in vitro. Many students struggle to learn all of these different techniques, but Annie made it look easy. If she puts her mind to something, she cannot be stopped. Outside of the lab, she is just as dedicated and impressive a student. Her GPA is at the top of her class and she is a founding member and the president of the school's student ACS chapter. Furthermore, she has served as an organic chemistry learning assistant, mentoring younger students. This role demanded her to have a deep and nimble knowledge of the subject and response to any student questions. As with all other aspects of her career, she excelled. No one deserves this award more than her.