Victoria Grace Muir, Ph.D.

Assistant Professor of Chemical and Biomolecular Engineering
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Education

University of Pennsylvania (Ph.D.) Fall 2018 – Fall 2022
Department of Bioengineering
National Science Foundation Graduate Research Program Fellow (NSF-GRFP)
Solomon R. Pollack Award for Excellence in Graduate Bioengineering Research
Designing Hyaluronic Acid Granular Hydrogels for Biomaterials Applications
Thesis Advisor: Prof. Jason A. Burdick

University of Delaware (B. ChE.) Fall 2014 – Spring 2018
Department of Chemical and Biomolecular Engineering
Summa Cum Laude • Honors Degree with Distinction
Barry Goldwater Scholar • Eugene D. duPont Scholar
Minors in Chemistry and Medical Humanities
Photo-sensitive polymer assemblies for nucleic acid delivery
Senior Thesis Advisors: Prof. Millie Sullivan and Prof. Thomas H. Epps, III

Professional Experience

Assistant Professor, Tenure-Track
Department of Chemical and Biomolecular Engineering, University of Delaware Fall 2024 - present

Affiliated Faculty Member
Microbiology Graduate Program, University of Delaware Spring 2025 – present
Delaware Center for Musculoskeletal Repair (DCMR), University of Delaware Winter 2025 – present
Center for Research in Soft Matter and Polymers (CRiSP), University of Delaware Fall 2024 – present

Princeton Presidential Postdoctoral Research Fellow
Department of Chemical and Biological Engineering, Princeton University Fall 2022 – Summer 2024
Investigating Phage-Bacteria Dynamics in Porous Media
Advisor: Prof. Sujit S. Datta

Research Interests

The Muir Lab designs hydrogel biomaterials and biofabrication platforms to study cell behavior and create functional living materials. Our approach integrates ideas from biomaterials science, biofabrication, microbiology, 3D printing, biophysics, and embracing "maker culture" to address challenges across medicine and environmental science. **Current areas of research include** (**1**) designing materials to study cell movement in complex environments; (**2**) creating microenvironments to study host-pathogen interactions; (**3**) designing microbial living biomaterials; and (**4**) biofabrication for soft and living materials.

Awards and Honors

Prior to University of Delaware

AIChE 35 Under 35 Award, AIChE	2023
Outstanding Alumni Award, AIChE Delaware Valley Local Section	2023
AIChE Career and Education Operating Council (CEOC, appointed member, 2023-2025)	2022
Princeton Presidential Postdoctoral Research Fellowship, Princeton University	2022
Solomon R. Pollack Award for Excellence in Graduate Bioengineering Research, University of Pennsylvania	2023
UD Future Faculty Workshop Participant, University of Delaware	2022
STAR Award, Society for Biomaterials Annual Meeting, Baltimore, MD	2022
Graduate Teaching Certificate, Center for Teaching & Learning, University of Pennsylvania	2021
AIChE Biomaterials Graduate Student Award Session Presenter, AIChE	2021
First Place - Penn Bioengineering Graduate Research Symposium Presentation Competition	2021
AIChE Young Professionals Committee (YPC) Chair (3-year term)	2021
Soft Matter Symposium - Selected Speaker, Princeton University and University of Delaware MRSECs	2020
Penn Prize for Excellence in Graduate Teaching, University of Pennsylvania	2020
Poddar Award for Rising Star in Chemical Engineering, AIChE	2019
NSF Graduate Research Fellowship, University of Pennsylvania	2019
Tau Beta Pi Fellowship, University of Pennsylvania	2019
Fontaine Fellowship, University of Pennsylvania	2018
University of Delaware Group Exercise Instructor of the Year	2018
AIChE National Outstanding Student Chapter University of Delaware	2018
Industrial Sponsors Senior Student Award, University of Delaware	2018
First Place Poster in Materials Science and Engineering, AIChE Annual Meeting	2017
Slocomb Engineering Scholarship, University of Delaware	2017
Sylvia and Charles S. Joanedis Scholarship, University of Delaware	2017
Barry Goldwater Scholarship, University of Delaware	2016
ACS Undergraduate Symposium in Polymers – Second Place, San Diego, CA	2016
David Buck Memorial Award, University of Delaware	2016
AIChE National Outstanding Student Chapter, University of Delaware	2016
AIChE National Outstanding Sophomore Representative, University of Delaware	2016
General Honors Award, University of Delaware	2016
AIChE National Outstanding Freshman Representative, University of Delaware	2015
Delaware INBRE Summer Research Scholarship, University of Delaware	2015
Eugene D. duPont Full Undergraduate Scholarship, University of Delaware	2014
National AP Scholar	2014
Society of Women Engineers Delaware Chapter College Scholarship	2014
Diamond State Scholarship	2014
ACS Project SEED Scholar	2012, 2013

Publications

From Google Scholar Profile (Last Updated July 2025): H-index: 9; Total Citations: 1114
Link: https://scholar.google.com/citations?user=M3TBTNwAAAAJ&hl=en
ORCID iD: 0000-0003-4459-6347
*co-first authors, corresponding author, #co-corresponding authors, *undergraduate authors*, **VGM in bold**

Peer-Reviewed Publications (pending submissions listed at bottom)

Prior to University of Delaware

1. **V.G. Muir**, M. Fainor, B.S. Orozco, R.L. Hilliard, M. Boyes, H.E. Smith, R.L. Mauck, T.P. Schaer, J.A. Burdick, S.E. Gullbrand. "Injectable Radiopaque Hyaluronic Acid Granular Hydrogels for Intervertebral Disc Repair", *Advanced Healthcare Materials*, 2024, 2303326. https://doi.org/10.1002/adhm.202303326. [Journal Impact Factor: 10; Citations: 17]

2. M. Fainor, B.S. Orozco, **V.G. Muir**, S. Mahindroo, S. Gupta, R.L. Mauck, J.A. Burdick, H.E. Smith, S.E. Gullbrand. "Mechanical Crosstalk Between the Intervertebral Disc, Facet Joints, and Vertebral Endplate Following Acute Disc Injury in a Rabbit Model," *JOR Spine*, Volume 6, Issue 4, e1287, 2023. https://doi.org/10.1002/jsp2.1287. [Journal Impact Factor: 3.4; Citations: 5]

3. **V.G. Muir,** *S. Weintraub*, A.P. Dhand, H. Fallahi, L. Han, J.A. Burdick. "Influence of Microgel and Interstitial Matrix Compositions on Granular Hydrogel Composite Properties", *Advanced Science*, 2023, 10 (10), 2206117. https://doi.org/10.1002/advs.202206117 [Journal Impact Factor: 14.3; Citations: 55]

4. **V.G. Muir**, T.H. Qazi, *S. Weinstraub*, B. Moldanado, P. Arratia, and J.A. Burdick. "Sticking Together: Injectable Granular Hydrogels with Increased Functionality via Dynamic Covalent Inter-particle Crosslinking", *Small.* 2022, 18, 6, 2201115. https://doi.org/10.1002/smll.202201115 [Journal Impact Factor: 13; Citations: 106]

5. **V.G. Muir**, M.E. Prendergast, and J.A. Burdick. "Fragmenting Bulk Hydrogels and Processing into Granular Hydrogels for Biomedical Applications", *J. Vis. Exp.* 2022, 183, e63867. https://doi.org/10.3791/63867 [Journal Impact Factor: 1.2; Citations: 21]

6. T.H. Qazi, **V.G. Muir**, J.A. Burdick. "Methods to characterize granular hydrogel rheological properties, porosity, and cell invasion". *ACS Biomater. Sci. Eng.* 2022. 2022, 8, 4, 1427–1442. https://doi.org/10.1021/acsbiomaterials.1c01440 [Journal Impact Factor: 5.5; Citations: 103]

7. T.H. Qazi, J. Wu, **V.G. Muir**, *S. Weintraub*, D. Lee, S. Gullbrand, D. Issadore, J.A. Burdick. "Anisotropic Rod-Shaped Particles Influence Injectable Granular Hydrogel Properties and Cell Invasion". *Advanced Materials*, 2021, 34, 12, 2109194. https://doi.org/10.1002/adma.202109194 [Journal Impact Factor: 27.4; Citations: 148]

8. **V.G. Muir**, T.H. Qazi, J. Shan, J. Groll, J.A. Burdick, "Influence of Microgel Fabrication Technique on Granular Hydrogel Properties", *ACS Biomater. Sci. Eng.* 2021, 7, 9, 4269–4281. https://doi.org/10.1021/acsbiomaterials.0c01612 [Journal Impact Factor: 5.5; Citations: 170]

9. **V.G. Muir** and J.A. Burdick, "Chemically-modified Biopolymers for the Formation of Biomedical Hydrogels", *Chem. Rev.* 2021, 121, 18, 10908–10949 https://doi.org/10.1021/acs.chemrev.0c00923 [Journal Impact Factor: 10; Citations: 460]

10. *C.T. Greco, ****V.G. Muir***, T.H. Epps, III, and M.O. Sullivan. "Efficient tuning of siRNA dose response by combining mixed polymer nanocarriers with simple kinetic modeling." *Acta Biomaterialia*. 50, 407-416, 2017. https://doi.org/10.1016/j.actbio.2017.01.003 [Journal Impact Factor: 9.7; Citations: 29]

In Preparation

1. **V.G. Muir,** A. Martinez-Calvo, N. Wingreen, S.S. Datta. " Death & Chemotaxis: Motile bacteria use collective migration to avoid phage predation."

Presentations

Presenting author underlined, *undergraduate authors italicized*, **VGM in bold**

Invited Talks

1. **Muir, VG**. University of Pennsylvania, Environmental & Biological Fluid Dynamics Initiative, Philadelphia, PA. Scheduled for September 18th, 2025.
2. **Muir, VG**. University of Delaware, Chemistry and Biology Interface (CBI) Seminar Series, Newark, DE. Scheduled for September 10th, 2025.
3. **Muir, VG**. University of Delaware, Center of Computational Biology and Bioinformatics Seminar Series, Newark, DE. "Biofabrication and Biomaterial Approaches for In Vitro 3D Models of Microbial Collectives". February 2025.
4. **Muir, VG**. Mid-Atlantic Synthetic Biology Symposium (MASBN), Newark, DE. "Biofabrication and Biomaterial Approaches for In Vitro 3D Models of Microbial Collectives". January 2025.
5. **Muir, VG**. Niels Bohr Institute, Biocomplexity Group Seminar, Copenhagen, Denmark. "Bioengineering with Granular Hydrogels.", November 2024.

Prior to University of Delaware

6. **Muir, VG**. "Bioengineering with Granular Hydrogels." University of Delaware Department of Chemical and Biomolecular Engineering Seminar Series, Alumni Lecture, October 2022.
7. **Muir, VG**, J.A. Burdick "Sticking Together: Injectable Granular Hydrogels with Increased Functionality via Dynamic Covalent Interparticle Crosslinking." University of Florida Department of Chemical Engineering Biomaterials Seminar Series, May 2022.
8. **Muir, VG**, J.A. Burdick "Designing Hyaluronic Acid Granular Hydrogels for Biomedical Applications". Soft Matter Coffee Hour (SMatCH), Princeton University. Spring 2022.

Conference Oral Presentations

1. **Muir, VG**. APS March Meeting, Anaheim, CA. "Exploring Microbial Collective Dynamics Using Bioprinting and Biomaterials Approaches". March 2025.
2. **Muir, VG**. AIChE Annual Meeting, San Diego, CA. "Engineering Hydrogels to Study Phage-Bacteria Interactions in Biologically-Relevant Environments.", October 2024.

Prior to University of Delaware

3. **V.G. Muir**. ACS Colloid and Surface Science Symposium, Seattle, WA. "Granular Hydrogels for Bioprinting Applications.", June 2024.
4. **V.G. Muir**. Princeton Advanced Manufacturing Symposium, Princeton, NJ. "Granular Hydrogels for Bioprinting Applications.", April 2024.
5. **V.G. Muir,** A. Martinez-Calvo, N. Wingreen, S.S. Datta. American Physical Society Annual Meeting, Minneapolis, MN. "Death & Chemotaxis: Unraveling the Dynamics of Bacterial Community Migration in the Presence of Phages.", March 2024.

6. **V.G. Muir,** A. Martinez-Calvo, N. Wingreen, S.S. Datta. Biophysical Society Annual Meeting, Philadelphia PA. “Death & Chemotaxis: Unraveling the Dynamics of Bacterial Community Migration in the Presence of Phages.”, February 2024.

7. **V.G. Muir,** A. Martinez-Calvo, N. Wingreen, S.S. Datta. Bacteria v. Phage: The Main Event (Princeton Center for Theoretical Science Symposium), Princeton, NJ. “Death & Chemotaxis: Unraveling the Dynamics of Bacterial Community Migration in the Presence of Phages.”, January 2024.

8. **V.G. Muir**, S.S. Datta. AIChE Annual Meeting, Orlando, FL. “Dynamics of Phage-Bacteria Interactions in Crowded Environments.” November 2023.

9. **V.G. Muir,** J.A. Burdick, S.E. Gullbrand. Society for Biomaterials Annual Meeting, San Diego, CA. “Injectable Radiopaque Hyaluronic Acid Granular Hydrogels for Intervertebral Disc Repair”. April 2023.

10. **V.G. Muir,** J.A. Burdick. Society for Biomaterials Annual Meeting, San Diego, CA. “Influence of Microgel and Interstitial Matrix Compositions on Granular Hydrogel Composite Properties”. April 2023.

11. **V.G. Muir**, J.A. Burdick. Society for Biomaterials Annual Meeting, Baltimore MD. “Sticking Together: Injectable Granular Hydrogels with Increased Functionality via Dynamic Covalent Interparticle Crosslinking.” April 2022.

12. **V.G. Muir**, J.A. Burdick. AIChE Annual Meeting, Boston, MA. “Enhanced Granular Hydrogels with Dynamic Covalent Interparticle Crosslinking.” Biomaterials Graduate Awards Session. November 2021

13. **V.G. Muir**, J.A. Burdick. Society for Biomaterials Annual Meeting, virtual. “Enhanced Granular Hydrogels with Dynamic Covalent Interparticle Crosslinking.” April 2021.

14. **V.G. Muir**, J.A. Burdick. Penn Bioengineering Graduate Research Symposium, virtual. “Granular Hydrogels for Tissue Repair.” January 2021. Awarded First Place in Student Talk Competition.

15. **V.G. Muir**, J.A. Burdick. World Biomaterials Congress, virtual. “Influence of microgel fabrication technique on granular hydrogel properties.” December 2020.

16. **V.G. Muir**, J.A. Burdick. AIChE Annual Meeting, virtual. “Influence of microgel fabrication technique on granular hydrogel properties.” November 2020.

17. **V.G. Muir**, J.A. Burdick. Soft Matter for All Symposium hosted by Princeton University and University of Delaware MRSECs, virtual. “Influence of microgel fabrication technique on granular hydrogel properties.” October 2020.

18. **V.G. Muir**, J.A. Burdick. AIChE Annual Meeting, Orlando, FL. “Combining Shear-thinning and Temporal Covalent Crosslinking in a Hyaluronic Acid Hydrogel.” November 2019.

19. **V.G. Muir**, S. E. Gullbrand, J.A. Burdick. BMES Annual Meeting, Philadelphia, PA. “Combining Shear-thinning and Temporal Covalent Crosslinking in a Hyaluronic Acid Hydrogel.” October 2019.

20. **V.G. Muir**, C.T. Greco. T.H. Epps, M.O. Sullivan. AIChE Annual Meeting Undergraduate Research Symposium, San Francisco, CA. “Efficient tuning of siRNA dose response by combining mixed polymer nanocarriers with simple kinetic modeling.” Fall 2016

21. **V.G. Muir**, C.T. Greco. T.H. Epps, M.O. Sullivan. ACS Annual Meeting Symposium in Polymer Science, San Diego, CA. “Efficient tuning of siRNA dose response by combining mixed polymer nanocarriers with simple kinetic modeling.” Awarded Second Place, Spring 2016

22. **V.G. Muir**, C.T. Greco. T.H. Epps, M.O. Sullivan. AIChE Mid-Atlantic Undergraduate Research Symposium, Newark, DE. “Efficient tuning of siRNA dose response by combining mixed polymer nanocarriers with simple kinetic modeling.” Spring 2016

Poster Presentations

1. *Meadows, M.,* Azzariti, L., Pereira, R., Zucco, H., **Muir, VG.** University of Delaware Undergraduate Summer Research Symposium. “Designing Bioprinted Agar-Based Scaffolds for Investigating Bacterial Migration.” August 2025.
2. *Myers, J.,* **Muir, VG**. University of Delaware Winter Fellows Symposium. “Designing 3D Printed Devices to Investigate Bacteria Migration in Structured Environments”. February 2025.
3. *Talaiferro, A*, Sudduth, E, Fromen, CA, **Muir, VG**. University of Delaware Center for Hybrid, Active, and Responsive Materials (CHARM) REU Poster Session. “Phage Interactions with Immune Cells in 3D Hydrogels”. August 2024.

Prior to University of Delaware

4. **V.G. Muir**, J.A. Burdick. Society for Biomaterials Annual Meeting, Baltimore MD. “Developing Hands-On Biomaterials Education Modules Using Alginate Hydrogels.” April 2022.
5. **V.G. Muir.** Women in Chemical Engineering Symposium, Boston, MA. “Granular Hydrogels for Biomedical Applications” AIChE Annual Meeting, Fall 2021
6. **V.G. Muir**, J.A. Burdick. Penn Bioengineering Graduate Research Symposium, Philadelphia, PA. “Influence of microgel fabrication technique on granular hydrogel properties.” Winter 2020
7. **V.G. Muir**, S. E. Gullbrand, J.A. Burdick. Penn Center for Musculoskeletal Diseases Symposium, Philadelphia, PA. “Combining Shear-thinning and Temporal Covalent Crosslinking in a Hyaluronic Acid Hydrogel for Degenerated Spinal Disc Repair.” Fall 2019
8. ***V.G. Muir****,* C.T. Greco. T.H. Epps, M.O. Sullivan. AIChE Annual Meeting Undergraduate Poster Session, Minneapolis, MN. “Efficient tuning of siRNA dose response by combining mixed polymer nanocarriers with simple kinetic modeling*.” Awarded First Place in Materials Science*, Fall 2017
9. ***V.G. Muir*****.** Merck Research Laboratories Symposium, West Point, PA. “Viral Vaccine Stability - Effects of Ionic Strength and pH on Thermal Stability.” Summer 2017
10. ***V.G. Muir.*** MIT Summer Research Symposium, Cambridge, MA. “Nanoparticle Delivery Methods for CRISPR Cas9:sgRNA RNPs.” Summer 2016

Funding

Direct funds generated from Muir Lab to date: $124,931

Current Research Support

1. PI: **Muir, V.G.**. “CAT iHiT: Enhancing Phage Therapeutics via Evolution in Packed Gel Columns” Delaware Bioscience Center for Advanced Technology (CAT). Start Date: 09/01/2025. End Date: 08/31/2026. Direct to PI Muir: $74,931.
2. PI: **Muir, V.G.**. “Microbial Living Hydrogels for Musculoskeletal Tissue Engineering” UD COBRE Phase 1 Pilot Project. COBRE PI Elliot, Dawn – Delaware Center for Musculoskeletal Research (DCMR). National Institutes of Health. Start Date: 02/01/2025. End Date: 01/31/2026. Direct to PI Muir: $50,000.

Researchers Supervised

Awards received during time in Muir Lab noted for each researcher, **Current students in bold.**

Graduate Students

1. **Ruth Pereira**, Ph.D. Student, University of Delaware, Department of Chemical and Biomolecular Engineering, 2025 – present
    - *George W. Laird Merit Fellowship - Finalist (2025),* University of Delaware
2. **Hannah Zucco**, Ph.D. Student, University of Delaware, Department of Chemical and Biomolecular Engineering, 2025 – present
    - *Robert Pigford Fellowship (2024)*, University of Delaware
3. **Lawrence Azzariti**, Ph.D. Student, University of Delaware, Department of Chemical and Biomolecular Engineering, 2025 – present
    - *Schipper Fellowship (2025),* University of Delaware
    - *University Graduate Scholar Award (2024),* University of Delaware

Undergraduate Students

1. **Jackson Myers**, Undergraduate Student, University of Delaware, Department of Chemical and Biomolecular Engineering, 2024 – present
    - *Winter Fellows Award Scholarship Recipient*, University of Delaware, Office of Undergraduate Research, January 2025
2. **Miles Meadows**, Undergraduate Student, University of Delaware, Department of Chemical and Biomolecular Engineering, 2024 – present
    - UD Center for Hybrid, Active, and Responsive Materials (CHARM) REU Program (Summer 2025)
3. Bala Saravanan, Undergraduate Student, University of Delaware, Department of Chemical and Biomolecular Engineering, 2024 – 2025
    - *Senior Thesis:* Investigating *E. coli* Chemotaxis in Spatially Structured Porous Media
4. Ansolei Taliaferro, Undergraduate Student, Delaware State University, University of Delaware CHARM REU Program, co-advised with Prof. Catherine Fromen, Summer 2024.

Thesis Committees of Graduate Students

I have served (or am serving) on the following graduate thesis committees. The primary advisor, department and university are given in parentheses.

1. Alexander Wang, Ph.D. expected 2028. (Advisor Prof. April Kloxin, Chemical Engineering, University of Delaware).
2. Jacob Otolski, Ph.D. expected 2028. (Advisor Prof. Millie Sullivan, Chemical Engineering, University of Delaware).
3. Claire Lois, Ph.D. expected 2028. (Advisors Prof. Millie Sullivan and Prof. April Kloxin, Chemical Engineering, University of Delaware).

4. Dominic Hoffman, Ph.D expected 2028. (Advisor Prof. Catherine Fromen, Chemical Engineering, University of Delaware).
5. Dr. Alba García Vázquez, Ph.D. 2024. (Advisors Prof. Liselotte Jauffred and Prof. Namiko Mitarai, Biophysics, Niels Bohr Institute, University of Copenhagen).

Senior Thesis Committees of Undergraduate Students

I have served (or am serving) on the following undergraduate senior thesis committees. The primary advisor, department and university are given in parentheses.

1. Adhya Anilkumar, expected 2025. (Prof. Catherin Fromen, Chemical Engineering, University of Delaware).

Teaching Experience and Qualifications

Courses Instructed at University of Delaware

- Fall 2025 - CHEG332: Chemical Engineering Kinetics [70 enrolled]. Undergraduate core. Co-taught with Prof. Kevin Solomon.
- Spring 2025 - CHEG843: Rate Processes & Dynamics for Mammalian Cellular Systems [10 enrolled]. Graduate elective.
- Fall 2024 - CHEG332: Chemical Engineering Kinetics [74 enrolled]. Undergraduate core. Co-taught with Prof. Kevin Solomon.

Participation in Teaching & Mentoring Workshops

- Fall 2022: Graduate Certificate in Teaching and Learning, University of Pennsylvania.
- Summer 2020: Creating a Community in Online Learning (Workshop), instructed by Dr. Ian Petrie, University of Pennsylvania.
- Fall 2019: Teaching to Undergraduates and Graduates in the Same Classroom (Workshop), instructed by Dr. Jason Burdick, University of Pennsylvania.

Student Advising

- Undergraduate Academic Advisor (25 CHEG students in class of 2028): Fall 2024 - present

Professional Service

Membership in Professional Organizations

- American Chemical Society (ACS) — 2024 – present
- American Physical Society (APS) — 2022 – present
- Society for Biomaterials (SFB) — 2021 – present
- Sigma Xi — 2016 – present
- American Institute of Chemical Engineers (AIChE) — 2014 – present

Leadership Roles in Professional Organizations

- AIChE 35 Under 35 Award Competition – Volunteer Leader — 2025 – present
- AIChE Early Career Community (ECC) – Advisor — 2024 – present
- AIChE Career and Education Operating Council (CEOC) - Member — 2023 – present
- AIChE K12 Executive Committee - Member — 2024 – 2025, 2018 – 2020
- AIChE Three-Minute Thesis (3MT) Competition Organizing Committee – Member (*Part of team to receive AIChE Foundation grant for hosting inaugural AIChE 3MT Competition, awarded ~$20,000)* — 2021 – 2024
- AIChE Early Career Community (ECC) – Chair — 2020 - 2023
- AIChE Early Career Community (ECC) – Annual Student Conference Coordinator — 2019 – 2020
- AIChE Early Career Community (ECC) – K12 Outreach Coordinator — 2018

Conference Organization – Programming

- Princeton Center for Theoretical Science (PCTS) Symposium; Bacteria v. Phage: The Main Event. Princeton, NJ. – Symposium Organizer — January 2024

Conference Organization – Session Chair / Co-Chair

- Session Chair: “Granular Hydrogels and Soft Microparticle Assemblies”. DSOFT, DPOLY. APS March Meeting, Denver, CO. — March 2026
- Session Co-Chair: “Meet the Biomaterials Faculty Candidates”. Area 8B (Biomaterials). AIChE Annual Meeting, Boston, MA. — October 2025
- Session Co-Chair. “Dynamic Covalent Networks”. DPOLY, DSOFT. APS March Meeting, Anaheim, CA. — March 2025
- Session Co-Chair. “Biomaterials In Industry and Clinic”. Area 8B Biomaterials. AIChE Annual Meeting, San Diego, CA. — October 2024

Mentor and Panelist

Future Faculty Workshop in Soft Materials, University of California – Irvine — July 2025

University of Delaware CBE Department Level Service

- UD CBE Seminar Coordinator — 2024 – present

Journal Manuscript Reviewer

Advanced Healthcare Materials, ACS Biomaterials Science and Engineering, ACS Omega, ACS Applied Bio Materials

Community and Public Engagement

- 2017–Present: Delaware Museum of Nature and Science (DelMNS) Guest Scientist – Developing and leading hands-on science demonstrations, exhibits, and workshops for museum guests.
- 2019–2022: GAINS Volunteer – Engaged middle and high school students in STEM career exploration through the GAINS Network.
- 2021: Spark Mentor – Mentored 7th and 8th-grade students in Philadelphia in career exploration; led weekly sessions culminating in a "Spark Project."
- 2020–2021: Skype a Scientist – Guest Science Instructor – Led virtual K-12 classroom sessions on medicine and materials.
- 2018–2020: Beta Day Workshop Leader – Organized and led a biomaterials workshop for 5th-grade students at University of Pennsylvania's Beta Day.
- 2019: GEMS Volunteer – Developed and led a biomaterials workshop for middle schoolers at the GEMS Camp, University of Pennsylvania.
- 2014–2018: FourYouth Productions Volunteer – Supported extracurricular programs in science, art, and cooking for youth in Wilmington, DE.

Science Communication and Professional Development Speaking Engagements

- 2025, 2021, 2020: **Keynote Speaker**, "Is Chemical Engineering for Me?" Susquehanna Valley AIChE Local Section Event for local high school students.
- 2023, 2021, 2020: **Workshop Leader**, "Applying to PhD Programs and Research Fellowships," AIChE Annual Student Conferences.
- 2023: **Invited Speaker**, "My Journey in Academia," Princeton University SACNAS Student Chapter General Body Meeting.
- 2023: **Invited Speaker**, "Grad Scholars Program Post Doc Series," Princeton University Graduate Scholars Program (GSP).
- 2022: **Workshop Leader**, "Making the Most of Your AIChE Experience as a Young Professional," AIChE Spring Meeting.
- 2022: **Invited Presenter**, "Why Join AIChE?" Oregon State University AIChE Student Chapter.
- 2021: **Workshop Leader**, "How to Share Your Research with Everyone," AIChE Annual Meeting.
- 2021, 2019: **Invited Presenter**, "Tissue Engineering: Working to Repair and Regenerate Damaged Tissue to Better Human Health," GAINS Network Seminar Series.
- 2020: **Keynote Speaker**, University of Delaware Engineers Week Student Banquet.
- 2019: **Invited Presenter**, "K12 Outreach for Chemical Engineers," AIChE Local Sections Webinar.
- 2019: **Workshop Leader**, "K12 Outreach for Chemical Engineers," AIChE Spring Meeting.
- 2018: **Keynote Speaker**, University of Delaware Distinguished Scholars Ceremony.
- 2018: **Keynote Speaker**, National Council for Women in Technology Delaware Chapter Awards Ceremony.