Amanda R. Murphy

Spring 2024

Director | AMSEC
Professor | Chemistry
Western Washington University
Bellingham, WA 98225

Telephone: (360) 650-3138
Email: amanda.murphy@wwu.edu
Website: https://chemistry.wwu.edu/people/murphya5
ORCID ID: 0000-0002-5068-3618

Education

University of California, Berkeley, CA 2001-2006
Ph.D. Organic Chemistry
Western Washington University, Bellingham, WA 1996-2001
B.S. Plastics Engineering Technology and B.A. Chemistry

Experience

Director of the Advanced Materials Science and Engineering Center (AMSEC) Fall 2021-present
Western Washington University, Bellingham, WA
Full Professor, Chemistry Department, Western Washington University, Bellingham, WA Fall 2021-present
Visiting Professor, UC Irvine, Prescher Group, Irvine, CA Winter 2019
Associate Professor, Chemistry Department, Western Washington University, Bellingham, WA 2016-2021
Assistant Professor, Chemistry Department, Western Washington University, Bellingham, WA 2010-2016
Postdoctoral Fellow, Tufts University, Department of Biomedical Engineering, Medford, MA 2006-2009
Advisor: Prof. David Kaplan
Graduate Research Assistant, University of California, Berkeley, CA 2001-2006
Advisor: Prof. Jean Fréchet
Undergraduate Research Assistant, IBM Almaden Research Center, San Jose, CA Su 2000/2001
Advisor: Dr. Robert Miller

Teaching Experience

Western Washington University, Bellingham, WA. 2010-present
Courses taught: Organic Chemistry Lecture (Chem 351, 352, 353); Organic Chemistry Lab (Chem 354, 355, 356), Chemistry of Macromolecules (Chem 426/526), Polymer Chemistry (Chem 308); Materials Characterization Laboratory (Mat. Sci. 410)
Tufts University, *Organic Chemistry Co-Instructor*, Medford, MA 2008 Fall
Bunker Hill Community College, *Gen. Chem. Study Group Leader*, Charleston, MA 2008 Summer
Community Resources for Science, *Teaching Volunteer*, Berkeley, CA 2004-2005
University of California, *Graduate Teaching Assistant*, Berkeley, CA. 2001-2004
Western Washington University, *Undergraduate Teaching Assistant*, Bellingham, WA. 1999-2001

Awards

2024 WWU Arlan Norman Award for Excellence in Undergraduate Student Mentoring
2021 Henry Dreyfus Teacher-Scholar Award
2007-2009 NIH Ruth L. Kirschstein National Service Research Award Postdoctoral Fellowship
2006-2007 NIH Teaching Education and Critical Research Skills Postdoctoral Fellowship

Selected Outreach, Training and Service

2010-present	Reviewer for 14 different journals (mainly biomaterials themed)
F2014	Participated in a grant review panel for the National Science Foundation
2014-present	Participated in annual Compass to Campus outreach program for 5th grade students
2015-2017	Faculty sponsor for Associated Women in Science club at WWU
Su2016	Participated in NSF-funded workshop "Change at the Core: A Collaborative Model for Undergraduate STEM Education Reform" at WWU
2016-2017	Completed 4-part STEM-specific Equity and Inclusion forum workshop at WWU
2016-2018	Member of the Faculty Senate
F2017	Completed an AAAS: Communicating Science Workshop
2017-present	Faculty mentor for students in the HHMI-funded Advancing Excellence and Equity in Science (AEES) program at WWU; routinely participate in interviews, presentations
2017-2018	Chair of the Executive Committee for the Materials Science Program at WWU
2018-2023	Director of the NSF-funded REU Program in the Chemistry Department that provides in-depth research experiences to underrepresented students with limited access to research at their home institutions (mainly community college students).
Su2019	Co-chair of Future Faculty in Polymer Science Symposium, ACS Fall Meeting
F2019	Participated in a grant review panel for the National Science Foundation
2019-2021	Member of the Equity, Inclusion and Diversity Committee for CSE
2019-present	Mentor for junior faculty as part of the university-wide New Faculty Mentoring Initiative
2019-present	Participant in the NSF-ADVANCE Program "Values-based Academic Leadership Trajectories for Women in STEM (VAuLTS): The Northwest Regional Partnership"
W2021	Participated in a grant review panel for the National Science Foundation
W2022	Participated in grant review panel for the National Institutes for Health
W2023	Participated in a grant review panel for the National Science Foundation
2023-present	Co-PI of the NSF-REU Program in chemistry

Peer-Reviewed Research Publications

*WWU undergraduate co-authors, #WWU M.S. co-author, ‡NSF-REU undergraduate co-authors

In Preparation

#Berg, Monique; *Lynch, Keavy; *Hausken, Kian; Murphy, A.R. "Bioluminescent Silk Microparticles"

Publications from WWU

37) #Talusig, J.M.; Murphy, A.R. "Synthesis and Characterization of Highly Thiolated Silk Fibroin." *Macromol. Chem. Phys.*, **2023**, 2300340. https://doi.org/10.1002/macp.202300340

36) #Santen, R.M.; *Owens, K.M.; *Echague, K.C.; Murphy, A.R. "Chemical Modification of Silk Proteins via Palladium-Mediated Suzuki-Miyaura Reactions." *Macromol. Chem. Phys.*, **2023**, 2300307. https://doi.org/10.1002/macp.202300307

35) *Hausken, K.G.; *Frevol, R.L.; *Dowdle, K.P.; *Young, A.N.; #Talusig, J.M.; *Holbrook, C.C., *Rubin, B.K.; Murphy, A.R. "Quantitative Functionalization of the Tyrosine Residues in Silk Fibroin Through an Amino-Tyrosine Intermediate." *Macromol. Chem. Phys.*, **2022**, 223 (17), 2200119. https://doi.org/10.1002/macp.202200119

34) *Patamia, E.D.; #Ostrovsky-Snider, N.A.; Murphy, A.R. "Photolithographic Masking Method to Chemically Pattern Silk Film Surfaces," *ACS Appl. Mater. Interfaces*, **2019**, 11(37), 33612-33619. https://pubs.acs.org/doi/10.1021/acsami.9b10226

33) *James, E.I.; ‡Jenkins, L.; Murphy, A.R. "Peptide-Thiophene Hybrids as Self-Assembling Conductive Hydrogels," *Macromol. Mater. Eng.*, **2019**, 304, 1900285. https://doi.org/10.1002/mame.201900285

32) *Hagler, J.R.; *Peterson, B.; Murphy, A.R.; Leger, J.M. "Performance of biocompatible silk-polypyrrole actuators under biologically relevant conditions." *J. Appl. Polym. Sci.*, **2018**, *135*, 46922. https://doi.org/10.1002/app.46922

31) Tsui, J.H.; #Ostrovsky-Snider, N.A.; Yama, D.M.P.; *Donohue, J.D.; Choi, J.S.; Chavanachat, R.; *Larson, J.D.; Murphy, A.R.; Kim, D.H. "Conductive Silk-Polypyrrole Composite Scaffolds with Bioinspired Nanotopographic Cues for Cardiac Tissue Engineering" *J. Mater. Chem. B*, **2018**, 6, 7185-7196 (cover article). https://doi.org/10.1039/C8TB01116H

30) #Severt, S.Y.; *Maxwell, S.; *Bontrager, J.; Leger, J.M.; Murphy, A.R. "Mimicking Muscle Fiber Structure and Function Through Electromechanical Actuation of Electrospun Silk Fiber Bundles," *J. Mater. Chem. B*, **2017**, *5*, 8105-8114. https://doi.org/10.1039/C7TB01904A

29) *Blatz, T.J.; *‡Fry, M.M.; *James, E.I.; *Albin, T.J.; *Pollard, Z.; Kowalczyk, T.; Murphy, A.R. "Templating the 3D structure of conducting polymers with self-assembling peptides," *J. Mater. Chem. B*, **2017**, 5, 4690-4696. https://doi.org/10.1039/C7TB00221A

28) *Fengel, C.V.; *Bradshaw, N.P.; #Severt, S.Y.; Murphy, A.R.; Leger, J.M. "Biocompatible Silk-Conducting Polymer Composite Trilayer Actuators," *Smart Mater. Struct.*, **2017**, 26 (5), 055004. https://doi.org/10.1088/1361-665X/aa65c4

27) *Larson, J.D.; *Fengel, C.V.; *Bradshaw, N.P.; #Romero, I.S.; Leger, J.M.; Murphy, A.R. "Enhanced actuation performance of silk-polypyrrole composites," *Mat. Chem. Phys.*, **2016**, *186*, 67-74. https://doi.org/10.1016/j.matchemphys.2016.10.030

26) #Severt, S.Y.; *Ostrovsky-Snider, N.A.; Leger, J.M.; Murphy, A.R. "Versatile Method for Producing 2D and 3D Conductive Biomaterial Composites Using Sequential Chemical and Electrochemical Polymerization," *ACS Appl. Mater. Interfaces*, **2015,** *7* (45), 25281–25288. https://doi.org/10.1021/acsami.5b07332

25) *Bradshaw, N.P.; #Severt, S.Y.; Wang, Z.; *Fengel, C.V.; *Larson, J.D.; Zhu, Z.; Murphy, A.R.; Leger, J.M. "ToF-SIMS Characterization of Silk Fibroin and Polypyrrole Composite Actuators," *Synthetic Metals*, **2015**, *209*, 490-495. https://doi.org/10.1016/j.synthmet.2015.08.031

24) *Atterberry, P.N.; *Roark, T.J.; #Severt, S.Y.; *Schiller, M.L.; Antos, J.M.; Murphy, A.R. "Sustained Delivery of the Chemokine CXCL12 from Chemically Modified Silk Hydrogels." *Biomacromolecules*, **2015**, *16* (5), 1582–1589. https://doi.org/10.1021/acs.biomac.5b00144

23) *Albin, T.J.; ‡*Fry, M.M.; Murphy, A.R. "Synthesis, Characterization and Secondary Structure Determination of a Silk-Inspired Self-Assembling Peptide: A Laboratory Exercise for Organic and Biochemistry Courses." *J. Chem. Educ.* **2014**, *91* (11), 1981–1984. https://doi.org/10.1021/ed5001203

22) #Romero, I.; *Bradshaw, N.; *Larson, J.; *Severt, S.; *Schiller, M.; ‡Roberts, S.; Leger, J.M.; Murphy, A.R. "Biocompatible Electromechanical Actuators Composed of Silk-Conducting Polymer Composites." *Adv. Funct. Mater.* **2014**, *24* (25), 3866–3873. https://doi.org/10.1002/adfm.201303292

21) #Romero, I.; *Schurr, M.; *Kotlik, M.; *Lally, J.; Murphy, A.R. "Enhancing the Interface in Silk-Polypyrrole Composites Through Chemical Modification of Silk Fibroin." *ACS Appl. Mater. Interfaces*, **2013**, *5* (3), 553-564. https://doi.org/10.1021/am301844c

Publications Prior to WWU

20) Li, C.; Luo, T.; Zheng, Z.; Murphy, A.R.; Wang, X.; Kaplan, D.L. "Curcumin-functionalized silk materials for enhancing adipogenic differentiation of bone marrow-derived human mesenchymal stem cells" *Acta Biomaterialia* **2014**, *11*, 222-232.

19) Cronin-Golomb, M.; Murphy, A.R.; Mondia, J.P.; Kaplan, D.L.; Omenetto, F.G. "Optically induced birefringence and holography in silk." *J. Poly. Sci. B: Poly. Phys.* **2012**, *50* (4), 257-262.

18) Tsioris, K.; Tilburey, G.E.; Murphy, A.R.; Domachuk, P.; Kaplan, D.L.; Omenetto, F.G. "Functionalized-Silk-Based Active Optofluidic Devices." *Adv. Funct. Mater.* **2010**, *20* (7), 1083-1089.

17) Murphy, A.R.; Kaplan, D.L. "Biomedical applications of chemically-modified silk fibroin." *J. Mater. Chem.* **2009**, *19* (36), 6443-6450.

16) Wenk, E.; Murphy, A.R.; Kaplan, D.L.; Meinel, L.; Merkle, H.P.; Uebersax, L. "The use of sulfonated silk fibroin derivatives to control binding, delivery and potency of FGF-2 in tissue regeneration." *Biomaterials* **2009**, *31* (6), 1403-1413.

15) Mauldin, C.E.; Puntambekar, K.; Murphy, A.R.; Liao, F.; Subramanian, V.; Fréchet, J.M.J.; DeLongchamp, D.M.; Fischer, D.A.; Toney, M.F. "Solution Processible α,ω-Distyryl Oligothiophene Semiconductors with Enhanced Environmental Stability" *Chem. Mater.* **2009**, *21* (9), 1927-1938.

14) Murphy, A. R.; St. John, P.; Kaplan, D. L. "Modification of Silk Fibroin Using Diazonium Coupling Chemistry and the Effects on hMSC Proliferation and Differentiation." *Biomaterials* **2008**, *29* (19), 2829-2838.

13) Murphy, A. R.; Fréchet, J.M.J. "Organic Semiconducting Oligomers for Use in Field-Effect Transistors." *Chem. Rev.* **2007**, *107 (*4*),* 1066-1096.

12) Chang, P.C.; Molesa, S.E.; Murphy, A.R.; Fréchet, J.M.J.; Subramanian, V. "Inkjetted crystalline single monolayer oligothiophene OTFTs." *IEEE Trans. Elect. Dev.* **2006**, *53* (4)*,* 594-600.

11) Chang, J.B.; Liu, V.; Sivula, K.; Luscombe, C.; Murphy, A.R.; Liu, J.; Fréchet, J.M.J.; Subramanian, V. "Printable polythiophene gas sensor array for low-cost electronic noses." *J. Appl. Phys.* **2006**, *100* (1)*,* 014506/1-014506/7.

10) Chen, J.; Ratera, I.; Murphy, A.R.; Ogletree, D.F.; Fréchet, J.M.J.; Salmeron, M. "Friction-Anisotropy Dependence in Organic Self- Assembled Monolayers." *Surf. Sci.* **2006**, *600* (18), 4008-4012.

9) DeLongchamp, D. M.; Jung, Y.; Fischer, D. A.; Lin, E. K.; Chang, P.; Subramanian, V.; Murphy, A. R.; Fréchet, J. M. J. "Correlating Molecular Design to Microstructure in Thermally Convertible Oligothiophenes:The Effect of Branched vs. Linear Solubilizing Groups." *J. Phys. Chem. B* **2006**, *110* (22), 10645-10650.

8) Murphy, A.R.; VanDyke, P.; Liu, J.; Fréchet, J.M.J.; Chang, C.; Subramanian, V.; DeLongchamp, D.M.; Sambasivan, S.; Fischer, D.A.; Lin, E.K. "Self-assembly, Molecular Ordering and Charge Mobility in Solution-Processed Ultrathin Oligothiophene Films." *Chem. Mater.* **2005***, 17* (24), 6033-6041.

7) Murphy, A.R.; Liu, J.; Luscombe C.; Kavulak, D.; Fréchet, J.M.J.; Kline, J.R.; McGehee, M.D. "Synthesis, Characterization, and Field-Effect Transistor Performance of Carboxylate Functionalized Polythiophenes with Increased Air Stability." *Chem. Mater.* **2005**, *17* (20), 4892-4899.

6) DeLongchamp, D.M.; Sambasivan, S.; Fischer, D.A.; Lin, E.K.; Chang, P.; Murphy, A.R.; Fréchet, J.M.J.; Subramanian, V. "Direct Correlation of Organic Semiconductor Film Structure to Field-Effect Mobility." *Adv. Mater.* **2005**, *17*, 2340-2344. *(cover article)*.

5) Ratera, I.; Chen, J.; Murphy, A.; Ogletree, D. F.; Fréchet, J. M. J.; Salmeron, M. "Atomic force microscopy nanotribology study of oligothiophene self-assembled films." *Nanotechnology* **2005**, 16, S235-S239.

4) Chen, J.; Ratera, I.; Ogletree, D. F.; Salmeron, M.; Murphy, A. R.; Fréchet, J. M. J. "Atomic Force Microscopy Study of **β-**Substituted-T7 Oligothiophene Films on Mica: Mechanical Properties and Humidity-Dependent Phases." *Langmuir* **2005**, *21* (3), 1080-1085.

3) Chen, J.; Murphy, A.R.; Esteve, J.; Ogletree, D. F.; Salmeron, M.; Fréchet, J.M.J. "Preparation and Nanoscale Mechanical Properties of Self-Assembled Carboxylic Acid Functionalized Pentathiophene on Mica." *Langmuir* **2004**, *20* (18), 7703-7710.

2) Chang, P.C.; Lee, J.; Huang, D.; Subramanian, V.; Murphy, A.R.; Fréchet, J.M.J. "Film Morphology and Thin Film Transistor Performance of Solution-Processed Oligothiophenes." *Chem. Mater.* **2004**, *16* (23), 4783-4789.

1) Murphy, A.R.; Fréchet, J.M.J.; Chang, P.; Lee, J.; Subramanian, V. "Organic Thin Film Transistors from a Soluble Oligothiophene Derivative Containing Thermally Removable Solubilizing Groups." *J. Am. Chem. Soc.* **2004,** *126* (6), 1596-1597.

Book Chapter

Murphy, A.R.; Romero, I.S. "Biochemical and biophysical properties of native *Bombyx mori* silk for tissue engineering applications," *Silk biomaterials for tissue engineering and regenerative medicine*. Ed. S.C Kundu, Woodhead Publishing, Cambridge, United Kingdom, **2014** (ISBN: 9780857096999).

Patents

Murphy, A.R.; Kaplan, D.L. "Diazonium Salt Modification of Silk Polymer." US Patent No. 8,206,774 B2, June 26, 2012.

Funded External Grants

2024	NSF-EPIIC: Enabling Partnerships to Increase Innovation Capacity PI: A. Murphy, Co-PIs: D. Patrick, S. Emory Pre-proposal funded, *full proposal due May 2024*	n/a
2023-2026	NSF-MRI: "MRI: Acquisition of a Differential Scanning Calorimeter to Support Modern Materials Research and Teaching at Western Washington University" (DMR-2320809) PI: M. Peyron; Co-PIs: M. Larsen, J. Misasi, A. Murphy, D. Rider	$173,150
2023-2026	NSF: REU Site – "Undergraduate Research in Chemistry at WWU" PI: J. Amacher; Co-PI: A. Murphy (NSF-CHE-2243968)	$360,000
2022-2025	NSF-MRI: "Acquisition of a Dynamic Light Scattering / Zeta Potential Analyzer to Support Multi- Disciplinary Research and Teaching at WWU" (NSF-DMR-2216466) PI: Y. Bao; Co-PIs: A. Murphy, D. Rider, M. Montano	$121,438
2022-2027	2021 Henry Dreyfus Teacher-Scholar Award, "Chemical Strategies to Customize Protein and Polymer-based Biomaterials"	$75,000
2018-2024	NSF-RUI: Division of Materials Research, Biomaterials (NSF-DMR-1807878) Title: "Protein Bioconjugation Strategies for Next Generation Silk Biomaterials"	$388,946
2018-2023	NSF: REU Site – "Undergraduate Research in Chemistry at WWU" PI: A. Murphy, Co-PI: P. P.C. Spiegel (NSF-CHE-1757629)	$290,000
2015-2018	Jean Dreyfus Boissevain Lectureship for Undergraduate Institutions	$18,500
2014-2019	NSF-RUI: Division of Materials Research, Biomaterials (NSF-DMR-1411292) Title: "Biocompatible Electromechanical Actuators Based on Silk-Conducting Polymer Composites" PI: A. Murphy, Co-PI: J. Leger	$420,000
2014-2016	Research Corporation - Cottrell College Science Award Title: "Silk-based Biomaterials for Neural Stimulation and Repair"	$47,736
2013-2016	ACS Petroleum Research Fund- Undergraduate New Investigator Award Title: "Tailoring the Chemical Structure of Conducting Polymers and Dopants to Enhance Electromechanical Actuation"	$50,000

Internal Research Funding

2023	AMSEC Seed Grant: undergraduate summer stipend award	$7,300
2021	AMSEC Seed Grant: undergraduate summer stipend award	$7,100
2018	AMSEC Seed Grant: undergraduate summer stipend award	$5,500
2016	AMSEC Seed Grant: undergraduate summer stipend award	$4,500
2015	AMSEC Seed Grant: undergraduate summer stipend award	$4,500
2014	AMSEC Seed Grant: undergraduate summer stipend award	$4,500
2013	Murdock Charitable Trust undergraduate summer stipend award (x2)	$9,000

2012	Murdock Charitable Trust undergraduate summer stipend award	$4,500
2012	WWU Research and Sponsored Programs: Project Development Award	$23,778
2011	Murdock Charitable Trust undergraduate summer stipend award	$4,500
2011	NASA Space Grant undergraduate summer stipend award	$4,350
2010	WWU Research and Sponsored Programs: summer research salary	$5,000

Selected Presentations

1) Invited speaker: "New Strategies for Covalent Modification of *B. Mori* Silk." *Gordon Research Conference- Silk Proteins and the Transition to Biotechnologies*, Smithfield, RI, July **2023**.

2) Invited speaker: "Integrating polymer chemistry concepts in lecture and laboratory courses at Western Washington University." *American Chemical Society National Meeting,* San Diego, CA. March, **2022**.

3) Invited Poster Presentation: "Research at a primarily undergraduate institution: Conjugated polymer-peptide hybrid materials." *American Chemical Society National Meeting,* San Diego, CA. August, **2019**.

4) Oral Presentation: "Conductive Textiles in Biotechnology," community seminar as part of the 'Coded Threads' art exhibition at WWU, November **2018**.

5) Oral Presentation: "Mimicking Muscle Fiber Structure and Function Through Electromechanical Actuation of Nanofiber Bundles." *American Chemical Society National Meeting,* San Francisco, CA. April 2-6, **2017**.

6) Oral Presentation: "Biocompatible Electromechanical Actuators Based on Silk-Conducting Polymer Composites." 12th Functional Pi Materials Conference, Seattle, WA. July 19-24, **2015**.

Students Mentored

To date, I have mentored 57 WWU Chemistry/Biochemistry undergraduates and 8 WWU Chemistry master's students (1 in progress). Forty-six of these students have graduated with B.S. degrees and six with M.S. degrees. Twenty-four enrolled in graduate programs (14 M.S., 10 Ph.D.), two went to medical school, two to law school and 11 obtained industrial research positions directly following graduation. In addition to chemistry students, I have also mentored 5 Engineering Technology students and 10 summer REU students (three were co-advised). Four of my research students have completed Honors Theses for the chemistry department (three more planned for spring 2024).

<u>*Master's Students*</u>

8) Katherine Hunter, F2023-present

7) Monique Bunkers, "Development of Silk Microparticles Capable of Bioluminescence." Western Washington University, June 2023. *Currently employed at Houdek, Brookings, SD.*

*6) Jeremy Talusig, "*Synthesis, Characterization, and Applications of Thiolated Silk Fibroin." Western Washington University, June 2022. *Currently employed at Tidal Vision, Bellingham, WA.*

5) Racine Santen, "Chemical Modification of Silk Protein via Palladium-Mediated Suzuki-Miyaura Reactions." Western Washington University, 2021.

4) Jonathon Bontrager, F2017-S2018.

3) Nicholas Ostrovsky-Snider, "Modeling, Design and Fabrication of Biocompatible Silk-Based Electronics and Actuators." Western Washington University, 2017.
Currently a PhD student in Biomedical Engineering at Tufts University, Medford, MA

2) Sean Y. Severt, "Development of 2D and 3D Conductive Biomaterial Composites for Use as Electromechanical Actuators." Western Washington University, 2016. *Research Technician in the Langer group at MIT 2016-2018; Currently a Senior Research Associate at Moderna Therapeutics, Boston, MA.*

1) Isabella Romero, "Silk Fibroin-Based Conducting Polymer Composite Electrodes and Their Use as Electromechanical Actuators" Western Washington University, 2013; *Finalist for the Western Association of Graduate Schools Distinguished Master's Thesis Award.*

Honors Theses

2024	Marie Kerns	"Surface modification of silk fibroin for electrostatic binding with metal nanostructures"
2024	Morgan Stucky	"Composite materials made from silk and gold nanoparticles for photothermal applications
2024	Keavy Lynch	"Bioluminescent Silk Microparticles"
2018	Ellie James	"Controlling nanoscale organization of thiophene-based conductive polymers with self-assembling peptides"
2015	Nick Ostrovsky-Snider	"Optimization of Silk Fibroin/Conducting Polymer Electrodes to Promote Cell Alignment in Engineered Tissues"
2014	Tyler Albin	"Synthesis of Conducting Polymers Functionalized With Silk-Inspired Peptides"
2013	Morgan Schurr	"Conductive Biomaterials Based on Chemically-Modified Silk Fibroin Hydrogels"

Student Research Awards and Fellowships

2024	Morgan Stucky	GSSPC Undergraduate Travel Grant for ACS Meeting in New Orleans, LA
2023	Keavy Lynch	SeaGen Summer Research Fellowship
2023	Morgan Stucky	NASA Summer Space Grant
2023	Caleb Doherty	NSF-REU Summer Fellowship
2023	Marie Kerns	CSE Jarvis Summer Research Fellowship
2023	Reagan Billingsley	AMSEC Seed Grant Fellowship
2022	Keavy Lynch	Morse Student Research Fellowship
2022	Sydney Smith	SeaGen Summer Research Fellowship
2020	Ellie James	Honorable Mention for NSF graduate research fellowship program
2018	Jeremy Talusig	AMSEC Seed Grant Fellowship
2018	Evan Patamia	Denice Hougen Summer Research Fellowship
2018	Stephanie Maxwell	*Travel Award,* Polymer Science Division, ACS meeting in New Orleans, LA
2018	Lauren Jenkins	*Travel Award,* REU Symposium, ACS meeting in New Orleans, LA
2017	Ellie James	Denice Hougen Summer Research Fellowship
2017	Nick Ostrovsky-Snider	Chemistry Department Outstanding Graduate Student
2017	Tatum Fuller	*Best Undergraduate Poster*, WWU Scholar's Week
2017	Nick Ostrovsky-Snider	Best Poster Award, WWU Graduate Student Conference
2015	Taylor Blatz	*Best Undergraduate Poster*, WWU Scholar's Week
2015	Sean Severt	*Best Graduate Poster*, WWU Scholar's Week
2015	Nick Ostrovsky-Snider	*Travel Award,* Polymer Science Division at the National ACS meeting in Denver, CO
2014	Paige Atterberry	*Best Undergraduate Poster*, WWU Scholar's Week
2014	Tyler Albin	*Best Oral Presentation*, American Chemical Society-Puget Sound Section Undergraduate Research Symposium, Bellingham, WA
2014	Tyler Albin	*Poster Award Nomination*, Materials Research Society Spring Meeting, San Francisco, CA
2013	Tyler Albin	*Undergraduate Poster Award*, Pacific Northwest American Vacuum Society Symposium in Troutdale, OR
2013	Isabella Romero	***Finalist for the Western Association of Graduate Schools Distinguished Master's Thesis Award***
2013	Morgan Schurr	*WWU Presidential Scholar from the College of Science and Technology*
2013	Isabella Romero	*Best Poster Presentation*, WWU STEMGO Graduate Research Conference
2013	Isabella Romero	*Best Graduate Poster*, WWU Scholar's Week
2013	Tyler Albin	*Best Undergraduate Poster*, WWU Scholar's Week
2013	Emily Lasselle Celia Whelan	*Travel Award and Best Undergraduate Poster Award*, Polymer Science Division National ACS meeting in New Orleans, LA

2012	Morgan Schurr	*Best Undergraduate Poster*, WWU Scholar's Week
2012	Isabella Romero	*Best Graduate Poster*, WWU Scholar's Week
2011	Isabella Romero	*Best Oral Presentation*, PNW Undergraduate Research Symposium on Organic Chemistry and Chemical Biology at Oregon State University, Corvallis, OR
2011	Isabella Romero	*Best Undergraduate Poster*, WWU Scholar's Week

Student Research Presentations

Since 2010, my students have contributed to >70 different presentations on their work at both regional and national conferences. Seven students have given oral presentations at regional and national conferences. Four students have received poster awards at national ACS conferences.

Regional and national student presentations (***only those since 2015 are listed***):

1. Poster: Caleb Doherty, Monique Berg, Amanda Murphy, "Fluorescent silk microparticles containing semiconducting polymer nanoparticles." 2024 ACS Spring Meeting, New Orleans, LA.
2. Poster: Keavy Lynch, Monique Berg, Amanda Murphy, "Characterization of bioluminescent silk micro/nanoparticles." 2024 ACS Spring Meeting, New Orleans, LA.
3. Poster: Marie Kerns, Anika Guo, Jeremy Talusig, Wynn Wee, Ying Bao, Amanda Murphy, "Surface modification of silk fibroin for electrostatic binding with metal nanostructures." 2024 ACS Spring Meeting, New Orleans, LA.
4. Poster: Morgan Stucky, Romane Frevol, Annabella Talbott, Ying Bao, Amanda Murphy, "Composite materials made from silk and gold nanoparticles for photothermal applications." 2024 ACS Spring Meeting, New Orleans, LA.
5. Poster: Marie Kerns, Morgan Stucky, Anika Guo, Jeremy Talusig, Romane Frevol, Annabella Talbott, Ying Bao, Amanda Murphy. "Formation of Silk and Metal Nanoparticle Composite Materials Via Covalent Attachment, Encapsulation and Surface Growth." Murdock Undergraduate Research Symposium Nov 2023, Vancouver, WA.
6. Poster: Monique Berg, Keavy Lynch, Amanda Murphy. "Development of bioluminescent silk microparticles," 2023 ACS Spring Meeting, Indianapolis, IN.
7. Poster: Jeremy Talusig, Amanda Murphy. "Installation of cleavable disulfides into silk fibroin," 2022 ACS Spring Meeting, San Diego, CA.
8. Poster: Romane Frevol, Jeremy Talusig, Wynn Wee, Bailey Klinger, Ying Bao, Amanda Murphy. "Chemical modification strategies to produce robust composites of silk and gold nanoparticles." 2022 ACS Spring Meeting, San Diego, CA.
9. Poster: Keith Echague, Racine Santen Amanda Murphy. "Suzuki-Miyaura reactions on silk microparticles."2022 ACS Spring Meeting, San Diego, CA.
10. Poster: Racine Santen, Kayla Owens, Eli Walley-Ferate, Amanda Murphy. "Bioorthogonal Suzuki-Miyaura reactions on silk fibroin," ACS Northwest Regional Meeting (virtual conference), May 2021.
11. Poster: Romane Frevol, Aleena Young, Kimberly Dowdle, Kian Hausken, Amanda Murphy. "Installation and reactivity of bioorthogonal functional groups in silk fibroin" ACS Northwest Regional Meeting (virtual conference), May 2021.
12. Poster: Jeremy Talusig, Amanda Murphy. "Covalent modification of silk fibroin with cleavable disulfides," ACS Northwest Regional Meeting (virtual conference), May 2021.
13. Poster: Racine Santen, Kayla Owens, Eli Walley-Ferate, Amanda Murphy. "Bioorthogonal Suzuki-Miyaura reactions on silk fibroin" ACS Spring Meeting (virtual conference; chosen for "live" presentation), April 2021.
14. Poster: Romane Frevol, Aleena Young, Kimberly Dowdle, Kian Hausken, Amanda Murphy. "Installation and reactivity of bioorthogonal functional groups in silk fibroin," ACS Spring Meeting (virtual conference; chosen for "live" presentation), April 2021.
15. Poster: Jeremy Talusig, Amanda Murphy. "Covalent modification of silk fibroin with cleavable disulfides," ACS Spring Meeting (virtual conference), April 2021.

16. Poster: Jeremy M. Talusig, Tyler Stuber, McKenzie Riley, Ying Bao, Amanda Murphy. "Gold nanoparticle and silk fibroin composites," 2020 ACS Spring Meeting, Philadelphia, PA (meeting was canceled, but abstract accepted)
17. Poster: Kimberly Dowdle, Kian Hausken, Amanda Murphy. "Synthesis and reactivity of amino tyrosine silk derivatives," 2020 ACS Spring Meeting, Philadelphia, PA (meeting was canceled, but abstract accepted)
18. Poster: Jeremy Talusig, Tyler Stuber, Ying Bao, Amanda Murphy. "Fibrous composites of gold nanoparticles and silk." Murdock Undergraduate Research Symposium Nov 2019, Vancouver, WA.
19. Poster: Kian Hausken, Amanda Murphy. "Bioluminescent Silk Microparticles"2019 ACS Fall Meeting, San Diego, CA.
20. Poster: Racine Santen, Amanda Murphy. "Chemical Modification of Silk Protein via Palladium Mediated Suzuki-Miyaura Reactions," 2019 National Organic Symposium, Bloomington, IN.
21. Poster: Jeremy Talusig, Tyler Stuber, Ying Bao, Amanda Murphy. "Fibrous composites of gold nanoparticles and silk." ACS Puget Sound Undergraduate Research Symposium at U. Puget Sound, April 2019
22. Poster: Evan Patamia; Nicholas Ostrovsky-Snider; Janelle Leger; Amanda Murphy. "Selective Modification of Silk-Film Surfaces." ACS Puget Sound Undergraduate Research Symposium at Evergreen College, April 2018
23. Poster: Racine Santen; Amanda Murphy. "Copper-free Sonogashira Reaction to Modify the Tyrosine Residues on Silk Proteins" ACS Puget Sound Undergraduate Research Symposium at Evergreen College, April 2018
24. Oral: Ellie James, Lauren Jenkins, Amanda Murphy. "Controlling Nanoscale Organization of Thiophene-Based Conductive Polymers with Self-Assembling Peptides," 2018 ACS Spring Meeting in New Orleans, LA.
25. Oral: Lauren Jenkins, Ellie James. "Hybridizing conductive polymers with self-assembling peptides for biomedical applications" REU Symposium, 2018 ACS Spring Meeting in New Orleans, LA. [*Travel Award,* REU Symposium]
26. Poster: Stephanie Maxwell, Sean Severt, Jon Bontrager, Amanda Murphy. "Electrospun Silk Fibroin for Use as Biomechanical Actuators," 2018 ACS Spring Meeting in New Orleans, LA. [*Travel Award,* Polymer Science Division]
27. Poster: Controlling Nanoscale Organization of Thiophene-Based Conductive Polymers with Self-Assembling Peptides, Ellie James, Lauren Jenkins, Chemical Biology and Physiology conference, OHSU, Dec. 2017.
28. Poster: Lauren Jenkins, Ellie James, Amanda Murphy. "Hybridizing Conductive Polymers with Self-Assembling Peptides for Biomedical Applications," UW Molecular Engineering Undergraduate Symposium, Seattle, WA, August 2017.
29. Poster: Ellie James, Lauren Jenkins, Amanda murphy. "Controlling nanoscale organization of thiophene-based conducting polymers with self-assembling peptides," UW Molecular Engineering Undergraduate Symposium, Seattle, WA, August 2017.
30. Poster: Ellie James, Taylor Blatz, Melany Fry, Tyler Albin, Amanda Murphy. "Controlling nanoscale organization of thiophene-based conducting polymers with self-assembling peptides," ACS Puget Sound Undergraduate Research Symposium at UW Bothell, April 2017.
31. Poster: Randy Grant, Amanda Murphy "Synthesis and Characterization of Degradable Conductive Polymers," ACS Meeting in San Francisco, CA April 2017.
32. Poster: Jonathan Bontrager, Tatum Fuller, Stephanie Maxwell, Amanda Murphy. "Electrospun Silk-Conducting Polymer Composites as Biocompatible Actuators," ACS Meeting in San Francisco, CA April 2017.
33. Poster: N. A. Ostrovsky-Snider, J. Donohue, A. Murphy, "Dynamic Biomaterials Made From Composites of Silk and Conducting Polymers," Tissue Engineering and Regenerative Medicine International Society Conference, San Diego, CA, December 2016.
34. Poster: Ellie James, Taylor Blatz, Melany Fry, Tyler Albin, Amanda Murphy. "Controlling Nanoscale Organization of Thiophene-Based Conductive Polymers with Self-Assembling Peptides," Pauling Medal Award Symposium, Pacific Lutheran University, November 2016.

35. Poster: Taylor Blatz, Melany Fry, Tyler Albin, Amanda Murphy. "Controlling nanoscale organization of thiophene-based conducting polymers with self-assembling peptides," ACS Puget Sound Undergraduate Research Symposium at Central Wash. Univ., April 2016.
36. Poster: Jordan Donohue, Nicholas Ostrovsky-Snider, Janelle Leger, Amanda Murphy. "Optimizing Fabrication Parameters for Silk Fibroin-Conducting Polymer Composite Films with Nanotopographic Patterns." ACS Puget Sound Undergraduate Research Symposium at Central Wash. Univ., April 2016.
37. Poster: Emily Sanders, Sean Severt, Amanda Murphy. "Conductive Silk Fibroin Scaffolds for Use as Nerve Conduits," Murdock Undergraduate Research Symposium in Vancouver, WA, Nov. 2016
38. Oral: Emily Sanders, Sean Severt, Amanda Murphy. "Electrically Conductive Silk Fibroin Scaffolds for Use as Nerve Conduits," ACS meeting in San Diego, CA March 2016.
39. Poster: Taylor Blatz, Melany Fry, Tyler Albin, Amanda Murphy. "Controlling nanoscale organization of thiophene-based conducting polymers with self-assembling peptides," ACS meeting in San Diego, CA March 2016.
40. Poster: Brad Farrell, Amanda Murphy. "Tailoring the Mechanical Properties of Conducting Polymer Films Via Crosslinking," ACS meeting in Denver, CO, March 2015
41. Poster: Jesse Larson, Nathan Bradshaw, Carly Klemke, Janelle Leger and Amanda Murphy. "Optimization silk-polypyrrole composite films for use as electromechanical actuators," ACS meeting in Denver, CO, March 2015.
42. Oral: Nicholas Ostrovsky-Snider, Sean Severt, Jesse Larson, Amanda Murphy. "Fabrication of conducting polymer/silk composite films with topographically nanopatterned surfaces, ACS meeting in Denver, CO, March 2015.

(~30 presentations prior to 2015 are not listed)