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EDUCATION AND TRAINING

Marshall University	Chemistry	B.S., 2001	<i>summa cum laude</i>
University of Illinois	Analytical Chemistry	Ph.D., 2005	

RESEARCH AND PROFESSIONAL EXPERIENCE

2019-current Associate Professor, Department of Chemistry, University of North Carolina, Chapel Hill, NC
Associate Member, UNC Lineberger Comprehensive Cancer Center

2013-2019 Assistant Professor, Department of Chemistry, University of North Carolina, Chapel Hill, NC

2012-2013 Assistant Member and Principal Investigator, Donald Danforth Plant Science, St. Louis, MO

2006-2012 Director, Proteomics & Mass Spectrometry, Donald Danforth Plant Science Center, St. Louis, MO

AWARDS & FELLOWSHIPS

- SfRBM Mentoring Excellence Award, 2020
- William C. Friday/Class of 1986 Award for Excellence in Teaching, 2020
- WCC Rising Star Award, American Chemical Society, 2020
- Agnes Fay Morgan Research Award, Iota Sigma Pi, 2019
- Marshall University College of Science Distinguished Alumni Award, 2019
- Eli Lilly Young Investigator Award in Analytical Chemistry, 2018
- Robert J. Cotter New Investigator Award, US Human Proteome Organization (HUPO), 2018
- NSF CAREER Award, 2015
- Arthur C. Neish Young Investigator Award, Phytochemical Society of North America, 2014
- NSF Graduate Research Fellowship, 2002-2005
- NRPS/PKS Meeting – Outstanding Oral Presentation Award, 2005
- The Protein Society – Finn Wold Travel Award, 2004
- University of Illinois Chemistry Department Travel Grant, 2004
- Marshall University Outstanding Graduating Chemistry Major, 2001
- Marshall University Analytical Chemistry Student of the Year, 1999-2000
- NASA Undergraduate Research Scholarship, 1997-1998, 1998-1999, 1999-2000

PUBLICATIONS

Citations 5052; h-index 34; i10-index 56

Google Scholar: <https://scholar.google.com/citations?user=TmtLz58AAAAJ&hl=en>

1. Thapa, N.; Chaudhari, M.; Iannetta, A. A.; White, C.; Roy, K.; Newman, R. H.; Hicks, L. M.; Kc, D. B., A deep learning based approach for prediction of Chlamydomonas reinhardtii phosphorylation sites. Scientific reports 2021, 11 (1), 12550.
2. Smythers, A. L.; Iannetta, A. A.; Hicks, L. M., Crosslinking mass spectrometry unveils novel interactions and structural distinctions in the model green alga Chlamydomonas reinhardtii. Mol Omics 2021.

3. Smythers, A. L.; Ford, M. M.; Hawkins, D. G.; Connor, M. C.; Lawrence, K. C.; Stanton, C. R.; Gayton, A. C.; Hicks, L. M., Modernizing the Analytical Chemistry Laboratory: The Design and Implementation of a Modular Protein-Centered Course. *J Chem Educ* 2021, 98 (5), 1645-1652.
4. Smythers, A. L.; Hicks, L. M., Mapping the plant proteome: tools for surveying coordinating pathways. *Emerg Top Life Sci* 2021, 5 (2), 203-220.
5. Sadecki, P. W.; Balboa, S. J.; Lopez, L. R.; Kedziora, K. M.; Arthur, J. C.; Hicks, L. M., Evolution of Polymyxin Resistance Regulates Colibactin Production in *Escherichia coli*. *Acs Chem Biol* 2021, 16 (7), 1243-1254.
6. Moyer, T. B.; Purvis, A. L.; Wommack, A. J.; Hicks, L. M., Proteomic response of *Escherichia coli* to a membrane lytic and iron chelating truncated *Amaranthus tricolor* defensin. *BMC Microbiol* 2021, 21 (1), 110.
7. Moyer, T. B.; Parsley, N. C.; Sadecki, P. W.; Schug, W. J.; Hicks, L. M., Leveraging orthogonal mass spectrometry based strategies for comprehensive sequencing and characterization of ribosomal antimicrobial peptide natural products. *Nat Prod Rep* 2021, 38 (3), 489-509.
8. Moyer, T. B.; Allen, J. L.; Shaw, L. N.; Hicks, L. M., Multiple Classes of Antimicrobial Peptides in *Amaranthus tricolor* Revealed by Prediction, Proteomics, and Mass Spectrometric Characterization. *Journal of natural products* 2021, 84 (2), 444-452.
9. Iannetta, A. A.; Rogers, H. T.; Al-Mohanna, T.; O'Brien, J. N.; Wommack, A. J.; Popescu, S. C.; Hicks, L. M., Profiling thimet oligopeptidase-mediated proteolysis in *Arabidopsis thaliana*. *Plant J* 2021, 106 (2), 336-350.
10. Iannetta, A. A.; Minton, N. E.; Uitenbroek, A. A.; Little, J. L.; Stanton, C. R.; Kristich, C. J.; Hicks, L. M., IreK-Mediated, Cell Wall-Protective Phosphorylation in *Enterococcus faecalis*. *J Proteome Res* 2021.
11. Culver, K. D.; Allen, J. L.; Shaw, L. N.; Hicks, L. M., Too Hot to Handle: Antibacterial Peptides Identified in Ghost Pepper. *Journal of natural products* 2021, 84 (8), 2200-2208.
12. Couso, I.; Smythers, A. L.; Ford, M. M.; Umen, J. G.; Crespo, J. L.; Hicks, L. M., Inositol polyphosphates and target of rapamycin kinase signalling govern photosystem II protein phosphorylation and photosynthetic function under light stress in *Chlamydomonas*. *New Phytol* 2021.
13. Al-Mohanna, T.; Nejat, N.; Iannetta, A. A.; Hicks, L. M.; Popescu, G. V.; Popescu, S. C., *Arabidopsis* thimet oligopeptidases are redox-sensitive enzymes active in the local and systemic plant immune response. *J Biol Chem* 2021, 296, 100695.
14. Smythers, A. L.; McConnell, E. W.; Lewis, H. C.; Mubarek, S. N.; Hicks, L. M., Photosynthetic Metabolism and Nitrogen Reshuffling Are Regulated by Reversible Cysteine Thiol Oxidation Following Nitrogen Deprivation in *Chlamydomonas*. *Plants* 2020, 9 (6).
15. Parsley, N. C.; Williams, O. L.; Hicks, L. M., Exploring the Diversity of Cysteine-Rich Natural Product Peptides via MS/MS Fingerprint Ions. *Journal of the American Society for Mass Spectrometry* 2020, 31 (9), 1833-1843.
16. Parsley, N. C.; Smythers, A. L.; Hicks, L. M., Implementation of Microfluidics for Antimicrobial Susceptibility Assays: Issues and Optimization Requirements. *Frontiers in cellular and infection microbiology* 2020, 10, 547177.
17. McConnell, E. W.; Smythers, A. L.; Hicks, L. M., Maleimide-Based Chemical Proteomics for Quantitative Analysis of Cysteine Reactivity. *Journal of the American Society for Mass Spectrometry* 2020.
18. Ford, M. M.; Lawrence, S. R., 2nd; Werth, E. G.; McConnell, E. W.; Hicks, L. M., Label-Free Quantitative Phosphoproteomics for Algae. *Methods in molecular biology* 2020, 2139, 197-211.
19. Couso, I.; Perez-Perez, M. E.; Ford, M. M.; Martinez-Force, E.; Hicks, L. M.; Umen, J. G.; Crespo, J. L., Phosphorus Availability Regulates TORC1 Signaling via LST8 in *Chlamydomonas*. *Plant Cell* 2020, 32 (1), 69-80.
20. Werth, E. G.; McConnell, E. W.; Couso Lianez, I.; Perrine, Z.; Crespo, J. L.; Umen, J. G.; Hicks, L. M., Investigating the effect of target of rapamycin kinase inhibition on the *Chlamydomonas reinhardtii* phosphoproteome: from known homologs to new targets. *New Phytol* 2019, 221 (1), 247-260.
21. Parsley, N. C.; Sadecki, P. W.; Hartmann, C. J.; Hicks, L. M., *Viola "inconspicua"* No More: An Analysis of Antibacterial Cyclotides. *Journal of natural products* 2019, 82 (9), 2537-2543.

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23. McConnell, E. W.; Berg, P.; Westlake, T. J.; Wilson, K. M.; Popescu, G. V.; Hicks, L. M.; Popescu, S. C., Proteome-Wide Analysis of Cysteine Reactivity during Effector-Triggered Immunity. *Plant Physiol* 2019, 179 (4), 1248-1264.
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26. Ford, M. M.; Smythers, A. L.; McConnell, E. W.; Lowery, S. C.; Kolling, D. R. J.; Hicks, L. M., Inhibition of TOR in *Chlamydomonas reinhardtii* Leads to Rapid Cysteine Oxidation Reflecting Sustained Physiological Changes. *Cells* 2019, 8 (10).
27. Fleming, S. R.; Bartges, T. E.; Vinogradov, A. A.; Kirkpatrick, C. L.; Goto, Y.; Suga, H.; Hicks, L. M.; Bowers, A. A., Flexizyme-Enabled Benchtop Biosynthesis of Thiopeptides. *J Am Chem Soc* 2019, 141 (2), 758-762.
28. Biswal, A. K.; McConnell, E. W.; Werth, E. G.; Lo, S. F.; Yu, S. M.; Hicks, L. M.; Jones, A. M., The Nucleotide-Dependent Interactome of Rice Heterotrimeric G-Protein alpha -Subunit. *Proteomics* 2019, 19 (9), e1800385.
29. Berg, P.; McConnell, E. W.; Hicks, L. M.; Popescu, S. C.; Popescu, G. V., Evaluation of linear models and missing value imputation for the analysis of peptide-centric proteomics. *BMC bioinformatics* 2019, 20 (Suppl 2), 102.
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37. Soares, E. A.; Werth, E. G.; Madronero, L. J.; Ventura, J. A.; Rodrigues, S. P.; Hicks, L. M.; Fernandes, P. M., Label-free quantitative proteomic analysis of pre-flowering PMeV-infected *Carica papaya* L. *Journal of proteomics* 2017, 151, 275-283.
38. Kirkpatrick, C. L.; Broberg, C. A.; McCool, E. N.; Lee, W. J.; Chao, A.; McConnell, E. W.; Pritchard, D. A.; Hebert, M.; Fleeman, R.; Adams, J.; Jamil, A.; Madera, L.; Stromstedt, A. A.; Goransson, U.;

- Liu, Y.; Hoskin, D. W.; Shaw, L. N.; Hicks, L. M., The "PepSAVI-MS" Pipeline for Natural Product Bioactive Peptide Discovery. *Analytical chemistry* 2017, 89 (2), 1194-1201.
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 42. Slade, W. O.; Werth, E. G.; McConnell, E. W.; Alvarez, S.; Hicks, L. M., Quantifying reversible oxidation of protein thiols in photosynthetic organisms. *Journal of the American Society for Mass Spectrometry* 2015, 26 (4), 631-40.
 43. Rodrigues, S. P.; Alvarez, S.; Werth, E. G.; Slade, W. O.; Gau, B.; Cahoon, E. B.; Hicks, L. M., Multiplexing strategy for simultaneous detection of redox-, phospho- and total proteome – understanding TOR regulating pathways in *Chlamydomonas reinhardtii*. *Analytical Methods* 2015, 7, 7336-7344.
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PROFESSIONAL ACTIVITIES

- Advisory Panels
 - NSF-BIO Advisory Panels: 2009, 2011, 2012, 2013, 2014, 2015, 2016, 2021
 - NSF-CHEM Advisory Panel: 2018
 - NIH Panel: 2016 (P41), 2019 (NICIH), 2019 (SBCB), 2020 (EBIT), 2021
 - Ad hoc: Ontario Research Fund, University of MO Research Board, French National Research Agency (ANR), European ERA-Coordinating Action in Plant Sciences (ERA-CAPS), Austrian Science Fund (FWF)
- Teaching
 - UNC
 - Chem 241: Analytical Methods
 - Chem 241H: Honors Analytical Methods
 - Chem 245L: Honors Analytical Methods Laboratory (CURE Course)
 - Chem 448: Mass Spectrometry
 - Washington University: Laboratory in Protein Biochemistry (2010-13), Bio4024: Plant Cells and Proteins (2006, 2008), Bio 572: Plant Biology Journal Club (2011);
 - *Biochem. Mol. Biol. Educ.* publication related to Bio4024 (Jez et al., 2007)
- Journal Reviewer:
 - Editorial Board: *Journal of Biological Chemistry* (2020-)
 - Ad hoc: *Algal Research*, *Analyst*, *Analytical Biochemistry*, *Analytical Chemistry*, *Biotechnology for Biofuels*, *Electrophoresis*, *Journal of the American Society for Mass Spectrometry*, *Journal of Biological Chemistry*, *Journal of Biomedicine and Biotechnology*, *Journal of Experimental Botany*, *Journal of Innate Immunity*, *Journal of Mass Spectrometry*, *Journal of Proteome Research*, *Journal of Proteomics*, *mAbs*, *Molecular & Cellular Proteomics*, *Nature Communications*, *Nature Plants*, *Phytochemistry*, *Plant Cell & Environment*, *Plant Molecular Biology*, *Plant Physiology*, *Plant Science*, *Plant and Soil*, *Proceedings of the National Academy of Sciences of the United States of America*, *Proteome Science*, *Proteomics*, *Scientific Reports*, *The Plant Journal*, *Trends in Biotechnology*
- Professional Organizations
 - American Chemical Society (ACS)
 - American Society of Mass Spectrometry (ASMS)
 - Executive Board (2019-2021)
 - Publication Committee (2014-2016)
 - ASMS 2015 Session Chair (June 2015)
 - American Society for Biochemistry and Molecular Biology
 - Phytochemical Society of North America
 - Triangle Area Mass Spectrometry (TAMS)
 - Executive Committee (2017-)
 - President (2020-)

PRESENTATIONS

- EMSL-PNNL - Invited Seminar. 11/2021
- SfBRM Redox Biology – Mentoring Excellence Seminar. 09/2021
- Iota Sigma Pi Annual Meeting – Invited Seminar. 07/2021
- 261st ACS National Meeting; WCC Rising Star Symposium - Invited Seminar. 04/2021
- University of Arkansas, Dept. of Chemistry Seminar Series; Oral Presentation – Invited Seminar. 04/2021
- Notre Dame, Dept. of Chemistry Seminar Series; Oral Presentation – Invited Seminar. 01/2021
- Syngenta, Durham, NC. Invited Seminar. 03/2020

- Eli Lilly & Company, Indianapolis, IN. Invited Seminar. 02/2020
- Washington-Baltimore Mass Spectrometry Discussion Group – Invited Seminar. 10/2019
- HUPO 2019, Adelaide, Australia; Oral Presentation – Invited Plenary. 09/2019
- Roskilde University, Denmark; Oral Presentation – Invited Seminar. 06/2019
- Central Ohio Valley ACS; Oral Presentation – Invited Seminar. 04/2019
- Marshall University, Dept. of Chemistry Seminar Series; Oral Presentation – Invited Seminar. 04/2019
- Gordon Research Conference on Antimicrobial Peptides; Lucca, Italy. Oral Presentation. 02/2019
- University of North Carolina, Wilmington, NC. Oral Presentation – Invited Seminar. 11/2018
- 7th National Plant Protein Research Conference (China) and the 5th Meeting of Asia Oceania Agricultural Proteomics Organization (AOAPO). Jinan, China. Oral Presentation. 11/2018
- SciX 2018. Atlanta, GA. Oral Presentation. 10/2018
- University of Maryland, Baltimore, MD. Oral Presentation – Invited Seminar. 10/2018
- North Carolina Research Campus, Kannapolis, NC. Seminar Series; Oral Presentation – Invited Seminar. 10/2018
- University of Kansas, Lawrence, KS. Department of Chemistry Seminar Series; Oral Presentaiton – Invited Seminar. 09/2018
- AMP 2018 Antimicrobial peptide symposium, Poitiers, France. Oral Presentation. 06/2018
- EMBO Meeting - TOR signaling in photosynthetic organisms, Bischoffsheim, France. Oral Presentation – Invited Seminar. 05/2018
- Georgia Tech, Atlanta, GA. Dept. of Chemistry Seminar Series; Oral Presentation – Invited Seminar. 05/2018
- ASBMB'18, San Diego, CA. Symposium Chair and Invited Seminar. 04/2018
- University of Wisconsin, Madison, WI. Dept. of Chemistry Seminar Series; Oral Presentation – Invited Seminar. 04/2018
- 255th ACS National Meeting; New Orleans, LA. Symposium Chair and Invited Seminar. 03/2018
- US HUPO, Minneapolis, MN. Award Presentation – Invited Seminar. 03/2018
- University of Oklahoma, Norman, OK. INPART Seminar Series; Oral Presentation – Invited Seminar. 02/2018
- University of North Carolina - Greensboro, Greensboro, NC. Dept. of Chemistry and Biochemistry Seminar Series; Oral Presentation – Invited Seminar. 01/2018
- SERMACS, Charlotte, NC. Oral Presentation – Invited Seminar. 11/2017
- Midwestern Universities Analytical Chemistry Conference (MUACC), Athens, OH. Oral Presentation – Invited Seminar. 10/2017
- SCIX 2017, Reno, NV. ANACHEM Award Symposium; Oral Presentation – Invited Seminar. 10/2017
- Northeastern University, Boston, MA. Chemistry and Chemical Biology Department Colloquium Series; Oral Presentation – Invited Seminar. 09/2017
- Indiana University, Bloomington, IN. Chemistry Department Seminar Series; Oral Presentation – Invited Seminar. 09/2017
- Purdue University, West Lafayette, IN. Chemistry Department Seminar Series; Oral Presentation – Invited Seminar. 09/2017
- Gordon Research Conference on Natural Products and Bioactive Compounds; Andover, NH. Poster. 08/2017
- High Point University, Highpoint, NC. Oral Presentation – Invited Seminar. 07/2017
- Uppsala Conference, Ithaca, NY. Oral Presentation – Invited Seminar. 07/2017
- Gordon Research Conference on Plant Metabolic Engineering; Waterville Valley, NH. Poster. 07/2017
- Catalyst CAREER Panel, UNC Charlotte. 06/2017
- Joint Greater Delaware Chromatography and Mass Spectrometry Discussion Groups; Villanova, PA, Oral Presentation – Invited Seminar. 06/2017
- 65th ASMS Conference on Mass Spectrometry and Allied Topics; Indianapolis, IN. Posters. 06/2017

- Proteomics Forum, Postdam, Germany. Oral Presentation. 04/2017
- Pittcon 2017; Chicago, IL. Royal Society of Chemistry Joseph Black Award Symposium. Oral Presentation – Invited. 03/2017
- Phenome 2017; Tuscon, AZ. Oral Presentation. 02/2017
- ASMS Sanibel; Clearwater, FL. Oral Presentation. 01/2017
- Wake Forest University, Winston-Salem, NC. Chemistry Department Seminar Series; Oral Presentation – Invited Seminar. 11/2016
- Colorado State University, Fort Collins, CO. Chemistry Department Seminar Series; Oral Presentation – Invited Seminar. 10/2016
- Midwestern Universities Analytical Chemistry Conference (MUACC), Champaign, IL. Oral Presentation. 10/2016
- Plant Molecular Biology Retreat, Wilmington, NC. Oral Presentation (student-invited seminar). 09/2016
- 64nd ASMS Conference on Mass Spectrometry and Allied Topics; San Antonio, TX. Posters. 06/2016
- University of Nebraska, Lincoln, NE. Biotechnology / Life Sciences Seminar Series; Oral Presentation – Invited Seminar. 05/2016
- North Carolina State University, Raleigh, NC. Chemistry Department Seminar Series; Oral Presentation – Invited Seminar. 04/2016
- Greater Boston Mass Spectrometry Discussion Group, Boston, MA. Oral Presentation – Invited Seminar. 03/2016
- Plant Molecular Biology Retreat, Asheville, NC. Oral Presentation – Invited Seminar. 10/2015
- AB Sciex User's Meeting, Raleigh, NC. Oral Presentation – Invited Seminar. 10/2015
- Hong Kong Baptist University, Hong Kong, China. Biology Department Seminar Series; Oral Presentation – Invited Seminar. 07/2015
- Gordon Research Conference on PTM Networks; Hong Kong, China. Poster. 07/2015
- 63rd ASMS Conference on Mass Spectrometry and Allied Topics; St. Louis, MO. Posters. 06/2015
- Gordon Research Conference on Antimicrobial Peptides; Lucca, Italy. Poster. 05/2015
- North Carolina State University, Raleigh, NC. Biochemistry Department Seminar Series; Oral Presentation – Invited Seminar. 10/2014
- 53rd Annual Meeting of the Phytochemical Society of North America. Raleigh, NC. Award Presentation – Invited Seminar. 08/2014
- 62nd ASMS Conference on Mass Spectrometry and Allied Topics; Baltimore, MD. Posters. 06/2014
- North Carolina A&T University, Greensboro, NC. Chemistry Department Seminar Series; Oral Presentation – Invited Seminar. 03/2014
- Triangle Area Mass Spectrometry (TAMS) Discussion Group; Research Triangle Park, NC. Plenary Lecture. 12/2013
- Michigan State University, East Lansing, MI. Analytical Seminar Series; Oral Presentation – Invited Seminar. 04/2013
- HEC Workshop on Imparting Practical Training in Molecular and Biochemical Techniques; University of Agriculture Faisalabad, Pakistan. Oral Presentation (via video conference) – Invited Seminar. 11/2012
- University of Nebraska, Lincoln, NE. Biotechnology / Life Sciences Seminar Series; Oral Presentation – Invited Seminar. 10/2012
- 46th Midwest/39th Great Lakes Joint Regional ACS Meeting; St. Louis, MO. Invited Speaker. 10/2011
- 59th ASMS Conference on Mass Spectrometry and Allied Topics; Denver, CO. Poster. 06/2011
- Pakistan-U.S. Science and Technology Conference; Dubai, UAE. Oral Presentation. 03/2011
- ABRF 2011; San Antonio, TX. Poster. 02/2011
- University of Missouri; St. Louis, MO. Oral Presentation - Invited Seminar. 10/2010
- 58th ASMS Conference on Mass Spectrometry and Allied Topics; Salt Lake City, UT. Poster. 05/2010
- Dow Agrosiences; Indianapolis, IN. Oral Presentation – Invited Speaker. 03/2010

- 57th ASMS Conference on Mass Spectrometry and Allied Topics; Philadelphia, PA. Poster. 06/2009
- Midwest MS Meeting; St. Louis, MO. Oral Presentation. 03/2009
- ABRF 2009; Memphis, TN. Poster. 02/2009
- 56th ASMS Conference on Mass Spectrometry and Allied Topics; Denver, CO. Poster. 06/2008
- ABRF 2008; Salt Lake City, UT. Poster. 02/2008
- Heartland Mass Spectrometry Workshop: Biological Applications; Osage Beach, MO. Poster. 10/2007
- Midwest Enzymes Chemistry Conference; Chicago, IL. Poster. 09/2007
- 55th ASMS Conference on Mass Spectrometry and Allied Topics; Indianapolis, IN. Oral presentation. Young Scientists Luncheon. 06/2007
- 55th ASMS Conference on Mass Spectrometry and Allied Topics; Indianapolis, IN. Poster. 06/2007
- 19th Symposium of the Protein Society; Boston, MA. Poster. 08/2005
- NRPS/PKS Meeting; Santa Cruz, CA. Oral presentation. 07/2005
- 18th Symposium of the Protein Society; San Diego, CA. Poster. 08/2004
- Biochemistry Fall Conference; University of Illinois, Urbana, IL. Oral presentation. 09/2003
- Gordon Research Conference on Enzymes, Coenzymes & Metabolic Pathways; Meriden, NH. Poster. 07/2003
- 219th ACS National Meeting; San Francisco, CA. Poster. 03/2000

OUTREACH ACTIVITIES

- NSF Research Experiences for Undergraduates (REU)
 - coPI/co-Director, UNC NSF-REU SUROC Program (2018-)
 - PI/co-Director, Danforth Center NSF-REU Summer Intern Program (2008-2012)
- Clare Booth Luce Fellowship program, mentor, (2018-)
- UNC Science Expo (2018-)
- McNair Scholars Program, mentor (2018-2020)
- Chemistry Women Mentorship Network, mentor (2014-)
- Women in Science and Engineering (WISE) at UNC
 - Discussion Group Lead, 2014; Scientific Speed Networking Event, 2015; Women in Science Symposium, poster judge, 2016
- North Carolina School of Science and Math Mentorship Program, faculty mentor (2015-2016)
- Carolina ADMIRES program - **A**ssisting in **D**evelopment and **M**entoring an **I**nnovative **R**esearch **E**xperience in **S**cience, faculty mentor (2014-2016)
- Missouri Botanical Garden – Power of Plants Contest, volunteer, 2009-2012
- Encouraging Tomorrow's Chemists (ETC), outreach program volunteer, 2002-2005