Megan Daschbach, Ph.D.
Curriculum Vitae

Washington University
Department of Chemistry
One Brookings Drive
MSC 1134-196-525
St. Louis, MO USA 63130-4899

Phone: 314-935-3372
Fax: 314-935-4481
Email: daschbach@wustl.edu

Professional History

Member, Board of Directors, Peer-led Team Learning International Society	2025-2028
Teaching Professor, Department of Chemistry, Washington Univ., St. Louis, MO	2021-Present
Senior Lecturer, Department of Chemistry, Washington Univ., St. Louis, MO	2016-2021
Lecturer, Department of Chemistry, Washington Univ., St. Louis, MO	2011-2016
Director of the General Chemistry Peer-led Team Learning (PLTL) Program, Washington University	2011-Present
Postdoctoral Research Fellow, Department of Chemistry and the Center for Nanoscience, University of Missouri, St. Louis	2010-2011
Graduate Research and Teaching Assistant, Department of Chemistry, Washington University, St. Louis, MO Advisor: Professor George W. Gokel	2005-2010
Participant in the 57th Meeting of the Nobel Laureates and Students, Physiology and Medicine, Lindau, Germany	July 2007

Education

Ph. D. Bioorganic Chemistry, Washington University in St. Louis, MO	2010
A. M. Bioorganic Chemistry, Washington University in St. Louis, MO	2007
B. S. Chemistry, *summa cum laude,* Mount Saint Mary's University, MD	2004

Current Teaching Responsibilities

General Chemistry I and II (Chem 1701 and 1702)

- Lecture one of two large lecture sections of General Chemistry, fall and spring semester, every year (course enrollment average: 300–350 students)
  One member of a team of instructors for General Chemistry
- Manage the administration of the course
- Supervise two full-time staff members: one Academic Learning Programs Manager and one Administrative Assistant
- Pioneered implementation of General Chemistry Study Skills Workshops. These workshops target best practices and study strategies specifically for General Chemistry and teach students to recognize negative mindsets such as imposter syndrome and a comparative mindset (work was funded by an Arts & Sciences Classroom Innovation Grant)
- Pioneered implementation of i>Clicker® technology into large, traditional lecture-style General Chemistry course to increase active learning during lecture.
- Pioneered implementation of online homework to increase active learning during individual study (work was funded by an Arts & Sciences Classroom Innovation Grant)
- Developed original inquiry-based, student-centered recitation materials that (1) develop self-teaching habits and encourage active group-learning and (2) target a conceptual understanding of the course material (work was funded by an Arts & Sciences Classroom Innovation Grant).

Peer-led Team Learning (PLTL) Program

Offered in both General Chemistry 1701 and 1702 (fall and spring semester, every year)
Instructor the two required courses for the 40 undergraduate peer leaders, Fall 2011–Spring 2024: Seminars in Academic Mentoring and Practical Application of Academic Mentoring
Mentor one teaching staff member, the Academic Learning Programs Manager.
Oversee over 250 undergraduate participants in this group-study program
Develop original content for PLTL problem-set packets every week, problems designed and structured to require a collaborative effort
Collaborated with the Center for Teaching and Learning to offer dedicated PLTL groups to support students in the Taylor STARS, FSAP and TRiO Programs. These groups leverage an established peer support network to ease social belonging barriers and to better serve students from disadvantaged backgrounds.

General Chemistry (1701 and 1702) Recitation Program

Developed original content for recitation problem-sets every week, problems designed and structured for guided-inquiry and to require a collaborative effort
Train, oversee and support the 10 graduate and undergraduate assistants in instruction who facilitate these sections.

Scholarship of Teaching and Learning

Washington University, Collaboration with the Center for Teaching and Learning

In collaboration with two Washington University alumni and the Center for Teaching and Learning, designed a video series to aid students in study skill development: General Chemistry Study Skills Video Series — Summer 2020

Washington University, College of Arts & Sciences, Classroom Innovation Grant

"Teaching Students How to Study Effectively: Implementation of Online Homework in General Chemistry" — 2015

Awarded a $5000 internal grant to implement an online homework system in General Chemistry 111A/112A and assess its effect on student learning. Intended to improve the practice of active learning during individual study for students in this introductory science course.

"Achieving more than a Surface-level Understanding of Course Material: General Chemistry Study Skills Workshops" — 2018

Awarded a $4000 internal grant to develop a robust model for General Chemistry study skills sessions in order to: (1) Assist our students in articulating a system of study that would lead to a conceptual understanding of the course material and the development of process skills required to achieve academic success in our introductory STEM courses; (2) Provide useful data (upon evaluation) for faculty members interested in advising students about best practices for achieving a deep understanding of course content in large STEM lecture settings.

Academic Activities and Service

Peer-led Team Learning International Society Board of Directors Member — Summer 2025–Summer 2028
Member of the Board of Directors, Help further their mission to foster learning through peer-led teams by supporting practitioners and institutions throughout the world.

Arts & Sciences Strategic Planning Foundations Team Member — Fall 2022-Fall 2023
Faculty member on the Inclusive Teaching and Scholarship Foundations Team.

Arts & Sciences Faculty Council Member — Fall 2018-Spring 2021
This Council is the executive and steering committee of the Faculty; it also acts as an advisory committee to the Dean of Arts & Sciences.

Association for Teaching, Research and Practice (ATRaP) Board Member — Fall 2018-Spring 2019
This University-wide committee advocates for the interests of full-time, non-tenure track faculty on the Danforth Campus.

The Process-oriented Guided Inquiry Learning (POGIL) Project

Participant at the National POGIL Conference — 2013 – 2019, 2023–Present
POGIL is an internationally-known student-centered, active-learning pedagogy. (website: https://pogil.org)

Member of the POGIL Strategic Working Group that seeks to support instructors implementing the POGIL pedagogy in large lecture courses. Developed an Innovations Grant for new adopters. Mentor two faculty at the University of New Mexico as they implement POGIL into recitation subsections for the first time. — 2023–Present

Member of the POGIL Strategic Working Group that seeks to increase the diversity of the POGIL community and the students it serves. Helped realize a framework to aid educators in implementing best practices related to diversity, equity, inclusion and belonging in their classrooms. — 2016 – 2019

Regional Coordinator for the 2018 South Central Regional Meeting of the POGIL Project Coordinated a 3-day regional meeting for the South Central Region for secondary and post-secondary educators interested in implementing the POGIL pedagogy into their classroom(s). — Summer 2018

Community for Innovations in STEM Teaching, Inclusion, and Learning (CISTIL) Member — Fall 2014-Spring 2016
Member of an HHMI Project Team, which is a collaboration with STEM faculty in introductory courses to design, implement and evaluate classroom innovations to improve inclusivity.

Washington University Women in STEM, a Scientista Group — Fall 2017-Present
Faculty Advisor, *Women in STEM,* Washington University, St. Louis: Wash U's branch of this organization was founded in the fall of 2017. Our group includes undergraduate, graduate, and post-doctoral scientists who identify as female. *Women in STEM* seeks to empower women in science through regular meetings and conferences.

Faculty Associate

Program sponsored by the Office of Residential Life, designed to provide opportunities for significant faculty-student interaction outside of the classroom
Work with Resident Advisors and a Residential College of about ninety first-year students
Serve as a resource for students and provide informal advising and mentorship in both professional and personal matters

Fall 2012-Present

Department of Chemistry By-Laws Committee
Teaching Faculty Member

Fall 2022-Fall 2023

Department of Chemistry Undergraduate Work Committee
Faculty Member

Fall 2022-Present

Department of Chemistry Advisory Committee
Elected Teaching Faculty Member

Fall 2022-Fall 2024

Research Experience

Doctoral Dissertation: Dynamic Aggregation and Amphiphilic Behavior of Synthetic Anion Transporters.

2005-2010

Characterized aggregation behavior and self-assembly dynamics of amphiphiles that form synthetic anion transporters (SATs). Synthesized novel indole-containing compounds and tetrameric macrocycles known as pyrogallol[4]arenes. Investigated stabilizing interactions between tryptophan-containing SATs and membrane-forming phospholipids and characterized the amphiphilic behavior of pyrogallol[4]arenes at the air-water interface using a Langmuir trough and Brewster angle microscopy.

Undergraduate research: Atomic absorption spectroscopy and Inductively-coupled plasma spectroscopy.

2003-2004

Used to determine iron isotope composition of ancient Jewish coins to investigate their area of origin. Poster: C. S. Epstein, M. Daschbach, M. S. Epstein, N. W. Bower, and D. Hendin, "Using Spectrochemical Analysis to Solve an Ancient Numismatic Mystery", Paper #490-12P, Pittcon 2005, Orlando, Fl, Feb 27 – Mar 4, 2005.

Undergraduate research: Atmospheric Chemistry

Summer 2003

National Institute of Standards and Technology Summer Undergraduate Intern Fellow, Chemical Kinetics and Thermodynamics Group, Dr. Askar Fahr, Presentation: "The Ultraviolet Absorption Cross Sections of 1,5-Hexadiyne: Temperature Dependent Gas Phase Measurements."

Honors and Awards

Emerson Electric Co. Excellence in Teaching Award 2021
Awarded to innovative, inspiring educators throughout the St. Louis metropolitan area, who are examples of excellence in their field. Sponsored by the Emerson Electric Company.

Dean's Community Response Award 2020
Awarded for exceptional contributions to the Arts & Sciences community during a difficult and challenging time in the University's history. I shared with award with my co-instructor, Professor Richard Loomis, for transitioning the Chem 111A class to a virtual format to ensure students received the same educational experience and interaction during the COVID-19 pandemic.

Excellence in Teaching Award 2019, 2021, 2023, 2024, 2025
Awarded by the ArtSci Council in recognition of outstanding commitment to growing hearts and minds of the students of the College of Arts and Sciences at Washington University.

Outstanding Faculty Member 2019 and 2021
Awarded by the First Year Center in recognition of outstanding commitment to the first-year experience at Washington University.

Arts & Sciences Distinguished Teaching Award 2018
Established in 2014 to recognize faculty who demonstrate exceptional teaching and have had a transformative impact on Washington University students in Arts & Sciences

Delores K. Kennedy Award 2015
In recognition of outstanding commitment to the first-year experience at Washington University in St. Louis

Cornerstone Faculty Mentor Award 2014
Student-nominated, presented to a member of the faculty who has made a difference for a graduating student.

Publications

"Benefits of Peer Leader Involvement in The New Leader Hiring Process." Daschbach, M., Kummer, M., Leffler, M., DaCunha, S., Naddaff-Slocum, N., & Deng, Y. (2024). *Advances in Peer-Led Learning, 4,* 38-50. https://doi.org/10.54935/apll2024-01-05-38

"Feedback mechanisms for Peer Leader development." Daschbach, M., Kummer, M., Fascetti, J., Badhan, R., Evanoff, S., McGuire, J., & Wang, I. (2024). *Advances in Peer-Led Learning, 4,* 51-68. https://doi.org/10.54935/apll2024-01-06-51

"Individual Differences in Learning Exemplars Versus Abstracting Rules: Associations with Exam Performance in College Science." McDaniel, M. A.; Cahill, M. J.; Frey, R. F.; Rauch, M.; Doele, J.; Ruvolo, D.; Daschbach, M. M. *Journal of Applied Research in Memory and Cognition* **2018**, *7*, 241-251.

"Ion Transport through bilayer membranes mediated by pyrogallol[4]arenes." Negin, S.; Li, R.; Kulikov, O. V.; Daschbach, M. M.; Gokel G. W. *Inorganica Chimica Acta* **2014**, *417*, 177-185.

"Anion Complexation and Transport by Isophthalamide and Dipicolinamide Derivatives in E. Coli." Atkins, J. L.; Patel, M. B.; Daschbach M. M.; Meisel J. W.; Gokel G. W. *Journal of the American Chemical Society* **2012**, *134(33)*, 13546-13549.

"Aggregation and Supramolecular Membrane Interactions that Influence Anion Transport in Tryptophan-containing Synthetic Peptides." Daschbach, M. M.; Negin, S.; You, L.; Walsh, M.; Gokel, G. W. *Chemistry – A European Journal*, **2012**, *18(24)*, 7608-7623.

"In Vivo Cell Death Mediated by Synthetic Ion Channels." Smith, B. A.; Daschbach, M. M.; Gammon, S. T.; Xiao, S.; Chapman, S. E.; Hudson, C.; Piwnica-Worms, D.; Gokel, G. W.; Leevy, W. M. *Chemical Communications*, **2011**, *47,* 7977-7979.

"Pyrogallol[4]arenes Show Highly Amphiphilic Behavior at the Air-water Interface Dependent Upon Sidechain Length and Branching." Daschbach, Megan. M.; Kulikov, O.; Long, Elizabeth F.; Gokel, George W. *Chemistry – A European Journal* **2011**, *17,* 8913-8921.

"Pore Formation in Phospholipid Bilayers by Branched-chain Pyrogallol[4]arenes." Negin, Saeedeh; Daschbach, Megan M.; Kulikov, O.; Rath, Nigam; Gokel, George W. *Journal of the American Chemical Society* **2011**, *133,* 3234-3237.

Gokel, G. W.; Daschbach, M. M. "Synthetic Amphiphilic Peptides that Self-assemble to Membrane-active Anion Transporters" in Bianchi, A.; Bowman-James, K.; Garcia-España, E. (eds.) *Supramolecular Chemistry of Anions*; Wiley-VCH: New York, 2011, *in press*.

"UV resonance Raman study of cation–π interactions in an indole crown ether." Schlamadinger, Diana. E.; Daschbach. Megan M.; Gokel, George W.; Kim, Judy E. *Journal of Raman Spectroscopy* **2010**, *online*, DOI: 10.1002/jrs.2781.

"Self-assembled, cogged hexameric nanotubes formed from pyrogallol[4]arenes with a unique branched side chain." Kulikov, Oleg V.; Daschbach, Megan M.; Yamnitz, Carl R.; Rath, Nigam; Gokel, George W. *Chemical Communications* **2009**, *48* , 7497-7499

"Aggregation Behavior and Dynamics of Synthetic Amphiphiles that Self-assemble to Anion Transporters." Elliott, Elizabeth, K.; Daschbach, Megan M.; Gokel, George W. *Chemistry, A European Journal*, **2008**, 14, 5871-5879.

"Coordination and Transport of Alkali Metal Cations through Phospholipid Bilayer Membranes by Hydraphile Channels." Gokel, George W.; Daschbach, Megan M. *Coordination Chemistry,* **2007**, 252(8+9), 886-902.

"The Effect of Midpolar Regime Mimics on Anion Transport Mediated by Amphiphilic Heptapeptides." Pajewski, Robert; Pajewska, Jola; Li, Ruiqiong; Daschbach, Megan; Fowler, Elizabeth; Gokel, George. W. *New Journal of Chemistry,* **2007**, 31(11), 1960-1972.

Presentations

Daschbach, M. (2023, May 31– June 3). *Finding the Next Generation of Champions to Sustain Your PLTL Program*. Peer-led Team Learning International Society 11th Annual Conference: Strengthening Diversity, Equity and Inclusion through Sustainable PLTL Programs. Houston, TX, United States.

Daschbach, M. (2022, Jun 1–4). *Employing the PLTL Philosophy in Study Skills Workshops in General Chemistry at Washington University*. Peer-led Team Learning International Society 10th Annual Conference: Navigating the Confluence of Academic Disciplines, Leader Training, and Student Learning through the Changing Landscape of PLTL. St. Louis, MO, United States.

Daschbach, M. (2022, Jun 1–4). *Authoring PLTL Packets in General Chemistry at Washington University*. Peer-led Team Learning International Society 10th Annual Conference: Navigating the Confluence of Academic Disciplines, Leader Training, and Student Learning through the Changing Landscape of PLTL. St. Louis, MO, United States.

Abstracts

"Molecular assemblies beyond the crystal lattice: Dynamic air-water interfacial behavior and Brewster angle microscopy of short-chained pyrogallol[4]arenes." Daschbach, Megan M.; Gokel, G. W. Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010.

"Self-Assembled Capsules and Nanotubes: Solution and Solid State Studies." Gokel, G. W.; Carasel, I. A.; Daschbach, M. M.; Kulikov, O. V.; Li, R. Liu, J.; Negin, S.; Yamnitz, C. R. Abstracts, 44th Midwest Regional Meeting of the American Chemical Society, Iowa City, IA, United States, October 21-24, 2009.

"Characterizing the behavior of tryptophan-containing amphiphiles at the air-water interface." Daschbach, Megan M.; Elliott, Elizabeth K.; Gokel, George W. Abstracts of Papers, 235th ACS National Meeting, New Orleans, LA, United States, April 6-10, 2008.

"Characterizing the Amphiphilic Behavior of Synthetic Anion Transporters." Daschbach, Megan M.; Elliott, Elizabeth K.; Carasel, Ionut A.; Gokel, George W. Abstracts, 42nd Midwest Regional Meeting of the American Chemical Society, Kansas City, MO, United States, November 7-10, 2007.