

LaKeisha M. McClary, Ph.D.

The George Washington University
Department of Chemistry

EDUCATION

Miami University, Oxford, OH

Post-doctoral research, September 2010 – June 2012

Projects: Development of assessments to probe organic chemistry students' understandings of acids and acid strength; Program evaluation of NSF-funded Scholarships for Science, Technology, Engineering, and Mathematics (NSF S-STEM) program in the Department of Chemistry and Biochemistry

Advisor: Dr. Stacey Lowery Bretz

The University of Arizona, Tucson, AZ

Ph.D. in Chemistry, December 2010, GPA 4.00/4.00

Dissertation: "Of assumptions, mental models and heuristics: A case for acidity and acid strength"

Advisor: Dr. Vicente Talanquer

Georgia Institute of Technology, Atlanta, GA

M.S. in Chemistry, December 2007, GPA 3.68/4.00

Thesis: "Synthesis and Characterization of Norbornene-Functionalized Side-Chain Monomers for Potential Use as Transport Materials for Organic Light-Emitting Diodes."

Advisor: Dr. Seth R. Marder

Howard University, Washington, DC

B.S. in Chemistry, May 2002, *Summa Cum Laude*, Phi Beta Kappa, GPA 3.83/4.00

PROFESSIONAL EXPERIENCE

Assistant Professor of Chemistry (non-tenure accruing)

The George Washington University

August 2012–present

Courses taught

CHEM 1111	Fall terms 2012–2021; Spring terms 2018-2019; Summer terms 2015–2020
CHEM 1112	Fall terms 2012–2014; Spring terms 2013–2014, 2020–2021; Summer terms 2013–2014
CHEM 2123W	Fall terms 2013–2021; Spring terms 2013–2022
CHEM 2151	Summer terms 2021–2022
CHEM 2152	Spring terms 2013–2017

S-STEM Scholars Program Evaluator

Miami University

September 2010 – June 2012

- ❖ Organized data about Scholars from multiple sources into one master spreadsheet
- ❖ Formally interviewed the Scholars to learn about their perceptions of the Program
- ❖ Prepared formative evaluations of the Program to the S-STEM committee and to NSF
- ❖ Developed assessment tools to evaluate the Program

Hooked on Photonics (HoP) Program Evaluator

The University of Arizona

August 2008–August 2009

- ❖ Submitted Continuing Review Paperwork for Institutional Review Board (IRB) approval
- ❖ Compiled survey data from three HoP sites
- ❖ Wrote a 117–page report based on the survey data for the Educational Director of CMDITR

GRANTS

Improving Undergraduate STEM Education (IUSE) Program, “Collaborative Research: Fostering Empathy for Active Learning in STEM”. Co-principal Investigator. \$199,001. Submitted January 2020. Declined.

Division of Undergraduate Education, National Science Foundation

Robert Noyce Scholarship Program, “STEM Teaching Excellence in High-Need Schools: Teacher Preparation in the Nation’s Capital”. Co-principal Investigator. \$1,719,873.00. Submitted September 2016. Awarded.

Division of Undergraduate Education, National Science Foundation

Core Research Program, “Decentering in Chemistry: What’s the Evidence, and Who Does it Better?” Co-principal Investigator. \$498,814.00. Submitted September 2016. Declined.

Research on Learning in Formal and Informal Settings, National Science Foundation

Improving Undergraduate STEM Education (IUSE) Program, “Decentering in Chemistry: What’s the Evidence, and Who Does it Better?” Co-principal Investigator. \$299,900.00. Submitted November 2015. Declined.

Division of Undergraduate Education, National Science Foundation

Faculty and Staff Innovation Grant, “Take a Professor to Lunch.” Principle Investigator. \$1,000.00. Awarded May 2015.

GW Shenkman Career Services Fund, The George Washington University

Undergraduate Learning Assistants Program Grant, “Facilitating learning in chemistry with an Undergraduate Learning Assistants Program.” \$13,763.90. Awarded July 2014.

Associate Dean for Undergraduate Studies in Columbian College of Arts and Sciences

Special Grant Program in the Chemical Sciences, “Development and Evaluation of Classroom Resources to Promote Deep Understanding of Titrations in Undergraduate General Chemistry.” Letter of intent. \$23,500.00. Submitted June 2014. Declined.

Special Grant Program in the Chemical Sciences, Camille and Henry Dreyfus Foundation

Core Research Program, “Impact of spatial ability and representational complexity on student performance.” Subawardee. \$22,512.00. Submitted February 2014. Declined.

Research on Learning in Formal and Informal Settings, National Science Foundation

Core Research Program, “Collaborative research: MCAT 2015 catalyzed reforms in undergraduate chemistry education: Investigating faculty awareness and response.” Principal investigator. \$52,524.00. Submitted February 2014. Declined.

Research on Learning in Formal and Informal Settings, National Science Foundation

Innovations in Diversity and Inclusion, “Broadening Opportunities and Stimulating Excitement in STEM”. Co-principal Investigator. \$5,050.00. Awarded June 2013.

Office of the Vice Provost for Diversity and Inclusion, The George Washington University

Writing in the Disciplines Faculty Development Grant, “Teaching writing in chemistry through the Science Writing Heuristic: A redesign of CHEM 2123W, the quantitative analysis laboratory for chemistry majors and chemistry minors.” Principal Investigator. \$1,200.00. Awarded April 2013.

The University Writing Program, The George Washington University

Innovations in Diversity and Inclusion, “Promoting Diversity in STEM Disciplines”. Principal Investigator. \$4,650.00. Awarded February 2013.

Office of the Vice Provost for Diversity and Inclusion, The George Washington University

Transforming Undergraduate Education in Science, Technology, Engineering, and Mathematics. “Using analogical comparison to improve students’ understandings of organic chemistry reaction mechanisms”. Principal Investigator. \$193,516.00. Declined.

Division of Undergraduate Education, National Science Foundation

PUBLICATIONS

Bretz, S. L., and **McClary, L.** (2015). “Students’ understandings of acid strength: How meaningful is reliability when measuring alternative conceptions?” *Journal of Chemical Education*, 92(2), 212 – 219. Citations: 45

McClary, L. and Bretz, S. L. (2012). “Development and assessment of a diagnostic tool to identify organic chemistry students’ alternative conceptions related to acid strength.” *International Journal of Science Education*, 34(15), 2317 – 2341. Citations: 87

McClary, L. and Talanquer, V. (2011). “College students’ mental models of acid strength.” *Journal of Research in Science Teaching*, 48(4), 396 – 413. Citations: 94

McClary, L. and Talanquer, V. (2011). “Heuristic reasoning in chemistry: Making decisions about acid strength.” *International Journal of Science Education*, 33(10), 1433 – 1454. Citations: 65

SELECTED PRESENTATIONS

*Undergraduate student researcher

INVITED PRESENTATIONS

McClary, L. “From research to practice.” National Meeting of the American Chemical Society, New Orleans, LA. April 8, 2013.

McClary, L. and Bretz, S. L. “Psychometric analysis of ACID I: a concept inventory.” Central Regional Meeting of the American Chemical Society, Indianapolis, IN. June 8, 2011.

CONFERENCE PRESENTATIONS: ORAL

McClary, L. “Time and topic data in ALEKS Chemistry: Useful way to reduce DFW rates in general chemistry?” American Chemical Society National Conference, Philadelphia, PA. March 26, 2020.

McClary, L.; Bretz, R. L.; Bretz, S. L.; Tolbert, B.; and Makaroff, C. A. “Evaluation of the Miami University S-STEM Scholars Program.” American Chemical Society National Conference, Anaheim, CA. March 28, 2011.

McClary, L. and Talanquer, V. “Of assumptions, heuristics and mental models: the case of acidity and acid strength.” 21st Biennial Conference on Chemical Education, Denton, TX. August 1, 2010.

McClary, L. “Exploring Dominant Types of Explanations Built by General Chemistry Students.” On behalf of Vicente Talanquer at the National Association for Research in Science Teaching Conference, Philadelphia, PA. March 22, 2010.

McClary, L. and Talanquer, V. “Organic Chemistry Students’ Use of Heuristics When Ranking Compounds Based on Acid Strength.” American Chemical Society National Conference, Washington, DC. August 20, 2009.

CONFERENCE PRESENTATIONS: POSTER

Sikorski, T. and **McClary, L.** “Examining intellectual empathy among undergraduate Learning Assistants.” International LA Research Conference, University of Colorado, Boulder, CO. October 2019.

Wagner, S.* and **McClary, L.** “Exploring general chemistry students’ understandings of acid-base chemistry using particulate representations.” Chemistry Department Undergraduate Research Symposium, The George Washington University, Washington, DC. April 28, 2016.

McClary, L. “Exploring organic chemistry students’ understandings of nucleophilicity.” Gordon Research Conference on Chemistry Education Research and Practice, Salve Regina University, Newport, RI. June 11, 2013.

Ziobro, M.* and McClary, L. “A textual analysis of nucleophiles and nucleophilicity in common organic chemistry textbooks.” Research Days, The George Washington University, Washington, DC. April 2, 2013.

McClary, L. and Bretz, S. L. “ACID I: A diagnostic tool to elicit organic chemistry students’ conceptions of acid strength.” National Meeting of the American Chemical Society, San Diego, CA. March 25, 2012.

McClary, L. and Bretz, S. L. “Development and assessment of ACID I: A concept inventory about acid strength.” Gordon Research Conference on Chemistry Education Research and Practice, Davidson College, Davidson, NC. June 28, 2011.

*Undergraduate student

PROFESSIONAL AFFILIATIONS

American Chemical Society 2005–Present

Association for Writing Across the Curriculum 2020–Present

AWARDS AND HONORS

- Writing in the Disciplines Program Best Assignment Design Award (2020)
- Bender Teaching Award Nominee (2017)
- 2011–2012 Community for Advancing Discovery Research in Education (CADRE) Fellow (2011)
- Department of Chemistry and Biochemistry Spring 2010 TA Special Recognition Award for outstanding contributions to the teaching program, The University of Arizona (2010)
- Graduate and Professional Student Council Achievement Award for Outstanding Diversity Development by a Graduate/Professional Student, The University of Arizona (2010)
- Department of Chemistry and Biochemistry Fall 2009 Promotion to TA 3, the highest award given by the Department, The University of Arizona (2009)
- Phi Beta Kappa (2002)

SERVICE AND OUTREACH

University service and outreach

- Member, Faculty Search Committee, Teaching Assistant Professor of Writing with a specialty in Anti-Racist Pedagogy, November 2021 – April 2022
- Member, Undergraduate Studies Committee, Columbian College of Arts and Sciences, The George Washington University, Washington, D.C., July 2021 – June 2023
- Director of Undergraduate Studies, Department of Chemistry, The George Washington University, Washington, D.C., July 2020 – Present
- Judge, GW Research Showcase, April 13, 2021
- Treasurer, Phi Beta Kappa Alpha Chapter, The George Washington University, Washington, D.C., July 2020 – June 2023
- GW Posse mentor, Cohort 2 (Class of 2021), The George Washington University, Washington, D.C., June 2017 – May 2021

- Departmental academic advisor, The George Washington University, Washington, D.C., August 2013 – 2020
- Department coordinator for the GW-Undergraduate Learning Assistants Program, The George Washington University, Washington, D.C., June 2014 – 2020
- Keynote speaker, B.A./M.D. Program Visitation Day, February 10, 2020
- Invited speaker, “Your GW” Fall Fly in Program, “Freedom for literacy and literacy for freedom: A philosophy of education created by African-Americans”, The George Washington University, Washington, D.C., September, 23, 2019
- Judge, GW Research Days, April 9, 2019
- Keynote speaker, B.A./M.D. Program Visitation Day, January 10, 2019
- Presenter, Classes without Quizzes, Colonials Weekend, October, 26, 2018. URL: <https://www.gwhatchet.com/2018/10/22/faculty-lectures-dominate-colonials-weekend-schedule/>
- Member, Department of Chemistry Strategic Plan Committee, The George Washington University, July 2018 – May 2019
- Keynote speaker, B.A./M.D. Program Visitation Day, February 12, 2018
- Discipline-based Educational Research Working Group, Co-organizer, The George Washington University, Washington, D.C., September 2012 – May 2017
- Member, Search Committee, Associate Dean of Innovative Teaching and Learning, Libraries and Academic Innovations, May 2017 – July 2017
- Member, Faculty Search Committee, Data Science Program, December 2016 – April 2017
- Volunteer, Be Polished campus visit, February 4, 2017
- Keynote speaker, B.A./M.D. Program Visitation Day, January 30, 2017
- Undergraduate research advisor, The George Washington University, Washington, D.C., January 2013 – 2016
- Member, Women in STEM Symposium Organizing Committee, August 2016 – November 2016
- Panelist, Women in STEM Symposium Career Panel, November 5, 2016
- Judge, D.C. STEM Science Fair, Dunbar High School, Washington, D.C., March 12, 2016
- Member, STEM Academy Advisory Committee, The George Washington University, Washington, D.C., October 2015 – May 2016
- Judges’ Captain for Research Days, Physical Sciences and Chemistry Group, The George Washington University, Washington, D.C., March 31, 2015
- Department Seminar Co-organizer Spring 2014, The George Washington University, Washington, D.C. August 2013 – May 2014
- Member, Department of Chemistry Faculty Retreat Committee, The George Washington University, Washington, DC. September – November 2012

Professional service and outreach

- Reviewer, *Journal of Chemical Education*, January 2018 – present
- Reviewer, *Chemistry Education Research and Practice*, November 2017 – present
- Co-Chair, Diversity, Equity, and Inclusion Committee of the Association for Writing Across the Curriculum, July 2021 – June 2023
- Organic 2023 Committee, ACS Examinations Institute, American Chemical Society, August 2020 – August 2022
- Appointee, Science Advisory Board, D.C. Department of Forensic Sciences, Washington, D.C., November 2019 – April 2022
- Organic 2020 Committee, ACS Examinations Institute, American Chemical Society, January 2018 – September 2019
- New Members' Committee, Division of Chemical Education, American Chemical Society, January 2018 – December 2020
- Symposium Co-Organizer and Co-President, *The Future of the General, Organic, Biochemistry Course Sequence: An Ideas Lab Workshop for Responding to Upcoming MCAT Changes*, Biennial Conference on Chemical Education, August 2014
- Panelist, Morgan State University Annual Graduate Science Career Workshop, October 2013
- Younger Chemistry Education Scholars Task Force, Member, Division of Chemical Education, American Chemical Society, October 2011 – August 2012
- Elementary school science fair, Judge, Brookland Educational Campus (DCPS), Washington, DC. February 2013
- Session President, *Research in Chemical Education: Learning in the Nanosciences*, Chemical Education Division, 243rd National Meeting of the American Chemical Society, San Diego, CA. March 2012

PROFESSIONAL DEVELOPMENT

- American Society for Biochemistry and Molecular Biology workshop, “Effectively assessing core concepts in the molecular life sciences.” March 2, 2013, St. Mary's College of Maryland, St. Mary's City, MD
- Faculty Learning Community, Jr., Class of 2013. The George Washington University
- Vision and Change in Biology Undergraduate Education Conference, “Chronicling Change, Inspiring the Future.” August 28–30, 2013, Washington, D.C.
- Peer-reviewed Explorations in Teaching (PRET), 2014 Cohort. The George Washington University
- Mid-Atlantic Regional Workshop for the Learning Assistants Program, February 2015, George Mason University, Washington, D.C.
- Mid-Atlantic Regional Workshop for the Learning Assistants Program, April 2016, The George Washington University, Washington, D.C.
- AP Science Workshop, November 11, 2016, Richmond, VA.

- NSF INCLUDES Conference: The Collective Impact as a Pathway to Reinvigorate Broadening Participation in STEM, January 20–22, 2017, University of California – San Diego, San Diego, CA
- ALEKS Symposium, March 7–9, 2019, Irvine, CA
- Course Design Institute, GW Instructional Core, May 17–21, 2021. The George Washington University, Washington, D.C.
- Adobe Creative Cloud Inaugural Cohort, GW Strategic Digital Learning Initiative, January 2022 – May 2022, The George Washington University, Washington D.C.