Mary Ellen Biggin

Department of Chemistry

Augustana College

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**EDUCATION**

**University of Illinois at Urbana-Champaign**, Urbana, IL

Ph.D. Chemistry, October 2001

*Thesis:* “In situ Vibrational Spectroscopic and Electrochemical Study of Electrodeposition Additives on Copper Surfaces”

*Thesis Advisor:* Professor Andrew A. Gewirth

**Clarke College**, Dubuque, IA

B.S. Chemistry, Summa Cum Laude, Class Valedictorian, May 1995

# *Thesis:* “Electrochemical Characterization of Self-Assembled Monolayers on Gold”

# PROFESSIONAL EXPERIENCE

**Chair**, Chemistry Department, Augustana College, Rock Island, IL, August 2008−present

**Associate Professor**, Augustana College, Rock Island, IL, August 2008−present

* Teach first and third terms of general chemistry lecture, first term general chemistry laboratory, analytical chemistry lecture and laboratory, and instrumental analysis lecture and laboratory, and chemistry and crime
* Supervise undergraduate research students
* Advise chemistry majors and pre-pharmacy students

**Assistant Professor**, Augustana College, Rock Island, IL, September 2001−August 2008

**Research Assistant**, University of Illinois at Urbana-Champaign, Urbana, IL, June 1996−August 2001

**Teaching Assistant**, University of Illinois at Urbana-Champaign, Urbana, IL, August 1995−May 1997, August 1998−May 1999

**OTHER EXPERIENCE**

**Accuracy Checker**, Prentice Hall, Englewood Cliffs, NJ, February 2002−April 2002

* Checked the “Solutions to Exercises” manual for the general chemistry textbook Chemistry: The Central Science by Brown, LeMay, Bursten, and Burdge

**Multimedia Production Associate**, University of Illinois at Urbana-Champaign, Urbana, IL, January 2000−May 2000

1. Participated in the development and filming of DVAction (Digital Video to Assist Chemistry Teachers and Instructors Online) http://dvaction.northwestern.edu/

**Master Teaching Assistant for School of Chemical Sciences Teaching Assistant Orientation Program**, University of Illinois at Urbana-Champaign, Urbana, IL, Fall 1997−2000

1. Directed small group (10−12 teaching assistants) discussion of teaching styles and interactive teaching
2. Evaluated microteaching lessons presented by each member of the small group

**GRANTS**

Augustana College, Blended Learning Technology Grant, Incorporating Blended Learning Technology into General Chemistry, Award Amount: $4500, 2014−2015.

Merck-AAAS Undergraduate Science Research Program, Co-PI with Patrick Crawford, Kevin Geedey, Lori Scott, Jason Singer, and Pamela Trotter, Biggin/Geedey sub-project “Pollutants and Species Diversity in Local Aquatic Ecosystems,” Award Amount: $60,000, 2007−2009.

Augustana College Presidential Research Fellowship, “Pollutants and Species Diversity in Local Aquatic Systems,” Award Amount: $4000, June 2006−July 2006

Augustana Research Foundation Faculty Research Grant, “Synthesis and Characterization of Spirophenol,” Award Amount: $972, January 2006

Augustana College New Faculty Research Fund, “Synthesis and Characterization of

Spirocyclic Liquid Crystals,” Award Amount: $3800, December 2003−September 2005

Augustana College New Faculty Research Fund, “Effect of Additives on Nickel

Deposition,” Award Amount: $4000, December 2002−September 2004

**PUBLICATIONS**

Schultz, Z. D.; Feng, Z. V.; Biggin, M. E.; Gewirth, A. A. “Vibrational Spectroscopic and Mass Spectrometric Studies of the Interaction of Bis(3-sulfopropyl)-disulfide with Cu Surfaces,”*J. Electrochem. Soc.* **2006**, *153*, C97−C107.

Schultz, Z. D.; Biggin, M. E.; White, J. O.; Gewirth, A. A. “Infrared-Visible Sum Frequency Generation Investigation of Cu Corrosion Inhibition with Benzotriazole,” *Anal. Chem.* **2004**, *76*, 604−609.

Teague, C. M.; Xiao, L.; Biggin, M. E.; Lee, L. Kim, J.; Gewirth, A. A. “Vibrational Spectroscopy of a Keggin Polyoxometalate on Metal Electrode Surfaces,” *J. Phys. Chem.* **2004**, *108*, 1974−1985.

Biggin, M. E.; Gewirth, A. A. “IR Studies of Benzotriazole on Cu Surfaces:Role of Chloride in

Promoting Reversibility,” *J. Electrochem. Soc.* **2001**, *148*, C339−C347.

Oh, Y.; Biggin, M. E.; Gewirth, A. A. “Poisoning the Active Site of Electrochemical Reduction of Dioxygen on Metal Monolayer Modified Electrode Surfaces,” *Langmuir* **2000**, *16*, 1397−1406.

Hadwiger, M. E.; Torchia, S. R.; Park, S.; Biggin, M. E. Lunte, C. E. “Optimization of the

Separation and Detection of Enantiomers of Isoproterenol in Microdialysis Samples by Cyclodextrin-Modified Capillary Electrophoresis Using Electrochemical Detection,” *J.Chromatogr. B* **1996**, *681*, 241−249.

Biggin, M. E.; Williams, R. L.; Vigh, G. “Experimental Evidence for the Existence of Duoselective (Type III) Enantiomer Separations in the Capillary Electrophoretic Analysis of Chiral Weak Acids,” *J. Chromatogr.* **1995**, *692*, 319−325.

# PRESENTATIONS (\*undergraduate student)

Lepore, J. A.\*; Craig, M. E.\*; Biggin, M. E.; Geedey, C. K. “The Effect of Duckweed Removal on the Biogeochemistry of an Urban Riparian March,” Celebration of Learning (Augustana College, May 2010)

Craig, M. E.\*; Lepore, J. A.\*; Biggin, M. E.; Geedey, C. K. “The Effect of Duckweed Removal on the Biogeochemistry of an Urban Riparian March,” Midstates Consortium for Mathematics and Science Undergraduate Research Symposium in the Biological Sciences and Psychology (Washington University, November 2009)

Walsh, J.\*; Rhodes, J.\*; VanDeWoestyne, B.\*; Biggin, M. E.; Geedey, C. K. “Herbicide Influence in Aquatic Ecosystems,” Midstates Consortium for Mathematics and Science Undergraduate Research Symposium in the Biological Sciences and Psychology (Washington University, November 2007)

Walsh, J.\*; Rhodes, J.\*; VanDeWoestyne, B.\*; Biggin, M. E.; Geedey, C. K. “Analysis of Herbicide Influence on Local Aquatic Ecosystems,” Research Fair (Augustana College, October 2007)

“Extraction and Detection of Herbicides in Water Samples,” ChemChats seminar (Augustana College, November 2006)

Shimko, L.\*; Biggin, M. E. “Pollutants and Species Diversity in Local Aquatic Systems,” Research Fair (Augustana College, September 2006)

McElroy, M.\*; Biggin, M. E. “How Do Fast Food Chains Compare in Carcinogenic Content? Heterocyclic Amine Extraction by HPLC,” Research Fair (Augustana College, September 2006)

Shearouse, J. C.\*; Biggin, M. E. “The Improved Synthesis and Chiral Separation of Spirophenol,” 37th Great Lakes Regional Meeting of American Chemical Society (Milwaukee, WI, June 2006)

Shearouse, J. C.\*; Biggin, M. E. “The Improved Synthesis and Chiral Separation of Spirophenol,” Celebration of Learning (Augustana College, May 2006)

McGehee, C.\*; Riley, S. J.\*; Jensen, D. W.; Biggin, M. E. “Synthesis of Spirocyclic Liquid Crystal Precursors Via Aldol Condensation,” Celebration of Learning (Augustana College, May 2005)

**PROFESSIONAL SOCIETIES**

American Chemical Society (1996−present); chair of Illinois-Iowa local section (2008)

Iota Sigma Pi (1995−present)

Midwest Area Chemistry Teachers at Liberal Arts Colleges (2002−present)

**SERVICE TO AUGUSTANA COLLEGE**

Chair, Chemistry Department (2008−present)

Chemistry Major Advisor (2008−present)

Pre-Pharmacy Advisor (2005−present)

Environmental Studies Advisory Committee (2008−present)

Retention Working Group (2013)

Advising Working Group (2012−2013)

Advisor, Augustana American Chemical Society student chapter (2005−2011)

Advisor, Circle K (2009−2010)

Academic Computer Committee (2009−2010)

First-Year Advisor (2002−2008)

Health and Safety Committee (2004−2005, 2009−2010)

Advanced Standing and Degrees Committee (2006−2008)

Chemistry Department Curriculum Committee (2006−2008)

Chemistry Department Instrument Committee (2001−2006, 2007−2008)

Chemistry Department Seminar Coordinator (2002−2008)

Enrollment Management and Retention/Enrollment Committee (2004−2010)

Diversity and Gender Equity/Diversity Initiatives Committee (2005−2007)

Parking Committee (2005−2007)

Sexual Assault Task Force (Fall and Winter 2004)

Library/Bookstore Committee (2002−2004)

Library Director Search Committee (Winter 2002−2003)

# AWARDS AND HONORS

Outstanding Teaching Assistant Award (UIUC, 1997)

Chemistry Department Fellowship (UIUC, 1996-1997)

Roger Adams Fellowship (UIUC, 1995-1996)

Iota Sigma Pi Undergraduate Award for Excellence in Chemistry (1995)

Sister Marguerite Neumann Chemistry Award (Clarke, 1995)

John F. and Catharine M. O’Malley Award for Excellence in a Foreign Language (Clarke, 1993)

General Chemistry Achievement Award (Clarke, 1992)

**PROFESSIONAL ACTIVITIES**

Communicate Faculty Workshop (Augustana College, Rock Island, IL: January 9, 2014)

Innovations in STEM Pedagogy Meeting (Augustana College, Rock Island, IL; June 1−3, 2013)

Blended Learning Bootcamp (Augustana College, Rock Island, IL; May 21−22, 2013)

2012 Biennial Conference on Chemical Education (The Pennsylvania State University, University Park, PA; July 30−Aug 1, 2012)

Mid-career workshop sponsored by the Midstates Consortium for Mathematics and Science (Augustana College, Rock Island, IL; February 18−20, 2011)

Reader for Advanced Placement Chemistry Exam (Daytona Beach, FL; June 12−15, 2010)

SENCER workshop (Augustana College, February 4, 2010)

Forensic Science Workshop sponsored by the National Science Foundation-funded Center for Workshops in the Chemical Sciences (Williams College, Williamstown, MA; June 21−26, 2009)

Reader for Advanced Placement Chemistry Exam (University of Nebraska, Lincoln, NE; June 12−18, 2009)

Workshop on the Impact of Changes in the American Chemical Society (ACS) Guidelines sponsored by the Midstates Consortium for Mathematics and Science (Colorado College, Colorado Springs, CO; June 27−29, 2008)

Midstates Consortium for Mathematics and Science Undergraduate Research Symposium in the Biological Sciences and Psychology (Washington University, St. Louis, MO; November 2−4, 2007)

Chemistry and Art workshop (Colorado College, Colorado Springs, CO; July 22−27, 2007)

233rd American Chemical Society National Meeting and Exposition (Chicago, IL; March 25−26, 2007)

American Chemical Society Leaders Conference (Baltimore, MD; January 26−28, 2007)

Grant Writing Workshop (Augustana College, October 11, 2006)

The Basic NMR Operations & System Management Course (JEOL Institute, Peabody, MA; August 14−18, 2006)

37th Great Lakes Regional Meeting of the American Chemical Society (Milwaukee, WI; June 1, 2006)

Project Kaleidoscope Leadership Seminar, “Leadership in Building Programs that Ensure the Success of All Students” (San Antonio, TX; February 24−26, 2006)

Midwest Association of Chemistry Teachers in Liberal Arts Colleges 52nd annual meeting (Lawrence University, Appleton, WI; October 28−29, 2005)

Working Weekend at University of Iowa workshop on nanoscience (University of Iowa, Iowa City, IA; October 22−23, 2004)

Midwest Association of Chemistry Teachers in Liberal Arts Colleges 52nd annual meeting (Clarke College, Dubuque, IA; October 15−16, 2004)

Vernier (computer-assisted data acquisition) training workshop (Davenport, IA; October 11, 2004)

18th Biennial Conference on Chemical Education (Iowa State University, Ames, IA; July 18−July 21, 2004)

55th Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy (Chicago, IL; March 9−11, 2004)

Working Weekend at University of Iowa workshop on high field nuclear magnetic resonance, electron paramagnetic resonance, and mass spectrometry (University of Iowa, Iowa City, IA; October 17−18, 2003)

American Chemical Society Nanometer Summer School (Washington State University, Pullman, WA; July 27−August 4, 2003)

American Chemical Society General Chemistry Project Summer workshop (Collin County Community College, Plano, TX; June 26−30, 2003)

35th Great Lakes Regional Meeting of the American Chemical Society (Loyola University, Chicago, IL; May 31, 2003)

Working Weekend at University of Iowa workshop on microscopy (University of Iowa, Iowa City, IA, April 11−12; 2003)

Midwest Association of Chemistry Teachers in Liberal Arts Colleges annual meeting (Illinois Wesleyan University, Bloomington, IL; October 18, 2002)