

SARAH BETH WILSON

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EDUCATION

Purdue University

West Lafayette, IN

Ph.D., December 2015. Major: Organic Chemistry

Dissertation: A Comparison of First-Semester Organic Chemistry Students' Experiences and Mastery of Curved-arrow Formalism in Face-to-Face and Cyber Peer-Led Team Learning.

Thesis advisor: Pratibha Varma-Nelson.

Indiana Wesleyan University

Marion, IN

Teaching Certification, 2009. Subject Areas: Chemistry, Physics, Mathematics, Physical Science. Settings: High School/Junior High School/Middle School.

Brandeis University

Waltham, MA

M.S. Department of Chemistry, 1999. Major: Organic Chemistry.

Saint Michael's College

Colchester, VT

B.S. Department of Physics, 1997. Major: Physics. Internships: Solid State Physics, Material Science, Forensics

Areas of Specialization

Organic Chemistry, Chemical Education

TEACHING EXPERIENCE

Indiana University Purdue University Indianapolis, Indianapolis, IN

2014

Organic Chemistry Guest Lecturer

Taught several Organic Chemistry I and Organic Chemistry II lectures to accommodate professor travel. Conducted formative assessment activities to ensure student understanding of new concepts. (Class sizes: 100-140 students).

Indiana University Purdue University Indianapolis, Indianapolis, IN

2010-2015

Organic Chemistry Workshop Series Coordinator

Obtained Institutional Review Board (IRB) approval to perform research to assess the impact of Peer-Led Team Learning (PLTL) and cyber PLTL in the first-semester Organic Chemistry course. Obtained internal grant funding to support PLTL implementation and research. Designed and administered weekly peer leader training curriculum, which incorporated primary literature. Collaborated with 1-2 Organic Chemistry lecturers per semester to write workshop materials. Prepared workshop assessments and grading rubrics. Reported research findings at local and national meetings. Impacted >1,500 students and 60 undergraduate peer leaders.

University of Indianapolis, Indianapolis, IN

Adjunct Faculty

2010-2011

Developed syllabi. Created presentations to facilitate discussion of course content. Designed and administered assessments. Provided oversight of laboratory activities. Generated learning activities for Introduction to General, Organic and Biochemistry and Elementary Algebra courses. Provided additional tutoring to students. Administered all grades. Average class size: 24 students.

Herron High School, Indianapolis, IN

Chemistry & Mathematics Teacher

2007 - 2009

Developed syllabus and curriculum to teach the academic standards through meeting the needs of the students by matching their learning styles and multiple intelligences. Administered all grades. Tutored students in Mathematics, Chemistry, and Physics. Certified by the College Board to teach AP Chemistry. Founded and facilitated an after-school book club. Average Class size: 24 students.

Eli Lilly & Company, Indianapolis, IN

Business Operation Associate

2006-2007

Collaborated across organizations to develop a concise Time Entry System (TES) nomenclature. Developed and administered training for multi-national TES users.

Brandeis University, Waltham, MA

Chemistry Teaching Assistant

1998 – 1999

Performed laboratory set-up and take-down for undergraduate Chemistry courses. Demonstrated proper laboratory techniques, while presenting laboratory lectures. Supervised Chemistry students and answered questions during experiments. Tutored students in Chemistry upon request.

Saint Michael's College, Colchester, VT

Physics Teaching Assistant

1994 - 1997

Performed laboratory set-up and take-down for undergraduate Chemistry courses. Demonstrated proper laboratory techniques, while presenting laboratory lectures. Supervised Chemistry students and answered questions during experiments. Tutored students in Physics and Mathematics upon request.

HONORS

June 2012

**Transforming Research in Undergraduate STEM Education
Conference Graduate Student Travel Grant, Purdue University, IN**

June - Aug 1997

Howard Hughes Research Fellowship, Dartmouth University and Thayer School of Engineering, Dartmouth, NH

Sept 1997 - May 1998 National Institute of Health Training Grant, Brandeis University, Waltham, MA

Sept 1993 - May 1994 New England Colleges Fund Scholarship, Saint Michael's College,
Colchester, VT

PUBLICATIONS

PEER-REVIEWED ARTICLES

Smith, J., **Wilson, S.B.**, Banks, J., Zhu, L., & Varma-Nelson, P. (2014). Replicating Peer-led Team Learning in Cyberspace: Research, Opportunities, and Challenges. *Journal of Research in Science Teaching*, 51(6), 714-740.

Design and Synthesis of α -Aryloxy- α -Methylhydrocinnamic Acids: A Novel Class of PPAR α/γ Dual Agonists. *Journal of Medicinal Chemistry* 2004, 47, 2422-2425.

PRESENTATIONS AT PROFESSIONAL MEETINGS

Varma-Nelson, P., Smith, J., **Wilson, S.B.**, Banks, J., & Zhu, L. (March 2015). *Replicating peer-led team learning in cyberspace: Research, opportunities, and challenges*, Chemistry Education Research Symposium: New and Noteworthy in 2013-2014 Symposium, 249th ACS National Meeting, Denver, CO.

Wilson, S.B. & Varma-Nelson, P. (October 2014). *Social Constructivism in Cyberspace, Transforming Institutions: 21st Century STEM Education Conference*, Indianapolis, IN

Wilson, S.B. & Varma-Nelson, P. (September 2013). *Cyber Peer-Led Team Learning (cPLTL) Peer Leadership Study*, 246th ACS National Meeting, Indianapolis, IN.

Wilson, S.B., Minto, R.E., & Varma-Nelson, P. (September 2013). *Study of the Differential Effectiveness of an Organic Chemistry Workshop Series*, 246th ACS National Meeting, Indianapolis, IN.

Wilson, S.B. (April 2013). *cPLTL Peer Leadership Study: A Comparison of Online and Face-to-Face PLTL Peer Leadership Styles*, 5th Annual Edward C. Moore Symposium on Excellence in Teaching, IUPUI, Indianapolis, IN.

Wilson, S.B., Minto, R.E., Denton, R., & Varma-Nelson, P. (July 2012).. *Implementing Problem-solving Discussion Sections in First-semester Organic Chemistry*, 2012 Biennial Conference on Chemical Education (BCCE), Pennsylvania State University, University Park, PA.

Wilson, S.B. & Varma-Nelson, P. (February 2012). *Implementing Problem-solving Discussion Sections in the First-semester Organic Chemistry Lecture*, 4th Annual Edward C. Moore Symposium on Teaching Excellence, IUPUI, Indianapolis, IN.

Wilson, S.B., Minto, R.E., Denton, R., & Varma-Nelson, P. (September 2011). *Reaching Individuals among the Masses: Implementing Problem-Solving Discussion Sections in the First-semester Organic Chemistry Lecture*, American Chemical Society National Meeting, Denver, CO.

Wilson, S.B. (June 2007). *Development of an Integrated Molecule & Non-Molecule Forecast*, 43rd Annual Drug Information Association Conference, Atlanta, GA.

POSTERS

(* denotes undergraduate students)

Wilson, S.B. & Varma-Nelson, P. (June 2015). *Cyber Peer-Led Team Learning (cPLTL) in Organic Chemistry*. Chemistry Education Research and Practice Gordon Conference, Lewiston, ME.

Wilson, S.B. & Varma-Nelson, P. (April 2013). *Peer-Led Collaborative Development of Organic Chemistry Problem-Solving Skills*, 5th Annual Edward C. Moore Symposium on Excellence in Teaching, IUPUI, Indianapolis, IN.

Wilson, S.B., Minto, R.E., Denton, R., & Varma-Nelson, P. (June 2012). *Implementing Problem-solving Discussion Sections in First-semester Organic Chemistry*, Transforming Research in Undergraduate STEM Education (TRUSE) Conference, University of St. Thomas, St. Paul, MN.

Wilson, S.B., Andry*, D., Ekoma*, S., Matthews*, K., Timm*, F., & Varma-Nelson, P. (February 2012). *Reflections from Organic Chemistry Peer Leaders*, 4th Annual Edward C. Moore Symposium on Teaching Excellence, IUPUI, Indianapolis, IN.

Wilson, S.B., Minto, R.E., Denton, R., & Varma-Nelson, P. (February 2011). *Implementing Problem-solving Discussion Sections in the First-semester Organic Chemistry Lecture*, 3rd Annual Edward C. Moore Symposium on Teaching Excellence, IUPUI, Indianapolis, IN.

Wilson, S.B. (June 2006). *Development & Implementation of a "Non-molecule" Project Portfolio in SAP Project Systems*, 42nd Annual Drug Information Association Conference, Philadelphia, PA.

Wilson, S.B. (June 2005). *Project System Changes in a Global Integrated Environment*, 41st Annual Drug Information Association Conference poster presentation, Washington, D.C.

Wilson, S.B. (April 2002). *Cyclic Sulphamidites and Sulphamidates: Versatile Synthetic Intermediates*, Lilly Expo, Eli Lilly Corporate Center, Indianapolis, IN

Wilson, S.B. (May 2001). *Cyclic Ureas: Potent PPAR α/γ Dual Agonists*, Discovery Chemistry Research Associate Poster Session, Lilly Corporate Center, Indianapolis, IN.

PATENTS

Feb 2002 Modulators of Peroxisome Proliferator Activated Receptor Agonists, Docket # X-13862

May 2003 Modulators of Peroxisome Proliferator Activated Agonists, Docket # X-15112

ADDITIONAL PROFESSIONAL EXPERIENCE

Eli Lilly & Company, Indianapolis, IN

2003 - 2007

Business Operations Associate

Collaborated with chemistry management, scientists, and project managers to prepare annual Business Plan. Provided analysis of budget and time entry metrics. Created a model to predict personnel needs for upcoming projects.

Eli Lilly & Company, Indianapolis, IN

1999 - 2003

Associate Organic Chemist

Collaborated with chemists, biochemists, and X-ray crystallographers to design compounds to target pharmaceutically-interesting targets. Performed Structure Activity Relationship studies to develop pharmaceutical candidates. Designed and performed syntheses to generate compounds. Purified and characterized organic compounds.

Brandeis University, Waltham, MA

1997 – 1999

Graduate Research

Performed multi-step organic syntheses to create a unique asymmetric catalyst. Performed experiments to analyze catalyst performance. Purified and characterized organic compounds.

Proctor & Gamble Pharmaceuticals, Cincinnati, OH

1998

Chemistry Research Intern

Performed combinatorial chemistry experiments. Purified and characterized organic compounds. Presented research to fellow interns and P& G research employees.

Brandeis University, Waltham, MA

Aug 1997-May 1998

Graduate Research Rotations

Performed Organic Chemistry, Physical Chemistry, Biochemistry, and X-ray Crystallography research during six six-week research rotations. Presented research to fellow students and faculty.

Lehigh University, Bethlehem, PA

May 1996-Sept. 1996

Material Science Research Intern

Performed fluorinated oxidation of silicon experiments. Presented research to fellow students and faculty.

Saint Michael's College, Colchester, VT/ Burlington Police Department, Burlington, VT

Forensic Science Intern

Sept. 1995-May 1996

Classified fingerprints. Assisted in the processing of crime and death scenes. Catalogued evidence. Reorganized photograph filing system.

Lehigh University, Bethlehem, PA

May 1995-Sep 1995

Material Science Research Intern

Performed fluorinated oxidation of silicon experiments. Presented research to fellow students and faculty.

PROFESSIONAL SERVICE

NATIONAL MEETING SERVICE

Session organizer and co-president with Pratibha Varma-Nelson (Indiana University-Purdue University Indianapolis, Learning Chemistry in Cyber Environments Symposium, 246th American Chemical Society National Meeting, Indianapolis, IN. September 2013

Presenter & Facilitator with Pratibha Varma-Nelson, Randy Newbrough, Tom Janke, Julianna Banks, and Lin Zhu, cPLTL National Adoption Workshop, Sheraton Indianapolis City Centre Hotel, Indianapolis, IN June 2013

Session chair, Creating Dynamic Product Development Teams, 43rd Annual Drug Information Association Conference, Atlanta, GA. June 2007

REGIONAL SERVICE

Indiana Department of Education Advisory Board, Division of Professional Standards member 2009-2010

REVIEWING

IUPUI Center for Teaching and Learning Curriculum Enhancement Grant review panel

MEMBERSHIPS

American Chemical Society 2011-present
Hoosier Association of Science Teachers, Inc.