James W. Lane, Ph.D.

Curriculum Vitae

Chemistry Program
Department of Natural Sciences
302B Barstow Hall
University of Wisconsin – Superior
Superior, WI 54880

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Education

Doctor of Philosophy

Major: Organic Chemistry. Iowa State University, Ames, Iowa. Thesis Title: "Development of Enzyme-Linked Assays for Detection of Bimolecular Catalysis / Investigation of Biomimetic Catalysts". Graduated May 1994 (Teaching Excellence Award, Noble-Hines Fellowship)

Bachelor of Science

Major: Chemistry, Minor: Computer Science. Western Illinois University, Macomb, Illinois. Graduated May 1988 (Magna Cum Laude, Phi Kappa Phi)

Appointments

Chemistry Department, University of Wisconsin, Superior, Wisconsin

August 2004 to present - Professor

August 2000 to July 2004 - Associate Professor

August 1994 to July 2000 - Assistant Professor

Teaching Lecture and Laboratory courses in Organic Chemistry, Biochemistry, Chemical Analysis and Introductory Environmental Chemistry

Research Interests Biodiesel production ♦Preparation and study of 4-bromomethylphenyl esters ♦Structure-activity relationships of naphthoquinones ♦Applications of poly(ethylene)glycol derivatives ♦Small molecule-protein interactions ♦Chemical education

Chemistry Department, Iowa State University, Ames, Iowa

August 1988 to 1994 - Graduate Teaching/Research Assistant

Research Experience/Techniques

- Development of ELISA-based assay system to screen for catalysts present at low concentrations
- Preparation of poly(ethylene)glycol derivatives
- Synthesis of biotin-labeled substrates
- LC and HPLC size exclusion, ion exchange, affinity, silica, and reverse-phase chromatography
- enzyme kinetics
- ^{1}H, ^{13}C, ^{31}P NMR, GC-MS, FTIR spectroscopy
- Agarose and Polyacrylamide Gel Electrophoresis.

Awards

Faculty Teaching Excellence Award, University of Wisconsin – Superior, 2006

Teaching Excellence Award, Iowa State University, 1993

Nobel Hines Fellowship, Iowa State University, 1988

Courses Taught in the Past Ten Years

Chem 100	Our Chemical Environment	2014-present
Chem 205	Quantitative Chemical Analysis	2007
Chem 312	Intro to Organic Chemistry	2006-2012
Chem 313	Intro to Organic Chemistry	2006-2012
Chem 320	Organic Chemistry I	2006-present
Chem 322	Organic Chemistry I Lab	2006-present
Chem 321	Organic Chemistry II	2006-present
Chem 323	Organic Chemistry II Lab	2006-present
Chem 327	Molecular Spectroscopy	2006-present
Chem 360	Intro to Biochemistry	2006-present
Chem 462	Advanced Biochemistry	2006-present
Chem 465	Lab. Tech. Biochem. Mol. Biol.	2006-present

Chem 491	Senior Research	2006-present
Chem 496	Senior Paper	2006-present
Chem 497	Senior Seminar	2006-present

Organizations

American Chemical Society, member

Lake Superior Section of the ACS, member

Administrative Experience

Lake Superior Section of the ACS, Chair 2010-2012

Department of Natural Sciences, Interim Co-Chair January-May 2012

Department of Chemistry, Interim Chair 2008-2009, Chair 2000-2003

Undergraduate Academic Affairs Council, Secretary 2008-2009

Environmental Health & Safety Committee, Chair 2005-2006

Physics Search and Screen Committee, Chair 2000-2001, 2001-2002

Publications

Michael Demchik, Jason Fischbach, Tony Kern, James Lane, Brent McCown, Eric Zeldin, Keith Turnquist Selection of American Hazelnut as a Potential Oilseed Crop. Agroforestry Systems (2014) 88, 449-459

Donghua Zuo, James W. Lane, Dan Culy, Michael Schultz, Allison Pullar, and Michael A. Waxman Sulfonic acid functionalized mesoporous SBA-15 catalysts for biodiesel production. *Applied Catalysis B: Environmental* (2013) *129*, 342-350.

James W. Lane, Paul Hlina, Kurt Hukriede, Adam Jersett, Damodar Koirala, Aaron Stewart and Michael A. Waxman, Probing Wisconsin Highbush Cranberry (V. Trilobum), Dotted Horsemint (M. Punctata) and American Hazelnut (C. Americana) as Potential Biodiesel Feedstocks. *Industrial Crops and Products* (2012) *36*, n. 1, pp.531-535.

James W. Lane, Kurt Hukriede, Adam Jersett, Damodar Koirala, Dan Levings, Aaron Stewart and Michael A. Waxman, Synthesis and Characterization of New Biodiesels Derived from Oils of Plants Growing in Northern Wisconsin and Minnesota. *Journal of the American Oil Chemists' Society* (2012) *89 (4)*, pp. 721-725.

Vaksman, M.A. and Lane, J.W., *Journal of Chemical Education*, 2001, *78(11)*, 1507-1509. "Using Guided Inquiry to Study Optical Activity and Optical Rotary Dispersion in a Cross-Disciplinary Chemistry Lab".

Alan W. Schwabacher, Matthew W. Schiesher, Krista M. Leigh, Christopher Johnson, James W. Lane, *Journal of Organic Chemistry*, 1998, *63(5)*, 1727-1729. "Desymmetrization Reactions: Efficient Preparation of Unsymmetricaly Substituted Linker Molecules".

A.S. Smirnov, D.S. English, R.L. Rich, J. Lane, L. Teyton, A.W. Schwabacher, S. Luo, R.W. Thornburg, and J.W. Petrich, *J. Phys. Chem. B* 1997, *101*, 2758-2769. "Photophysics and Biological Applications of 7-Azaindole and Its Analogs".

Rich, R.L.; Gai, F.; Lane, J.W.; Petrich, J.W.; Schwabacher, A.W. *J. Amer. Chem. Soc.* 1995, *117*, 733-739. "Using 7-Azatryptophan to Probe Small Molecule-Protein Interactions on the Picosecond Time Scale".

Lane, J.W.; Hong, X.; Schwabacher, A.W.* *J. Amer. Chem. Soc.* 1993, *115*, 2078-2080. "Sensitive Detection of Catalytic Species Without Chromophoric Substrates".

Presentations

James Lane, Synthesis of N,N-Diethyl-3-methylbenzamide (DEET) from an alternative starting material, August 10-14, 2014, 248th ACS National Meeting, San Francisco, CA

James W. Lane, Allison Pullar, Michael Schultz, Michael A. Waxman and Donghua Zuo, Oral Presentation, Designing a Heterogeneous Acid Catalyst for Biodiesel Production, Wisconsin Science & Technology Symposium, July 28-29, 2011, Whitewater, WI.

James W. Lane, Kurt Hukriede, Adam Jersett, Nicholas Osborn, Damodar Koirala and Michael Waxman
Characterization of Low-Temperature Properties of New Biodiesels and Their Mixtures Derived From Oils of Plants Growing in Northern Climates, Wisconsin Science & Technology

Symposium, July 28-29, 2011, Whitewater, WI.

James W. Lane, Kurt Hukriede, Damodar Koirala, Dan Levings, Aaron Stewart, and Michael A. Waxman

Synthesis And Characterization Of New Biodiesels Derived From Oils Of Plants Growing In Northern Wisconsin And Minnesota. Presented at the 240th ACS National Meeting, August 22-26, 2010, Boston, MA.

James W. Lane, Kurt Hukriede, Damodar Koirala, Aaron Stewart, and Michael A. Waxman

Studying Low-Temperature Properties And Energy Content Of New Biodiesels Derived From Oils Of Plants Growing In Northern Wisconsin And Minnesota**.** Presented at the Undergraduate Student Symposium of the 240th ACS National Meeting, August 22-26, 2010, Boston, MA.

James W. Lane, Kurt Hukriede, Damodar Koirala, Dan Levings, Aaron Stewart, and Michael A. Waxman;

Synthesis And Characterization Of New Biodiesels Derived From Oils Of Plants Growing In Northern Wisconsin And Minnesota. Presented at the 2nd Biofuels and Energy Independence Symposium (BEIS 2010), September 2, 2010, Superior, WI.

Michael A. Waxman, Kurt Hukriede, Damodar Koirala, Dan Levings, Aaron Stewart, and James W. Lane

Researching For a Better Wisconsin Biodiesel. Presented at the Wisconsin Science & Technology Symposium 2010 (WSTS 2010), July 22-23, 2010, Green Bay, WI.

James W. Lane, Kurt Hukriede, Adam Jersett, Allison Pullar, and Michael A. Waxman

Some Aspects Of Biofuels Work At UW-Superior. – Presented at the Wisconsin Science & Technology Symposium 2010 (WSTS 2010), July 22-23, 2010, Green Bay, WI.

Michael A. Waxman, James W. Lane, and Damodar Koirala

Crystallization And Melting Behavior of Unsaturated Methyl Esters Contained in Biofuels: Probing with Differential Scanning Calorimetry. – Presented at the Conference on Alternative Energy Technologies (CAET), Chicago, IL, October 1-2, 2009.

James W. Lane, Amir Fattahian, and Michael A. Waxman

New Biodiesels Derived from Oils of Plants Growing in Northern Wisconsin and Minnesota. Presented at the Biofuels and Energy Independence Symposium (BEIS 2009), Superior, WI, September 3, 2009.

Michael A. Waxman, James W. Lane, and Damodar Koirala

Crystallization And Melting Behavior of Unsaturated Methyl Esters Contained in Biofuels. Presented at the Biofuels and Energy Independence Symposium (BEIS 2009), Superior, WI, September 3, 2009.

Dan Levings* and James Lane

Use of mixed solvent in oil extraction and biodiesel production. Presented at the UW-Superior 8th Annual Undergraduate Research Symposium; May 2nd 2008.

Nader Enayati, James W. Lane, Michael Waxman.
Biofuels: A Promise or a Glitch: An Assessment of Biofuels Production. Presented at the CAET Alternative Energy Symposium, Chicago, IL; August 9-10, 2007

James Lane and Adam J. Punke
The effects of 4-Methylphenyl Acetate and 4-Bromomethylphenyl Acetate on the Reactions of Lipase B from Candida Antarctica and Porcine Esterase. Presented at the ACS Great Lakes Regional Meeting, Milwaukee, WI; May 31-June 2, 2006

Adam Punke*, James Lane, and Ralph Seelke.
Inhibitory effects of 4-methylphenyl Acetate and 4-bromomethylphenyl Acetate on Porcine Liver Esterase and Lipase B from Candida Antarctica and Their Mode of Inhibition. Presented ta the UW-Superior 8th Annual Undergraduate Research Symposium; May 5th 2006

James Lane
Tall or short, thin or fat – how shape affects what molecules do. Presented at the UW-Superior Faculty Seminar Series, Superior, WI; September 7, 2006

Keith Benton*, James Lane, Ralph Seelke - Evolution of Ribitol Dehydrogenase Activity in E. Coli - Presented at the 6th Annual UW-Superior Undergraduate Research Symposium, April 30, 2004, Superior, WI.

Keith Benton*, J.W. Lane, "Effect of Juglone and derivatives on seed germination", - Presented at the 4th UW-Superior Undergraduate Symposium, May 2nd, 2003, Superior, WI.

J. Lea Roberts, Hasini Muthucumara, J.W. Lane, "Effect 1,4-naphthoquinone analogs on the biological activity of agricultural plants", - 223rd ACS National Meeting, April 7-11, 2002, Orlando, FL.

J. Lea Roberts*, Hasini Muthucumara, J.W. Lane, "Effect 1,4-naphthoquinone analogs on the biological activity of agricultural plants", - Presented at the 3rd UW-Superior Undergraduate Symposium, May 3rd, 2002, Superior, WI.

Jennifer Olson* and J.W. Lane, Synthesis of Juglone and Derivatives – Presented at the 2nd UW-Superior Undergraduate Symposium, May 4th 2001, Superior, WI.

National Meeting of the American Chemical Society, Washington D.C., August 20-24, 2000, "Applying He-Ne Laser for Studying Optical Rotatory Dispersion in a Cross-Disciplinary Lab", Waxman, M.A. and J.W. Lane

School Science and Mathematics Association; Greensboro, NC, September 30-October 2, 1999; "Modeling Integrated Mathematics and Science Curricula: The Study of Acidic Deposition", David Buhl and James Lane.

National Meeting of the American Chemical Society; Chemical Education Division, New Orleans, LA, August 22-26, 1999; "Using Guided Inquiry to Study Optical Activity and Optical Rotary Dispersion in a Cross-Disciplinary Chemistry Lab", Michael Vaksman and James Lane.

National Meeting of the American Chemical Society; Organic Division; Anaheim, CA, March 21-25, 1999; "Bifunctional poly(ethylene glycol) derivatives in the activation of cellulose supports: Applications." James W. Lane, Rose Dressel and Jessica Pope.

National Meeting of the American Chemical Society; San Diego, CA, 1994; Organic Division; "Sensitive Detection of Catalytic Species Without Chromophoric Substrates" James W. Lane, Xingfang Hong, Alan W. Schwabacher.

Grants

2015-2016 WiSys WiTAG Multi-Institutional Proposal, Co-PI: Dr. Michael Waxman, Dr. Michael Hoffman (UW-La Crosse) *2015-16 Feasibility Study of the HBC for Anti-viral and Anti-influenza for Commercialization*, Amount funded: $10,000

2013-2014 WiSys Applied Research Grant, Co-PI: Dr. Michael Waxman, *Highbush Cranberry Project: Biofuels and Pharmaceuticals through Native Plants of NW Wisconsin*, Amount funded: $50,000

2011-2012 WiSys Applied Research Grant, Co-PI: Dr. Michael Waxman, Development of Biodiesel from Non-crop Wisconsin Plants, Amount funded: $25,947

2010-2011 ARG-WiTAG Match Grant, Biodiesel Production Using a Novel Microwave Technology, Amount funded: $39,969

2006-2007 UW-System Laboratory Modernization Program grant for the installation of projector and workstation. Co-PI: Dr. Michael Waxman, UW-Superior. Amount funded: $17,200

2004-2005 UW-System Laboratory Modernization Program grant for the purchase of an Automatic Polarimeter. Co-PI: Dr. Michael Waxman, UW-Superior. Amount funded: $13,800

2003-2004 UW-Superior Foundation Fellowship "Undergraduate Research: Mechanisms of Naphthoquinone Activity." Amount funded: $2,000.00

2003-2004 UW-System Laboratory Modernization Program for the upgrade of the chemistry department's FT-NMR. Amount funded: $12,245.

2001-2003 Merck/AAAS Undergraduate Science Research Program, Co-PI Dr. Ralph Seelke, UW-Superior. Amount funded: $60,000

2000-2001 Eisenhower Professional Development Program "Integrating Mathematics and Science through Mathematical Modeling, CBL Experimentation, and Student On-line Collaborative Projects." Co-PI: Dr Michael Waxman, UW-Superior. Amount funded: $41,019.00

2000-2001 UW-System Laboratory Modernization Program for the purchase of a new computer and projection system, Co-PI: Dr. Michael Waxman, UW-Superior. Amount funded: $6,490.

1998-1999 UW-Superior Foundation Fellowship "Undergraduate Research: Tin-Mediated Barbier-Grignard Type Reactions in Water." Amount funded: $2,000.00

1998-1999 Eisenhower Professional Development Program "Designing and Modeling Integrated Mathematics and Science Curriculum: The Study of Acidic Deposition." PI: Dr. David Buhl, UW-Superior. Amount funded: $35,186.00

Faculty Development Grants

Fall 2014 - To attend and present undergraduate research at the 248th ACS National Meeting, August 10-14, 2014, San Francisco, CA Amount $1000.00

Spring 2002 - To attend and present undergraduate research at the National Meeting of the American Chemical Society, April 7-11, 2002 in Orlando, FL. Amount $800.00

Spring 1999 - To attend and present research at the National Meeting of the American Chemical Society, March 22-25, 1999 in Anaheim, CA. Amount $650.00

Summer 1997 - To attend an NSF-supported workshop titled "Biotechnology Theory and Practice for the 21st Century", May 29-31, 1997, at Northern Illinois University, Dekalb, IL. Amount: $530.40

Summer 1996 - To attend an NSF Undergraduate Faculty Enhancement Program titled "NMR Concepts and Operating Techniques", July 9-18, 1996, at the University of Rhode Island, Kingston, RI. Amount: $650.00

Other Grants

2000 ACS Joint Task Force on Member Retention "ACS Membership Retention Program" Amount funded: $1,000.00

Synergistic Activities

Chemical Education: Development of a cross-disciplinary undergraduate chemistry experiment which uses a guided inquiry approach in studying the optical properties of an organic molecule. Published in 2001 in the Journal of Chemical Education (see above).

Undergraduate Research: "Synthesis of 1,4-naphthoquinone derivatives and evaluation of their effect seed germination rates." This Merck-funded student research began in June 2001. Besides providing undergraduates with research experience, the program is designed to demonstrate the interconnectedness between the fields of chemistry and biology.

Teacher's Workshop: "Designing and Modeling Integrated Mathematics and Science Curriculum: The Study of Acidic Deposition" The Chemistry of Acid Deposition, University of Wisconsin - Superior, June, 1998. Co-director. This workshop was funded through an Eisenhower Professional Development Grant. Teachers in secondary education were taught how to access raw data related to acid deposition via the Internet and then apply chemical and mathematical principles in developing a linear model of the data.

Professional Development

DLC Online Instructor's Course, an online professional development course at UW-Superior, May through June 2015.

Attended workshops and seminars at the 248th ACS National Meeting, August 10-14, 2014, San Francisco, CA

Agilent GC-MSD ChemStation and Instrument Operation Workshop, Marietta, GA May 15th – 20th, 2010

American Chemical Society Leadership Institute, Fort Worth, TX; January 23rd-25th, 2009

Using "Clickers" to Enhance Learning, UW-Superior, Superior, WI; May 20th 2008

Concept Mapping: Using Diagrams to Enhance Student Learning, UW-Superior, Superior, WI; August 28, 2008

Vernier Software & Technology Workshop, Duluth, MN; Saturday, September 27th, 2008

Workshop: "Using Physical Models of Proteins"; June 1, 2006; Center for Biomolecular Modeling at the Milwaukee School of Engineering, Milwaukee, WI

Research Site for Educators in Chemistry Workshop, November 16, 2002, University of Minnesota, Minneapolis, MN.

Attended National Meeting of the American Chemical Society, Orlando, FL April 7-11, 2002

Secretary ACS Lake Superior Local Section Executive Committee 2005-present

Director ACS Lake Superior Local Section Executive Committee 1996-1999 and 2002-2005

Chair ACS Lake Superior Local Section Executive Committee 1999-2002

Attended School Science and Mathematics Association; Greensboro, NC, September 30-October 2, 1999.

Attended National Meeting of the American Chemical Society, Anaheim, CA, March 21-25, 1999.

NSF-supported workshop titled "Biotechnology Theory and Practice for the 21st Century", May 29-31, 1997, at Northern Illinois University, Dekalb, IL.

NSF-faculty enhancement workshop "NMR Concepts and Operating Techniques", July 9-18, 1996, at the University of Rhode Island, Kingston, RI.

UW-System Undergraduate Teaching Improvement Council workshop, May 1996. Menominee, WI.

1995-present: Regularly attend regional professional meetings and seminars.

Professional Service

University Committees

1995-1996 Financial Aid Reinstatement Committee

1996-1999 Faculty Senate Representative

1998-2000, 2002-2005 Environmental Health and Safety Committee

1999-2005 University Health Services Committee

2001-2002 UW-Superior Research Award Review Committee

2002-2003 Laboratory and Classroom Modernization Grant Program Review Committee

2004-2005 Athletics Committee

2005-2007 Environmental Health and Safety Committee, Chair 2005

2006-2009 Undergraduate Academic Affairs Council, Secretary 2008-2009

2008-2013 Global Awareness and Education Committee

2011-2013 Continuous Improvement and Planning Team
HLC Criterion 3 for the HLC Self-study, August 2012-April 2013
Leader of Strategic Planning Group 8 involved in the strategic planning process

2014-2015 University Technology Committee

2015-2016 Terminations Committee

2015-2016 (Spring semesters) Undergraduate Academic Affairs Council

Department

1995-1996 Chemistry Department Search and Screen Committee – Inorganic Chemist

1996-1997 Chemistry Department Search and Screen Committee – Physical Chemist

1996-2009 Maintainer of departmental website.

2000-2001 Chair of Physics Search and Screen Committee

2001-2002 Chair of Physics Search and Screen Committee

2000-2003 Chair of the Chemistry Department

2005-2006 Chair of the Environmental Health & Safety Committee

2008-2009 Interim Chair of Chemistry Department

2009-2010 Chemistry Department Search and Screen Committee – Analytical Chemist

2012 (Spring Semester), Department of Natural Sciences Interim Co-Chair

2014-2015 Biology Search and Screen Committee

Community and Profession

2016 Served as a judge for the Superior High School Senior Project Presentations

2016 Served as a reviewer for the ACS journal Energy and Fuels

2015 Served a reviewer of UWS Summer Undergraduate Research Fellowship proposals

2015 Served as a judge at the 63rd Northeast Minnesota Regional Science Fair

2012 Participated in the Northern Trails District Boy Scout's Spring Camporee helping scouts earn their Chemistry merit badge

2012 Organized and hosted the ACS Spring Awards banquet on April 25th, 2012. Speaker: Dr. Thomas Werner "Doping in Sports: How chemists catch the "cheaters" (sometimes)"

1999-2002, 2010-2012 Chair American Chemical Society Lake Superior Local Section Executive Committee

2005-2009 Secretary American Chemical Society Lake Superior Local Section Executive Committee

1996-1999 and 2002-2005 Director American Chemical Society Lake Superior Local Section Executive Committee

1998 Conducted the chemistry portion of Eisenhower-funded workshop "Modeling Acid Deposition – Integrating Mathematics and Science" for regional high school teachers.

1996-2002 National Chemistry Week Coordinator or Participant in public outreach to community and local schools

1995-1997 Conducted the chemistry portion of NSF-funded Young Scholars Program "Modeling Acidic Deposition" for advanced high school students across the nation.