

# Matthew A. Ray

410 Tenth Ave.  
Menomonie, WI 54751  
(715)503-0547  
rayma@uwstout.edu

---

## SUMMARY

- Professor of Chemistry, Entrepreneur, and Independent Consultant with industrial research and management experience
- Excellent understanding of materials science, carbon fiber composites, polymer mechanics, colloidal dynamics, and surface interactions. Also well versed in applied immunology
- Effective at teaching complex material in an easy to understand and engaging way
- Project leader with strong ability to work in cross-functional teams and drive research progress
- Demonstrated ability with product design, development, and commercialization

## EXPERIENCE

### ***University of Wisconsin – Stout, Department of Chemistry and Physics, Menomonie WI***

#### ***Department Chair, 2023 – Present***

#### ***Professor of Chemistry, 2019 – Present***

#### ***Associate Professor, 2014 – 2019***

#### ***Assistant Professor, 2010 – 2014***

- Laboratory and lecture curriculum development for the following courses: Chemistry of Materials, Chemistry of Polymers, Industrial Chemistry, Nanotechnology Applications, Physical Chemistry, and General Chemistry
- Trained two thousand engineering students on materials science, synthesis and analysis over the past 15 years.
- Served as the Materials and Nanoscience concentration coordinator for the B.S. Applied Science program, 2017 - Present
- Mentored and supervised numerous undergraduate research students
- Advisory board member for the Plastics Engineering and Manufacturing Engineering Programs
- Industrial consulting for multiple companies through the UW-Stout Manufacturing Outreach Center in a variety of technical areas including adhesives, sealants, paints, coatings, surface chemistry and wetting, polymer coated frac sand, polymeric food additives, and materials selection

### ***Thermo Fisher Scientific, Particle Technology Division, Indianapolis IN***

#### ***R&D Manager, 2008 – 2010***

- Led a research and development group in the discovery and commercialization process of multiple products and procedures in an FDA regulated environment (medical device – ISO 13485)
- Designed and optimized particle coupling protocols for proteins and small molecules, including monoclonal antibodies, protein A/G, and streptavidin
- Developed a proprietary magnetic particle blocking layer to greatly reduce non-specific binding of matrix proteins leading to a new family of products
- Managed a variety of customer driven projects to develop particle based assay components for applications including prion detection and genome sequencing

#### ***R&D Scientist, 2006 – 2008***

- Expanded upon patented technology to produce Next Generation SeraMag SpeedBead Magnetic Particles with superior size distribution and performance characteristics

- Routinely offered technical expertise to troubleshoot internal production issues and customer application challenges, chaired customer teleconferences and traveled for on-site customer visits
- Trained in Practical Process Improvement (PPI) and initiated a manufacturing process optimization project that resulted in a cost savings of greater than \$140,000 per year

**Lehigh University, Department of Chemistry and Emulsion Polymers Institute, Bethlehem PA**

**Research Assistant and Amstutz Fellow, 2002 – 2006**

- Discovered and published new methods for promoting self-assembly of colloidal particles and depositing the resulting particle arrays onto solid substrates in an highly ordered fashion
- Frequently utilized organosilane self-assembled monolayers for surface functionalization
- Designed and constructed a modified Langmuir-Blodgett trough for particle monolayer deposition
- Proficient with emulsion and dispersion polymerization, monomer and polymer synthesis including anionic and transition metal catalyzed co-polymerization, and inorganic nanoparticle synthesis
- Experienced in dry box and air-free Schlenk line techniques for organic and organometallic synthesis

**Teaching Assistant, 2001 – 2002**

- Led Advanced General Chemistry laboratories and lecture course recitations

## EDUCATION

**PhD, Chemistry, Lehigh University, Bethlehem PA, 2007**

- Dissertation: "Bottom-Up Surface Self-Assembly of Polymer Colloids to Form Patterned Arrays"
- Advisers: Li Jia, Greg Ferguson

**MS, Chemistry, Lehigh University, Bethlehem PA, 2005**

- Thesis: "Dynamic Self-Assembly of Polymer Colloids to Form Linear Patterns"
- Adviser: Li Jia

**BS, Chemistry, (magna cum laude), Bob Jones University, Greenville SC, 2001**

- Minor: Physics, Major-Minor GPA: 4.00, Cumulative GPA: 3.88
- Thesis: "Synthesis of a Novel Cross-Linking Monomer for Fuel Cell Membrane Applications"
- Adviser: George Matzko (Clemson REU-SURP Adviser: Darryl DesMarteau)

## POST-DOCTORAL COURSEWORK

- Great Lakes Innovation Corps (I-Corps) Course, National Science Foundation (NSF), UW-Madison ([badge](#)), June 19-July 24, 2025

## PUBLICATIONS AND PATENTS

- Ray, M.A.; et.al. "Non-Setting Polyurethane Polymer, Compositions, and Methods." US Patent, filed, **2024**, Patent Pending.
- Kunze, J.; Ray, M.A. "Impact of Personal Care Products on Tensile Strength and Structure of Hair." *University of Wisconsin-Stout Journal of Student Research*, **2023**, 21, 31-53.
- Pomeranke, W.; Ray, M.A. "Understanding the Effects of High Temperature Stress and Weathering on Concrete Strength." *University of Wisconsin-Stout Journal of Student Research*, **2022**, 20, 43-54.
- Holzman, N.J.; Ray, M.A. "Photopolymerization of Methylmethacrylate: An Inexpensive, Open-Source Approach for the Undergraduate Lab." *University of Wisconsin-Stout Journal of Student Research*, **2015**, 15, 152-164.
- Jia, L.; Ray, M.A. "Method of Transferring Patterned Non-Densely Packed Interfacial Particle Films onto Substrates." US Patent 7,939,133, May 10, **2011**.

- Ray, M.A.; Shewmon, N; Bhawalkar, S.; Jia, L.; Yang, Y.; Daniels, E.S. "Submicron Surface Patterning Using Interfacial Colloidal Particle Self-Assembly." *Langmuir*, **2009**, 25, 7265-7270.
- Ray, M.A.; Jia, L. "Micropatterning by Non-Densely Packed Interfacial Colloidal Crystals." *Adv. Mater*, **2007**, 19, 2020-2022.
- Ray, M.A.; Kim, H.; Jia, L. "Dynamic Self-Assembly of Polymer Colloids to Form Linear Patterns." *Langmuir*, **2005**, 21, 4786-4789.

## AFFILIATIONS

- Emulsion Polymers Institute, Lehigh University
- American Chemical Society (ACS)
- Wisconsin Science Olympiad
- Materials Research Society
- Sigma Xi
- American Association of Clinical Chemists

## SELECTED PRESENTATIONS

*In addition to the external presentations listed below, my research group students have presented 22 Research Day posters and my students doing in-class research projects have presented 58 STEM EXPO posters at University of Wisconsin-Stout.*

- Kruger, B.; Wentz, M; (representing LEAPP Development Team). "Effectively Using Continuous Improvement and Innovation to Facilitate Organizational Change." AIRUM Annual Conference, Bloomington, MN, November 6 – 8, **2024**.
- Wentz, M; (representing LEAPP Development Team). "Effectively Using Continuous Improvement and Innovation to Facilitate Organizational Change." Quest for Excellence 2024 Conference, Washington D.C., April 7 – 10, **2024**.
- Hasan, J.; Esmaeili, F.; Cassell, N.; Kannel, J.; Ray, M.A. "Microscale Synthesis of Fusible Alloys and Low-Melting-Point Metallic Nanoparticles." *PSG4-106, National Conference on Undergraduate Research*, Eau Claire WI, April 14, **2023**.
- Kunze, J.; Ray, M.A. "Impact of Personal Care Products on Tensile Strength and Structure of Hair." *PSD4-104, National Conference on Undergraduate Research, Eau Claire WI*, April 13, **2023**.
- Kunze, J.; Ray, M.A. "Impact of Personal Care Products on Tensile Strength and Structure of Hair." *19th Annual Research in the Rotunda, Madison WI*, March 8, **2023**.
- Kunze, J.; Ray, M.A. "Impacts on Hair of Common Chemical Components of Shampoo." *McNair Research Summit 2022, Superior WI*, August 11, **2022**.
- Wentz, M.; Rodriguez, G.; Seaver, J.E.; Ray, M.A. "Developing Cross-Institutional Research Partnerships Focusing on The UN Sustainable Development Goals." *Polytechnic Summit 2019, Menomonie WI*, June 3, **2019**.
- Manuele, D.; Mkwandwire, H.; Miller, J.; Doctor, C.; Hullen, E.; Finder, B.; Lacksonen, T.; Ray, M.A. "Increasing the Efficiency of a Hydroelectric Generator Built and Designed for Malawi Africa." *16th Annual Research in the Rotunda, Madison WI*, April 17, **2019**.
- Hirsch, T.; O'Brien, R.; Deeg, N.; Ray, M.A.; Kramschuster, A. "Color Matching for Low Volume Plastics Processing." SPE Poster Number: 2018-UG39. *Society of Plastics Engineers Annual Technical Conference, Orlando FL*, May 7-10, **2018**.
- Manuele, D.; Ray, M.A.; Finder, B.; Lacksonen, T. "Increasing the Efficiency of a Hydroelectric Generator Produced and Operated in Malawi Africa." (*Devon Manuele won 1st prize in the Student Researchers Competition, Engineering and Technology category*). *18th National Role Models Conference, Washington DC*, Sept. 29-Oct. 1, **2017**.
- Moehring, N.; Marra-Mateus, F.; Ray, M.A. "Photoluminescent Borosilicate Glass: A Material with a Bright Future." *Regional Materials and Manufacturing Network (RM<sup>2</sup>N) Fall Symposium, Menomonie WI*, Oct. 17, **2016**.

- Holzman, N.; Ray, M.A. "Photochemistry for Paupers: The Quest to Fabricate a Photochemical Reactor." *Upper Midwest Regional Honors Conference, Waverly IA*, April 24-26, **2014**.
- Raethke, E.; Ray, M.A. "Protein Assisted Particle Self-Assembly for Multiplex Analyte Detection" *UW System Symposium for Undergraduate Research and Creative Activity, Milwaukee WI*, April 11, **2014**.
- Marra-Mateus, F.; Ray, M.A. "Photoluminescent Borosilicate Glass: A Material with a Bright Future." *7<sup>th</sup> Annual Wisconsin Science and Technology Symposium, Eau Claire WI*, July 21-22, **2014**.
- Barrix, C.; Ramirez, D.; Woellner, M.; Ray, M.A. "From Synthesis to Injection Molding, a 360° Polymer Lab Experience." *UW System Office of Professional and Instructional Development (OPID) 2014 Spring Conference, Green Lake WI*, April 18, **2014**.
- Barrix, C.; Ramirez, D.; Woellner, M.; Ray, M.A. "From Synthesis to Injection Molding, a 360° Polymer Lab Experience." *40<sup>th</sup> UW System Chemistry Faculties Meeting, River Falls WI*, Oct. 25, **2013**.
- Yungbauer, T.; Smith, K.; Woellner, M.; Ray, M.A. "Protein Assisted Particle Self-Assembly for Multiplex Analyte Detection." *8<sup>th</sup> Annual Minnesota Nanotechnology Workshop, University of Minnesota, Minneapolis MN*, November 7-8, **2012**.
- Doyle, J.; Ray, M.; Ouyang, A.; Benton, B.; Bell, P.A. "High throughput proteomic applications using protein A/G magnetic beads." Abstract 4877, DOI: 10.1158/1538-7445.AM2011-4877, *American Association for Cancer Research (AACR) 102nd Annual Meeting, Orlando FL*, April 2-6, **2011**.
- Ray, M.A.; Kim, H.; Jia, L. "Dynamic Self-Assembly of Polymer Colloids To Form Linear Patterns." *230<sup>th</sup> ACS National Meeting, Washington DC*, Aug. 28-Sept. 1, **2005**, COLL-415.
- Ray, M.A.; Kim, H.; Jia, L. "Dynamic Self-Assembly of Polymer Colloids To Form Linear Patterns." *Gordon Research Conference on Polymer Colloids, Tilton NH*, July 3-8, **2005**.
- Ray, M.A.; Jia, L. "Patterning of Functionalized Polymer Colloids by Self-Assembly." *228<sup>th</sup> ACS National Meeting, Philadelphia PA*, Aug. 22-26, **2004**, COLL-151.

## SELECTED PRESENTATIONS AT UW-STOUT

- Ray, M.A.; Risler, J. Change the Rate of Change, LEAPP Innovation at You Said, We Did, UW-Stout, January 15, 2024.
- Burritt, J.; Ray, M.A.; Zimmerman, T. "The 2023 Nobel Prizes: The Basic Science of Today is the Real-World Applications of Tomorrow." University of Wisconsin-Stout, Menomonie WI, November 14, 2023.
- Cluphf, A.; Harrison, W.; Ray, M.A.; Rodriguez, G.; Scott, S.; Shiell, T. "Free Speech at UW-Stout - A Panel Discussion." University of Wisconsin-Stout, Menomonie WI, October 18, 2023.
- Patterson, M.; Ray, M.A. "Living in a Material World." Applied Science Seminar, University of Wisconsin-Stout, Menomonie WI, November 20, 2014.

## RESEARCH DAY POSTER PRESENTATIONS AT UW-STOUT

- Hufnagel, R.; Ray, M.A. "The Sky is Falling: Accelerating Demise During Reentry." UW-Stout Research Day, 2025
- Hasan, J.; Esmaeili, F.; Cassell, N.; Kannel, J.; Ray, M.A. "Microscale Synthesis of Fusible Alloys and Low-Melting-Point Metallic Nanoparticles." UW-Stout Research Day, 2023
- Kunze, J.; Ray, M.A. "Impact of Personal Care Products on Tensile Strength and Structure of Hair (revised)." UW-Stout Research Day, 2023
- Kunze, J.; Ray, M.A. "Impact of Personal Care Products on Tensile Strength and Structure of Hair." UW-Stout Research Day, 2022
- Pomeranke, W.; Ray, M.A. "Understanding the Effects of High Temperature Stress and Weathering on Concrete Strength." UW-Stout Research Day, 2021.
- Cassell, N.; Ray, M.A. "Optimizations of Metallurgical Polishing Techniques for Soft Metals." UW-Stout Research Day, 2021.
- Manuele, D.; Ray, M.A.; Finder, B.; Lacksonen, T. "Increasing the Efficiency of a Hydroelectric Generator Produced and Operated in Malawi Africa." UW-Stout Research Day, 2018.

- Moehring, N.; Ray, M.A. "Bridging the Gap with Multiwall Carbon Nanotubes" UW-Stout Research Day, 2018.
- Ignasiak, K.; Ray, M.A. "Toxicity and Function of Hydrophobic Catings." UW-Stout Research Day, 2018.
- Hirsch, T.; Pontillo-Verrastro, V.; Ray, M.A. "Color Matching in Photopolymer 3D Printing using CMYK Color Model." UW-Stout Research Day, 2017.
- Lindsay, R.M.; Sinkovits, D.W.; Zimmerman, T.A.; Ray, M.A. "MD Simulations of the Mesosstructure Phase of Microspheres at an Air-Water Interface." UW-Stout Research Day, 2017.
- Loes, M.; Ray, M.A.; Patterson, M. "Going for Silver: Photo-reduction of Silver Formulated as an Introductory-level Laboratory Procedure." UW-Stout Research Day, 2017.
- Moehring, N.; Marra-Mateus, F.; Maury, K.; Ray, M.A. "Science as Art: Analysis of Transition Metal Fluorescence for Ceramic Glazes." UW-Stout Research Day, 2017.
- Siprien, C.; Ray, M.A. "Smart Temperature Regulating Fabrics: A Feasibility Study." UW-Stout Research Day, 2017.
- Fuhrman, K.; Boatman, E.; Ray, M.A. "Polyurethanes: Hardness and Crystallinity Analysis." UW-Stout Research Day, 2016.
- Ellie Raethke, E.; Ray, M.A.; "Identification of Lead in Household Paint: A Method Comparison." UW-Stout Research Day, April 29, 2014.
- Holzman, N.; Ray, M.A.; "Photochemistry for Paupers: The Quest to Fabricate a Photochemical Reactor" UW-Stout Research Day, April 29, 2014.
- Marra-Mateus, F.; Ray, M.A.; "Fluorescent Art Studio Glazes" UW-Stout Research Day, April 29, 2014.
- Raethke, E.; Barrix, C.; Yungbauer, T.; Smith, K.; Woellner, M.; Ray, M.A. "Protein Assisted Particle Self-Assembly for Multiplex Analyte Detection." UW-Stout Research Day, April 30, 2013.
- Bouc, M.; Ray, M.A.; Grant, J. "Horticultural Hydrogel to Buffer pH of Soil." UW-Stout Research Day, April 30, 2013.
- Yungbauer, T.; Barrix, C.; Yungbauer, T.; Smith, K.; Woellner, M.; Ray, M.A. "Protein Assisted Particle Self-Assembly for Multiplex Analyte Detection." UW-Stout Research Day, April 24, 2012.
- Barrix, C.; Ray, M.A. "Suspension Polymerization of Styrene." UW-Stout Research Day, April 24, 2012.
- Smith, K.; Ray, M.A. "Generation of a Color Coded Particle Library for Use in Multiplex Immunoassays." UW-Stout Research Day, April 24, 2012.

## SELECTED CONFERENCES AND WORKSHOPS ATTENDED

- **SmallSat 2025, 39th Annual Small Satellite Conference**, Space Dynamics Laboratory, Salt Palace Convention Center, Salt Lake City UT, Aug. 10-13, **2025**
- **2025 Great Lakes Regional Meeting (GLRM)**, American Chemical Society, Fox Cities Exhibition Center, Appleton WI, June 4-6, **2025**
- **2023 UW System Chemistry Faculties Meeting**, University of Wisconsin-Madison, Madison WI, November 3-4, **2023**
- **Baldrige Introduction Workshop**, presented by Liz Menzer, Executive Director, Wisconsin Center for Performance Excellence and Vice Chair, Baldrige Alliance for Performance Excellence and JoAnn Sterneke, former Pewaukee School District Superintendent, UW-Stout, Menomonie WI, Sept. 30, **2023**
- **AFIT Summer Institute, Finding the Future First: Building Breakthrough Innovations in Higher Education**, Lead Learning Partner: Larry Keeley, Innovation Scientist, Westin Denver Downtown, Denver CO, July 12-15, **2023**
- **National Conference on Undergraduate Research**, University of Wisconsin - Eau Claire, Eau Claire WI, April 13, **2023**
- **Research in the Rotunda**, Capitol Rotunda, Madison WI, March 8, **2023**
- **Mentoring and Supporting New Faculty Members: A Workshop**, presented by Dr. Rebecca Brent, President of Education Designs Inc. and Dr. Richard M. Felder, Professor Emeritus, North Carolina State University, hosted by the UW-Stout Nakatani Teaching and Learning Center, Menomonie WI, January 12, **2023**

- **Polytechnic Summit 2019**, University of Wisconsin-Stout, Menomonie WI, June 3-5, **2019**
- **Effective Teaching: A Workshop**, presented by Dr. Rebecca Brent, President of Education Designs Inc. and Dr. Richard M. Felder, Professor Emeritus, North Carolina State University, hosted by the UW-Stout Nakatani Teaching and Learning Center, Menomonie WI, January 16-17, **2019**
- **Global Partners European Alliance Research Symposium**, Coventry University, Coventry, United Kingdom, October 23, **2018**
- **42<sup>nd</sup> UW System Chemistry Faculties Meeting**, Madison WI, Oct. 23–24, **2015**
- **41st UW System Chemistry Faculties Meeting**, La Crosse WI, October 10–11, **2014**
- **Learning Community Summer Workshop**, Menomonie WI, August 21, **2014**
- **7<sup>th</sup> Annual Wisconsin Science and Technology Symposium**, Eau Claire WI, July 21-22, **2014**
- **Transforming Student Learning with Undergraduate Research Workshop**, Research Skill Development Framework, presented by Dr. John Willison from the University of Adelaide, hosted by the UW-Stout Nakatani Teaching and Learning Center, Menomonie WI, July 2, **2014**
- **UW System Office of Professional and Instructional Development (OPID) 2014 Spring Conference**, Green Lake WI, April 17-18, **2014**
- **40<sup>th</sup> UW System Chemistry Faculties Meeting**, River Falls WI, Oct. 25, **2013**
- **Learning Community Summer Workshop**, Menomonie WI, August 22, **2013**
- **8th Annual Minnesota Nanotechnology Workshop**, University of Minnesota, Minneapolis MN, November 7-8, **2012**
- **Learning Community Summer Workshop**, Menomonie WI, August 23, **2012**
- **Grant-seeking Without Grief, Grant Writing Workshop**, presented by Lynn Miner, University of Wisconsin-Stout, Menomonie WI, January 19, **2012**
- **7th Annual Minnesota Nanotechnology Workshop**, University of Minnesota, Minneapolis MN, November 15, **2011**
- **38<sup>th</sup> UW System Chemistry Faculties Meeting**, Menomonie WI, Oct. 21-22, **2011**
- **6th Annual Minnesota Nanotechnology Workshop**, University of Minnesota, Minneapolis MN, October 7-8, **2010**
- **Opening Workshop for New STEM Educators: Inclusive Teaching Methods**, Clearwaters Hotel & Convention Center, Marshfield WI, Sept. 30-Oct. 1, **2010**
- **New Instructor Workshop**, University of Wisconsin-Stout, Menomonie WI, August 17-19, **2010**
- **Emulsion Polymers Liaison Program Annual Review Meeting and Workshop**, Lehigh University, Bethlehem PA, May 6-7, **2010**
- **Supervising and Managing People Workshop**, presented by Phil Thompson, Comprehensive Performance Systems, hosted by the Indiana Chamber of Commerce, Indianapolis IN, Sept. 18-19, **2008**
- **Harnessing New Technology for Clinical Diagnostics**, 39<sup>th</sup> Annual AACC Oak Ridge Conference, St. Louis MO, April 19-20, **2007**
- **Enabling Targeted Therapies and Non-Invasive Imaging**, 7<sup>th</sup> Annual Targeted Nanodelivery Conference, presented by Cambridge Health Institute, Baltimore MD, Oct. 12-13, **2006**
- **230th ACS National Meeting**, Washington DC, Aug. 28-Sept. 1, **2005**
- **Gordon Research Conference on Polymer Colloids**, Tilton NH, July 3-8, **2005**
- **228th ACS National Meeting**, Philadelphia PA, Aug. 22-26, **2004**

#### SELECTED EVENTS PROFESSIONALLY ATTENDED

- **EAA AirVenture Oshkosh 2025**, Oshkosh WI, July 21-22, **2025**
- **Chippewa Valley Air Show 2025**, Eau Claire WI, June 28, **2025**

## SELECTED TOURS AND INDUSTRIAL SITE VISITS

- **Cirrus Aircraft**, Duluth MN, Aug. 1, **2025**
- **Product Development Machine**, Duluth MN, Aug. 1, **2025**
- **Aerospace Fabrication & Materials**, Farmington MN, July 15, **2025**
- **Wipaire (World's Largest Manufacturer of Aircraft Floats)**, South St. Paul MN, July 15, **2025**
- **Nowaskey Extreme Performance (Motorcycle Parts & Supplies)**, Menomonie WI, July 7, **2025**
- **Gibson Aviation Services**, Menomonie WI, July 7, **2025**
- **Donaldson Company (Filtration Solutions)**, MN ACS Tour & Technical Presentation, Bloomington MN, March 12, **2025**
- **3M Corporate Research Laboratory, Creating an Environment for Innovation at 3M**, presented by Dr. Larry Wendling, Vice President, 3M Innovation Center in collaboration with the Minnesota section of ACS, Maplewood MN, January 14, **2014**
- **3M Menomonie, Society of Manufacturing Engineers Tour**, Menomonie WI, December 12, **2013**
- **Cardinal FG (Float Glass) Company**, Menomonie WI, numerous visits, **2010-2025**

## SELECTED SEMINARS AND WEBINARS ATTENDED

- **Design Thinking, Design Jam** presented by Bill Digneit, Director of SISU at Northern Michigan University (badge), Menomonie WI, October 2-3, **2024**
- **Introduction to Design Thinking**, presented by Bill Digneit, Director of [SISU](#) at Northern Michigan University ([badge](#)), Menomonie WI, April 22, **2024**
- **Building the Business Case for Innovation Challenges, Hackathons, and Shark Tanks**, presented by Coby Skonord, CEO & Co-Founder at [Ideawake](#), webinar, March 5, **2024**
- **Think Like a Futurist - Virtual Workshop**, presented by Glen Hiemstra, founder of Futurist.com, AFIT Webinar, June 14, **2023**
- **What Americans Really Want ... Really**, presented by Frank Luntz, National Political Analyst, presented by UW-Madison's Tommy G. Thompson Center for Public Leadership, Raw Deal, Menomonie WI, April 4, **2023**
- **How Free Speech Saved Democracy**, presented by Chris Finan, Director of the National Coalition Against Censorship, hosted by the UW-Stout Menard Center for the Study of Institutions and Innovation, Menomonie WI, Oct. 19, **2022**
- **Polymeric Coatings: From Fundamentals to Future Technologies**, presented by Marek W. Urban of Clemson University, ACS Webinar, June 2, **2022**
- **Materials to the Rescue: Innovation in Materials and Manufacturing, Responding to the COVID Crisis**, virtual webinar event hosted by WiSys and the Regional Materials and Manufacturing Network (RM2N), Feb 23-25, **2021**
- **Face Masks: Materials, Disinfection, and Reuse During COVID-19**, presented by Supratik Guha of University of Chicago and Argonne National Laboratory and Yi Cui of Stanford University, ACS Webinar, May 14, **2020**
- **Understanding the Scientific and Medical Aspects of the Pandemic**, presented by Jonathan Lai of Albert Einstein College of Medicine and Raymond Forslund, Syner-G, ACS Webinar, May 13, **2020**
- **The Material World of Color: Chemical Characterization of Pigments in Art**, presented by Barbara Berrie from the National Gallery of Art, ACS Webinar, May 8, **2020**
- **Safer Chemistry Education at Home**, presented by Debbie Decker of UC Davis, Jennifer Bishoff of Frostburg University, and Ralph Stuart of Keene State College, ACS Webinar, May 7, **2020**

## AWARDS

- **Outstanding Teaching Award**, UW-Stout 2022-2023
- **University of Wisconsin Libraries Research Fellow**, UW-Stout 2011

## ADVISORY BOARDS

- **Plastics Engineering Program**, UW-Stout (2012 – present)
- **Manufacturing Engineering Program**, UW-Stout (2011 – present)
- **Applied Science Program**, UW-Stout (2017 – present)

## COMMITTEES

- **Faculty Senate**, UW-Stout
  - Representative for the Department of Chemistry and Physics (2015 – 2018)
  - Alternate Representative for CSTEM (2013 – 2014)
- **Department of Chemistry and Physics**, UW-Stout
  - Curriculum Committee (2022 – present)
  - Personnel Committee (2014 – present)
  - Scheduling Committee (2012 – present)
  - Hiring Committee (2011 – 2014; 2016 – 2017)

## OUTREACH

- **Science Olympiad**
  - *National, Division C - **Chemistry Lab** Event Co-Supervisor* (2016)  
(supervised competitive event)
  - *Wisconsin State, Division C – **Materials Science** Event Supervisor* (2025)  
(authored state exam and supervised competitive event)
  - *Wisconsin State, Division C - **Chemistry Lab** Event Supervisor* (2016; 2019; 2021; 2022; 2024)  
(authored state exam and supervised competitive event)
  - *Wisconsin State, Division C – **Technical Problem-Solving** Event Supervisor* (2014)  
(authored state exam and supervised competitive event)
  - *Wisconsin Regional, Menomonie H.S., Division C – **Materials Science** Event Supervisor* (2014)  
(authored exam and supervised competitive event)
- **STEPS** (Science, Technology, & Engineering Preview Summer Camp)
  - *Chemistry Technical Activity Instructor* (2013 – 2019)  
(Taught over **1100 campers** – in groups of 10 – 1.5 hour lessons with hands on activities in electrochemistry and chemical thermodynamics)
- **STEM Summer Camp**, UW-Stout
  - *Chemistry Instructor – Drones* (2017)
  - *Chemistry Instructor – Rockets* (2016)
- **Stout Proud PreCollege Summer Camp**, UW-Stout
  - *Materials Science and Chemistry Instructor* (2015; 2016)
- **FIRST LEGO League Challenge** (2020)
  - “Materials Science Expert” for Team #23260, N.O.A.M – Nerds On A Mission, LaCrosse, WI
- **Wisconsin Science Festival** (2013; 2014)
- **Chemistry Demonstration Outreach Programs**
  - 2012 Wisconsin State Science Olympiad, March 31, 2012
  - Menomonie High School, December 9, 2011
  - 2011 Wisconsin State Science Olympiad, April 2, 2011
  - Colfax Middle School – with Professor Emeritus Marty Ondrus, demonstration program for 60 students visiting campus, May 20, 2011



- **Tutoring** – Numerous two-hour tutoring sessions, Menomonie High School Science Olympiad:
  - Chemistry Team (Fall 2014 – Spring 2015)
  - Chemistry and Materials Science Teams (Fall 2013 – Spring 2014)
  - Chemistry Team (Spring 2013)
  - Materials Science Team (Spring 2013)
  - Chemistry Team (Fall 2012)
  - Chemistry Team, competed in the National SO Competition (Spring 2011)

## RAY RESEARCH GROUP – CUMULATIVE

#	Student	Dates	Funding (Time, Materials)	Placement
28	<a href="#">Reese Hufnagel</a>	2024 - 25	WSGC, SRG	
27	<a href="#">Nick Riley</a>	2022 - 23	EVCO(\$100,000) partial†	
26	<a href="#">Morgan Gale</a>	2022 - 23	EVCO	
25	<a href="#">Jordan Kunze</a>	2021 - 23	McNair, Intern, Honors Contract,	
*	<a href="#">Melvin Demiar</a>	*2021 - 22	Engineering Collaboration	<a href="#">Advantek</a>
24	<a href="#">Junaid Hasan</a>	2021 - 23	APSC-SJP	
23	<a href="#">Michael Stoiber</a>	2021	Honors Contract	
*	<a href="#">Celina Coddington</a>	*2021	Volunteer	
22	<a href="#">William Pomeranke</a>	2020 - 21	Honors Contract, CHEM-489, SRG(\$928)	<a href="#">North Cedar Acad.</a>
21	<a href="#">Nichole Cassell</a>	2019 - 22	PARQ-SJP, APSC-SJP	
20	<a href="#">Jake Nelson</a>	2019 - 20	PARQ-SJP	
19	<a href="#">Benjamin Lind</a>	2019 - 20	PARQ-SJP	<a href="#">Stratasys</a>
18	<a href="#">Joseph Kannel</a>	2019	TA/RA	<a href="#">Donaldson</a>
17	<a href="#">Kayla Ignasiak</a>	2018	Honors Contract	
16	<a href="#">Devon Manuele</a>	2017 - 18	McNair, SRG(\$1200)	<a href="#">Rogers Behavioral</a>
15	<a href="#">Tommy Palof</a>	2016 - 17	Intern, CHEM-489	<a href="#">Pace Analytical</a>
14	<a href="#">Charlo Siprien</a>	2016	McNair	
13	<a href="#">Michael Loes</a>	2016 - 18	Volunteer, CHEM-489	<a href="#">PhD Program, UNL</a>
12	<a href="#">Roy Lindsay</a>	2016 - 17	Physics Collaboration	<a href="#">Bitwage</a>
11	<a href="#">Kevin Furhman</a>	2016	Engineering Collaboration	<a href="#">Five Star Plastics</a>
10	<a href="#">Nicole Moehring</a>	2016 - 18	TA/RA, CC(\$2000)	<a href="#">PhD Program, Vanderbilt</a>
9	<a href="#">Thomas Hirsch</a>	2015 - 18	TA/RA, CC(\$2000), Capstone	<a href="#">Northern Engraving</a>
8	<a href="#">Noah Holzman</a>	2014 - 15	Honors Contract, SRG(\$710)	<a href="#">Metrohm</a>
7	<a href="#">Felipe Marra-Mateus</a>	2014 - 15	BSWB, Intern, SRG(\$495)	<a href="#">Riachuelo</a>
6	<a href="#">Ellie Raethke</a>	2013 - 16	TA/RA, FRI	<a href="#">Boston Scientific</a>
5	<a href="#">Mitchell Woellner</a>	2012 - 13	TA/RA, WS	<a href="#">PhD Program, USM</a>
4	<a href="#">Tom Yungbauer</a>	2012 - 13	TA/RA, Intern, FRI	<a href="#">Sherwin Williams</a>
3	<a href="#">Kelvin Smith</a>	2011 - 12	TA/RA, WS, FRI(\$7972)	<a href="#">UW-Stout</a>
2	<a href="#">Clayton Barrix</a>	2011 - 14	TA/RA	<a href="#">I<sup>2</sup>-tech</a>
1	<a href="#">Amy (York) Tubbs</a>	2010 - 12	TA/RA, WS	<a href="#">Logistics Health</a>

**WSGC**-Wisconsin Space Grant Consortium, **EVCO**-Industrial Donation from EVCO Plastics in support of three separate Plastics Engineering sustainability projects, **SRG**-Student Research Grant, **CCG**-College Collaboration Grant, **WS**-Work Study, **FRI**-Faculty Research Initiative, **BSWB**-Brazilian Science Without Borders Exchange Program, **Intern**-to fulfill internship requirement, **CHEM-489**-research for credit to fulfill degree requirement, **PARQ-SJP**-UW-Stout Planning, Assessment, Research, Quality Office Student Jobs Program, **APSC-SJP**-Applied Science Student Jobs Program, \*limited duration project

## STUDENT COURSE EVALUATIONS