Graeme R. A. Wyllie Ph.D

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EDUCATION

Ph.D.,	Bioinorganic Chemistry, University of Notre Dame, Notre Dame, IN, August 2003 (Advisor W. Robert Scheidt)
Postgraduate Diploma	Instrumental and Analytical Chemistry, The Robert Gordon University, Aberdeen, Scotland, August 1994
B.Sc.,	Inorganic Chemistry, University of St. Andrews, St Andrews, Scotland, June 1993

PROFESSIONAL EXPERIENCE

September 2011 – Present	Assistant Professor of Chemistry, Concordia College, Moorhead, MN
Aug 2006 – September 2011	Laboratory Coordinator / Stockroom Manager for the Department of Concordia College, Moorhead, MN
Sept 2003 – Aug 2006	Postdoctoral Research Fellow with Professor Kenton R. Rodgers North Dakota State University, Fargo, ND "*Transient Absorbance Studies of the Heme Oxygen Sensor FixL*" and "*Synthesis and Spectroscopy of peripherally substituted (nitrosyl)iron porphyrinates*."
Jan 1999 - Sept 2003/ Aug 1994 - June 1996	Graduate Research Assistant with Professor W. Robert Scheidt, University of Notre Dame, Notre Dame, IN Dissertation Title: "*Structural and Spectroscopic Studies of Nitrogen Oxide-coordinated Iron Porphyrinates.*"
Sept 1993 - Aug 1994	Postgraduate Research Assistant at McAuley Land Use Research Institute, Aberdeen Scotland. "*Detection of Polyaromatic Hydrocarbons and Polychloro-biphenyls in Sewage Treated Soils by GC-MS.*"
Oct 1992 - May 1993	Undergraduate Research with Professor R. W. Hay, University of St. Andrews, St Andrews, Scotland. "*Synthesis and Metallation of a 30-membered Hexa-aza Macrocylic Ligand*."
March 1992 - Sept 1992	Work Placement Program with Analytical Chemistry Division of McFarlan Smith Pharmaceuticals, Edinburgh, Scotland.

PUBLICATIONS: (All Peer Reviewed)

1. Graeme R. A. Wyllie, "Triclosam, It's not the bacteria but the soap that's going to kill you" How to Win Friends and Influence Fungi: Collected Quirks of Science, Tech, Math, and Engineering from Nerd Nite, St. Martin's Press, **2024**, 65-69

2. Sofia F. Palme, Andrew H. Johnson and Graeme R. A. Wyllie "Color, Candy, and Chromatography: A Combined TLC and HPLC Activity for the General Chemistry Laboratory" *Journal of Chemical Education*, **2024,** *101***,** 124-130.

3. Alexandra M. Ward and Graeme R. A. Wyllie "Bioplastics in the General Chemistry Laboratory: Building a Semester-Long Research Experience" *Journal of Chemical Education*, **2019,** *96***,** 668-676.

4. Graeme R. A. Wyllie, "Embracing Limits in Creating a Responsible Scientist/Citizen" Reformation and Resilience: Lutheran Higher Education for Planetary Citizenship, Ernest Simmons and Erin Hemme Froslie (editors), Lutheran University Press, **2017**. pp. 299-303.

5. Graeme R. A. Wyllie Spectroscopic Determination of Triclosan Concentration in a Series of Antibacterial Soaps: A First-Year Undergraduate Laboratory Experiment. *Journal of Chemical Education*, **2015,** *92***,** 153-156.

6. Graeme R. A. Wyllie, Nathan J. Silvernail; Allen G. Oliver, Charles E.Schulz, and W. Robert Scheidt. Iron Nitrosyl "Natural" Porphyrinates: Does the Porphyrin Matter? *Inorganic Chemistry* **2014** *53*(7), 3763-3768.

7. Ming Li, Teresa J. Neal, Graeme R. A. Wyllie, Allen G. Oliver, Charles E. Schulz, and W. Robert Scheidt. Metalloporphyrin Mixed-Valence π-Cation Radicals: $[Fe(oxoOEC•/2)(Cl)]_2SbCl6$, Structure, Magnetic Properties, and Near-IR Spectra *Inorganic Chemistry* **2011** *50* (18), 9114-9121.

8. Ming Li, Teresa J. Neal, Graeme R. A. Wyllie, Charles E. Schulz, and W. Robert Scheidt Structural and Magnetic Effects of meso-Substitution in Alkyl-Substituted Metalloporphyrinate π-Cation Radicals: Characterization of [Fe(TalkylP•)(Cl)]SbCl6 (alkyl = ethyl and n-propyl) *Inorganic Chemistry* **2010** *49* (17), 8078-8085

9. Valeriia Starovoitova, Graeme R. A. Wyllie, W. Robert Scheidt, Wolfgang Sturhahn, E. Ercan Alp, and Stephen M. Durbin. Intermolecular Dynamics in Crystalline Iron Octaethylporphyrin (FeOEP) *The Journal of Physical Chemistry B* **2008** *112* (40), 12656-1266.

10. Bogdan M. Leu, Nathan J. Silvernail, Marek Z. Zgierski, Graeme R. A. Wyllie, Mary K. Ellison, W. Robert Scheidt, Jiyong Zhao, Wolfgang Sturhahn, E. Ercan Alp, and J. Timothy Sage, Quantitative Vibrational Dynamics of Iron in Carbonyl Porphyrins, *Biophysical Journal*, **2007**, *92*, 3764-3783.

11. Kenton R. Rodgers, Graeme R. A. Wyllie, and Gudrun S. Lukat-Rodgers. "Insights into Heme-based O_2 sensing from Structure Function Relationships in the FixL Protein." From The Smallest Biomolecules: Diatomics and their Interactions with Heme Proteins, Abhik Ghosh (editor), Elsevier, **2008**, pp. 564-596.

12. Graeme R. A. Wyllie, Orde Q. Munro, Charles E. Schulz and W. Robert Scheidt. "Structural and Electronic Characterization of (Nitrato)iron(III) Porphyrinates [Fe(Por)(NO_3)]: Variable Coordination of Nitrate" *Polyhedron* **2007**, *26*, 4664-4672.

13. Valeria Starovoitova, Timo E. Budarz, Graeme R. A. Wyllie, W. Robert Scheidt, Wolfgang Sturhahn, E. Ercan Alp, Earl W. Prohofsky, and Stephen M. Durbin. "Vibrational Spectroscopy and Normal Mode Analysis of Fe(II) Octaethylporphyrin" *Journal of Physical Chemistry B,* **2006**, *110*, 13277-13282.

14. Bogdan Leu, Marek Z. Zgierski, Graeme R. A. Wyllie, Mary K. Ellison, W. Robert Scheidt, Wolfgang Sturhahn, E. Ercan Alp, Stephen M. Durbin, and J. Timothy Sage. "Vibrational Dynamics of Biological Molecules: Multi-Quantum Contributions." *Journal of Physics and Chemistry of Solids* **2005**, *66*, 2250-2256.

15. Douglas P. Linder, Kenton R. Rodgers, Jennifer Banister, Graeme R. A. Wyllie, Mary K. Ellison and W. Robert Scheidt. "Five-Coordinate $Fe^{III}NO$ and $Fe^{II}CO$ Porphyrinates: Where Are the Electrons and Why Does It Matter?" *Journal of the American Chemical Society* **2004**, *126*, 14136-14148.

16. Bogdan Leu, Marek Z. Zgierski, Graeme R. A. Wyllie, W. Robert Scheidt, Wolfgang Sturhahn, E. Ercan Alp, Stephen M. Durbin, and J. Timothy Sage. "Quantitative Vibrational Dynamics of Iron in Nitrosyl Porphyrins." *Journal of the American Chemical Society* **2004**, *126*, 4211-4227.

17. Graeme R. A. Wyllie, Charles E. Schulz, and W. Robert Scheidt. "Five- to Six-Coordination in (Nitrosyl)iron(II) Porphyrinates: Effects of Binding the Sixth Ligand." *Inorganic Chemistry* **2003**, *42*, 5722-5734.

18. Charles E. Schulz, Graeme R. A. Wyllie, and W. Robert Scheidt. "Mössbauer Studies of Fe(II)-nitrosyl Porphyrin Model Compounds." *Hyperfine Interactions* **2002**, 321-324.

19. Graeme R. A. Wyllie and W. Robert Scheidt. "NO Orientation and Tilting in (Nitrosyl)-iron(II) Deuteroporphyrin IX." *Inorganic Chemistry* **2003**, *42*, 4259-4261.

20. Brakesh K. Rai, Stephen M. Durbin, Earl W. Prohofsky, J. Timothy Sage, Graeme R. A. Wyllie, W. Robert Scheidt, Wolgang Sturhahn, and E. Ercan Alp. "Iron Normal Mode Dynamics in (Nitrosyl)iron(II)tetraphenylporphyrin from X-ray Nuclear Resonance Data." *Biophysical Journal* **2002**, *82*, 2951-2963.

21. Graeme R. A. Wyllie and W. Robert Scheidt. " Solid-State Structures of Metalloporphyrin NO_x Compounds." *Chemical Reviews* **2002**, *102*, 1067-1089. (Invited review)

22. Xaio Hua, Krister Larsson, Teresa J. Neal, Graeme R. A. Wyllie, Mayou Shang, and A. Graham Lappin. "Structure and Magnetic Properties of $[Cr(en)_2(ox)][Cr(en)(ox)_2].2H_2O$, Δ-$[Cr(en)_3]$Δ-$[Cr(ox)_3]$, and Δ-$[Co(en)_3]$Δ-$[Cr(ox)_3]$." *Inorganic Chemistry Communications* **2001**, *4*, 635-639.

23. J. Timothy Sage, Charles Paxson, Graeme R. A. Wyllie, Wolfgang Sturhahn, Stephen M. Durbin, E. Ercan Alp, and W. Robert Scheidt. "Nuclear Resonance Vibrational Spectroscopy of a Protein Active-site Mimic." *Journal of Physics: Condensed Matter* **2001**, *13*, 7707-7722.

24. Robert W. Hay, David T. Richens, Graeme Wyllie, Andrew Danby, and Thomas Clifford. "Binuclear Metal(II) Complexes of a 30-Membered Hexa-aza Macrocyclic Ligand." *Transition Metal Chemistry (London)* **1995**, *20*, 220-3.

GRANTS, AWARDS AND AFFILIATIONS

Co-Principle Investigator on NSF-CCLI Grant (NSF-0837192) "Enhancing Student Engagement in the Analytical Process and Scientific Inquiry in the Chemistry Curriculum at Concordia College" 01/01/2009 - 12/31/2011 Amount awarded: $149,700

Co-Principle Investigator on Funding Applications for the Concordia Science Academy program
2008-2009 – Jeffers Foundation - $3,000
2008-2009 – Greater Fargo Moorhead Economic Development Corporation - $2,500
2008-2009 – Red River Valley Section of American Chemical Society - $500

American Chemical Society Service and Awards:

American Chemical Society Local Sections Activity Committee (LSAC)
Community Associate 2021 – 2022, Committee Member (2023 – present)
LSAC Grants and Awards Committee Vice Chair (2024 – present)
Leadership Development Institute Presenter (2024 – present)

American Chemical Society District V Secretary (2023 – present)

Great Lakes Region of the American Chemical Society – Awards Chair (2021 – present)
Conference Chair for 2017 Great Lakes Regional ACS Meeting, Fargo, June 2017

Red River Valley Local Section of American Chemical Society.
- Local Section Chair (2014 – 2015 and 2017-2019)
- Local Section Councilor (2021 – present)
- Red River Valley ACS Research Conference – Conference Chair (2023 – present)

E. Ann Nalley Great Lakes Regional Award for Volunteer Service (2025)
American Chemical Society Local Section Outreach Volunteer of Year (2014, 2022)
American Chemical Society – Chemistry Ambassador (Awarded January 2015)

Sigma Zeta National Honors Society
- President Elect (March 2018 – 2019)
- President (March 2019 – March 2021)
- Sigma Zeta Research Journal Editor (March 2025 – present)

Concordia College Centennial Classroom Scholar (Summer 2019)
Concordia College Centennial Research Scholar (summer 2021)

SELECTED PROFESSIONAL PRESENTATIONS

1. "*Concordia Science Academy: Bringing Science to the Elementary Schools*" Graeme R. A. Wyllie. Oral Presentation at 20th Biennial Conference for Chemical Education (BCCE), Bloomington, IN, July 2008

2. *"Developing the research experience in the freshman chemistry laboratories"* Graeme R. A. Wyllie, Mark B. Jensen. Oral Presentation at 242nd ACS National Meeting & Exposition, Denver, CO, United States, August 28-September 1, 2011.

3. "*Bringing the general chemistry lab into the 21st century: Introducing modern instrumentation to general chemistry students*" Graeme R. A. Wyllie. Oral Presentation at 22nd Biennial Conference for Chemical Education (BCCE), Penn State, July 2012.

4. "*Modeling the research experience in the general chemistry laboratory through an ongoing class wiki*" Graeme R. A. Wyllie. Poster Presentation at 23rd Biennial Conference for Chemical Education (BCCE), Penn State, July 2012.

5. "*ChemBio – An integration of chemistry and biology labs for college freshmen"* Graeme R. A. Wyllie. Oral Presentation at 23rd Biennial Conference for Chemical Education (BCCE), Grand Rapids, July 2014.

6. "*Triclosan – how much, how bad, how to make it go away?"* Graeme R. A. Wyllie. Oral Presentation at 23rd Biennial Conference for Chemical Education (BCCE), Grand Rapids, July 2014.

7. "*Why does it keep changing? Sulfa drugs vs Ph"* Graeme R. A. Wyllie. Oral Presentation at 23rd Biennial Conference for Chemical Education (BCCE), Grand Rapids, July 2014.

8. "*The Use of Chlorine Dioxide in the Degradation of a Series of Sulfa Drugs"* Graeme R. A. Wyllie Oral Presentation at Joint Great Lakes,/Central Regional American Chemical Society Meeting; Grand Rapids, MI, June 2015.

9. "*Concordia Science Academy—Bringing Science to the Fargo Moorhead Area and Beyond"* Graeme R. A. Wyllie. Oral Presentation at 24th Biennial Conference for Chemical Education (BCCE), Greeley, Colorado, August 2016.

10. "*Enhancing the First Year for STEM Majors: Focusing on Laboratory Experiences"* Graeme R. A. Wyllie. Oral Presentation at 24th Biennial Conference for Chemical Education (BCCE), Greeley, Colorado, August 2016.

11. "*Sustainable General Chemistry: Incorporating Sustainability into Both Theme and Experiment Design in the Freshman Chemistry Lab"* Graeme R. A. Wyllie. Oral Presentation at 2016 Association for Advancement of Sustainability in Higher Education (AASHE); Baltimore, Maryland, October 2016**.**

12. "*Concordia Science Academy: Ten years of science outreach in the Fargo-Moorhead area and beyond*" Graeme R. A. Wyllie, Robin Fettig, Hannah Wollenzein and Bailey Houle Poster Presentation at Great Lakes Regional American Chemical Society Meeting; Fargo, ND, June 2017

13. "*Greening the general chemistry laboratory. Incorporating sustainability into the lab through multiple avenues*" Graeme R. A. Wyllie Oral Presentation at Great Lakes Regional American Chemical Society Meeting; Fargo, ND, June 2017

14. "*Bioplastics: Combining seaweed and lobsters to create a new general chemistry research experience*" Graeme R. A. Wyllie and Alexandra M. Ward, Oral Presentation at 25th Biennial Conference for Chemical Education (BCCE), Notre Dame, IN, August 2018.

15. "*Crafting a semester long science program for local high school students with intellectual disabilities*" Graeme R. A. Wyllie and Robin Fettig, Oral Presentation at 25th Biennial Conference for Chemical Education (BCCE), Notre Dame, IN, August 2018.

16. *"Bioplastics: Using a summer research experience to a craft a large-scale semester long classroom research project*" Graeme R. A. Wyllie and Alexandra M. Ward. 2019 Symposium on Excellence in Nurturing Undergraduate Research, North Dakota State University, April 27 2019 (invited talk)

17. *"Bioplastics: Two years of implementing a new semester long project"* Graeme R. A. Wyllie and Alexandra M. Ward, Oral Presentation at Great Lakes Regional Meeting of the American Chemical Society, Lisle, IL, May 1 – 4 2019.

18. "*Improving Student Understanding of Polarity in the General Chemistry Laboratory: New Chromatographic studies using commercial food dyes and candies*" Graeme R. A. Wyllie, Sofia Palme and Andrew H. Johnson. Concordia College Centennial Scholars Lecture, February 13th 2020.

19. "*Incorporating course-based research experiences in the undergraduate lab curriculum*" Graeme R. A. Wyllie, Lunch and Learn Workshop at virtual Great Lakes Regional Meeting of the American Chemical Society, Virtual Conference, June, 2021.

20. "*So what if my lab looks like a stock photo for chemistry: Food dyes and HPLC in the general chemistry laboratory*" Graeme R. A. Wyllie, Sofia Palme, Andrew H. Johnson. Oral Presentation at 27th Biennial Conference for Chemical Education (BCCE), Purdue, IN, August 2022.

21. "*Creating a connected CURE linking student research teams in general chemistry across space and time*" Graeme R. A. Wyllie, Oral Presentation at 27th Biennial Conference for Chemical Education (BCCE), Purdue, IN, August 2022.

22. "*Bioplastics in the general chemistry lab! Widening the range of possible experiments*" Graeme R. A. Wyllie, Oral Presentation at Great Lakes Regional Meeting of the American Chemical Society, St. Charles, MO, October 2023.

23. *"The Discovery and Uses of 'Coal Tar Colors' as commercial food dyes"* Graeme R. A. Wyllie, Oral and SciMix Poster Presentation at ACS National Meeting & Exposition, San Francisco, CA, United States, August 2023.

24. *"Moving Away from the Experiment of the Week: Creating a More Cohesive General Chemistry Lab Experience"* Graeme R. A. Wyllie, Oral Presentation at 28th Biennial Conference for Chemical Education (BCCE), Lexington KY, August 2024.

25. "*Glues and Adhesives: A Chemical History*" Graeme R. A. Wyllie, Oral and SciMix Poster Presentation at ACS National Meeting & Exposition, Washington, DC, United States, August 2023. [Also selected as ChemHIST talk for subsequent online broadcast (https://www.youtube.com/watch?v=XkrUCWOdD2o)]

TEACHING EXPERIENCE ***Concordia College (August 2006 – Present)***

Primary Courses Designed / Taught

- *General Chemistry I Laboratory [CHEM 127L] (August 2006 – present)*
- *General Chemistry II Laboratory[CHEM 128L] (January 2007 – present)*
- *Organic Chemistry I Laboratory [CHEM 341L] (primarily taught in summer)*
- *Organic Chemistry II Laboratory [CHEM 342L] (primarily taught in summer)*
- *Inorganic Chemistry Laboratory [CHEM 462L]*
- *Physical Science (for Elementary Education Majors) [PHYS 215 / SCI 215]*

- Responsible for General Chemistry laboratory course development, lab manual and online resource preparation, teaching of multiple laboratory sections including delivering pre-lab lectures, developing new experiments particularly those with a green focus, maintaining online resources, and developing new pedagogy for the teaching laboratory.

- Responsible for coordinating multiple lab sections of General Chemistry laboratory collaborating with and assisting other faculty to ensure all content is taught to a uniform standard and integrating the lab where relevant with the lecture material. Responsible for coordination of and training of student teaching assistants for the general chemistry.

- Significantly revamped all aspects of first semester general chemistry laboratory program to improve experience for all students focusing on increasing real world themes and better connection between experiments. This created a more integrated program that shares skills and themes between lab periods instead of focusing on just the experiment of the week.

- Developed a range of experiments that introduce High Performance Liquid Chromatography (HPLC) to the first semester general chemistry lab (published 2024, J. Chem Ed).

- Have worked extensively on redesigning the grading of the laboratory experience focusing more on mastery instead of simple quizzes. As part of this, have actively worked on compilation and sharing of class data to allow students to critically evaluate their work within the context of their peers.

- For all laboratories taught, have continuously worked on implementing the philosophy of green chemistry in significantly reducing the number of expensive chemicals used and the quantity and nature of waste generated.

- Developed and implemented a multi-week undergraduate research project into the second semester general chemistry laboratory program which provides an impactful Course-based Undergraduate Research Experience (CURE) for all students in the class (published 2019 in J. Chem. Ed). Originally this was themed around pharmaceuticals in drinking water degradation but was refocused to look at aspects of bioplastics including pharmaceutical and dye incorporation and materials chemistry.

- Refined the aforementioned CURE to incorporate significant formal writing and allow student groups to build upon the work of past groups instead of simply starting from the same point every time.

- Developed and taught four years of an integrated general chemistry/molecular biology course for freshman providing an interdisciplinary lab experience breaking down boundaries between two disciplines and providing a strong introductory lab experience developing practical skills and critical thinking skills necessary to succeed in science.

- Developed an Advanced Inorganic Laboratory experience for upper level chemistry majors focusing on the major themes in modern inorganic chemistry – biomimetic models, materials chemistry and catalysis, an experience which also tied together skills and experiences from other classes taken by the students resulting in a culminating experience for all students in the class.

- Developed a revamped science course for elementary education majors designed to satisfy the majority of Board of Teaching requirements for physics and chemistry. The course integrates theory with hands-on demonstrations and uses primarily commonly found materials with the goal of teaching material and experiments that students can use in their own classroom at a later date.

RESEARCH INTERESTS

1. Student Research in the Wyllie Lab:

My primary hands-on research interest focuses on developing new and engaging laboratory activities and modules which not only teach laboratory skills to a high standard but also engage students through strong real-world connections. The work of the Wyllie lab focuses not only on identifying topics suitable for investigation but developing experiments based on these that work with the resources and time constraints of the general chemistry laboratory. In addition, the Wyllie lab provides opportunities for undergraduate students to further develop their own extra-curricular research projects based on the themed modules they encounter in the teaching labs.

One of the principle goals in getting students involved in these research experiences is to provide that early experience and over 75% of the students I have mentored over the summer were at the end of their freshman year with many going on to additional research experiences at other schools.

At Concordia, my initial research was based on degradation of specific environmentally harmful pharmaceuticals found in rivers and lakes. Sulfa drugs and triclosan were investigated and multiple undergraduate students had the opportunity over the summer to work with these materials and were then encouraged to present at a range of conferences. Summer research studies also better served to better understand the chemistry of these materials which proved invaluable as these same topics as these formed the basis of the Course-based Undergraduate Research Experience (CURE) being implemented at the time in the general chemistry labs.

In 2017, the Wyllie lab began to investigate chitosan-alginate bioplastics as a topic suitable for a CURE and a multi-week module was developed and implemented in 2018 Again, multiple students have engaged in summer and semester based research to further our understanding of the relevant chemistry of these systems, work which has again been presented at a range of conferences and has also fed back into improving the CURE experience in General Chemistry II Laboratories.

The donation of a previously owned HPLC system by Analytical Instruments also led to designing new teaching laboratory experiments for first semester general chemistry and access to this instrument has also been invaluable in studying pharmaceutical and dye exchange from bioplastics and analysis of samples for the DPAL (Distributed Pharmaceutical Analysis Project

In addition, work on single-week activities and multi-week modules with undergraduate students on soil analysis, polarity of food dyes, and the kinetics of bleach and food dyes has been carried out, experiments for the teaching lab developed and implemented and several manuscripts on these topics are in preparation.

In addition to the work of students mentioned above, I have been active in the larger Chemical Education Community organizing symposium sessions and presenting my work at a range of conferences.

2. Chemical History Research:

Encouraged by the American Chemical Society HIST division, I have begun research into the chemical history of a range of materials (Coal Tar Food Dyes and Glues and Adhesives). This work has been presented both as a poster and an oral presentation at a number of ACS events including national and regional meetings as well as being invited to share my work as an invited talk by the HIST division in October 2025. At present, manuscripts on both the dyes and glue are in preparation.

3. Ongoing Research Collaborations:

I maintain a collaboration with a colleague in physics (Thelma Berquo) looking at preparation of transition-metal doped iron oxides, specifically goethite and the effects of metal such as aluminum substitution on the magnetic properties of these materials. Our current efforts focus on developing better synthetic methods for these materials which will allow us to create materials of desired metal/iron ratio and correlate this composition with material properties.

Over the past two years I have also aided several research groups in the biology department (Sweatman and Whittaker) looking at identification of microplastic samples found in the environment.

SELECTED STUDENT RESEARCH PRESENTATIONS:

"Sulfa drug degradation by ferrate (VI) oxidation: application of a green oxidizing agent in the removal of pharmaceuticals from the environment" Kyle Czech and Graeme R. A. Wyllie National Conference on Undergraduate Research (April 2011)

"Sulfa drug degradation by ferrate(VI) oxidation: Application of a green oxidizing agent in the removal of pharmaceuticals from the environment", Kyle Czech, Molly Haugen, Alex Jorgenson, and Graeme Wyllie, August 2011- ACS National Meeting, Denver, CO

"Advances in the Study of Sulfa Drug Degradation by Ferrate (IV)", Molly Haugen, Alex Jorgenson, and Graeme R. A. Wyllie, Fall 2011—Poster Presentation, Poster Presentation at Undergraduate Research in Molecular Sciences (URMS), Moorhead State University Moorhead

"Does Chlorine Dioxide Degrade Sulfa Drugs?" Janelle Jennissen and Dr. Graeme R.A. Wyllie. Oral presentation at National Conference for Undergraduate Research (NCUR) (April 2014)

"Combining Seaweed and Lobsters to Create a New General Chemistry Laboratory Pedagogy" Alexandra M Ward, and Graeme R.A. Wyllie. Poster Presentation at Winchell Undergraduate Research Symposium poster presentation, University of St. Thomas, St. Paul, MN, April 2018.

"Concordia Science Academy: The Evolution of Our Science Outreach Program." Robin Fettig and Dr. Graeme R. A. Wyllie. Oral presentation at the Sigma Zeta National Science & Mathematics Convention (March 2017).

"Advances in Understanding the Interactions of Chitosan-Alginate Bioplastics with Food Dyes" Theodore C. Eggen and Dr. Graeme R. A. Wyllie. Poster Presentation at Great Lakes Regional Meeting of the American Chemical Society, St. Charles, MO, October 2023.

"Bioplastics in the General Chemistry Lab: Expanding commercial food dye release and uptake studies" Theodore C. Eggen and Dr. Graeme R. A. Wyllie. Poster Presentation at Red River Valley ACS Research Conference, Bemidji, MN, 2024.

"Investigating Chitosan-Alginate Bioplastics as a Pharmaceutical Delivery System" Aitor Burillo Arellano, Dawson Fleck, and Graeme R. A. Wyllie, Poster Presentation at Scholars Showcase (Scholars at the MN Capitol), St. Paul, MN. 2025

Additional student presentations to date include 2 additional NCUR poster presentations, 5 additional URMS presentations and 19 presentations at Concordia Celebration of Student Scholarship event along with multiple departmental and homecoming presentations.

SCIENCE OUTREACH ACTIVITIES
Concordia Science Academy and other programs (2006 – present)

Coordinator for Concordia Science Academy, a science outreach program, targeting children of all ages through engaging hands-on activities designed that enhance their interest and understanding of science. This program involves Concordia students from all the sciences, interacts with several thousand children every year and has received frequent and extremely favorable press-coverage over the past few decades.

My responsibilities as coordinator include working with local organizations, developing and preparing suitable science activities for each event, doing science at events, training volunteers as needed and dealing with all other logistics.

Early Concordia Science Academy events were after-school visits with activity stations where 100 - 200 elementary students could interact with the Concordia students and do science. I was responsible for coordinating Concordia student sign-up, preparing existing station materials and developing new stations for each event. Other pre-event duties include liaising with local schools in signing up students on-line, publicizing the event and answering parent queries prior to the event. We still run one or two similar events though volunteers are often drawn from high schools or PTAC committees and I prepare all materials and train all volunteers prior to the event.

Selected examples of other community programs created and implemented include:

- Great Chemistry for Teens program at local public libraries (one hour workshop every three or four months running since 2010)
- Regular elementary / middle school one hour science sessions with all local and several regional libraries often linked to summer reading programs
- Inspire + Create – All day hands-on chemistry event with Fargo Parks (Fall 2019) Since renamed to The Lab and is an annual event attracting ~300 attendees each October.

Science Academy has also carried out numerous science outreach events in the Fargo-Moorhead area community working with multiple organizations (Streets Alive, Schools Alive, Salvation Army, Churches United, Fargo YMCA, Great Plains Foodbank, Fargo Police, Fargo and Moorhead Parks, Fargo Boys and Girls Club, Clay and Cass county 4H and Riverkeepers.

I regularly carry out visits to elementary and high schools schools in the region, to carry out in-class workshops and often host class visits to campus for science activities.

I regularly work behind the scenes developing activities and training undergraduate students to lead middle school students in science workshops as part of programs such as Expanding Your Horizons, STEMtastic and BrainSTEM events.

Finally starting in 2018, we were one of the science outreach organizations accepted to be part of STEM day at the Minnesota State Fair. As part of this, we run an activity booth all day and perform a stage show.