Brian R. Nichols
Chemistry Research Labs 467
bnichol3@mail.wvu.edu

TEACHING EXPERIENCE

Teaching Associate Professor of Chemistry – West Virginia University

- Organic Structure Determination (CHEM 335/L) — Fall 2025
- Organic Chemistry I (CHEM 233) — Fall 2025, Summer 2026
- Organic Chemistry II (CHEM 234) — Spring 2026

Teaching Assistant Professor of Chemistry – West Virginia University

- Organic Structure Determination (CHEM 335/L) — Fall 2024
- Organic Chemistry I (CHEM 233) — Fall 2022 – Summer 2024, Summer 2025
- Organic Chemistry I Laboratory (CHEM 233L) — Fall 2022 – Fall 2023
- Organic Chemistry II (CHEM 234) — Fall 2022 – Summer 2023, Spring 2025

Assistant Professor of Chemistry – West Liberty University

- Foundations of Chemistry (CHEM 100) — Fall 2018 – Spring 2022
- Organic Chemistry I (CHEM 340) — Fall 2018, 2019, 2020, 2021
- Organic Chemistry I Laboratory (CHEM 341) — Fall 2018, 2019, 2020, 2021
- Organic Chemistry II (CHEM 342) — Spring 2019, 2020, 2021, 2022
- Organic Chemistry II Laboratory (CHEM 343) — Spring 2019, 2020, 2021, 2022
- Advanced Organic Chemistry (CHEM 440) — Spring 2019
- Biochemistry (CHEM 480) — Spring 2020, 2021
- Advanced Synthesis Laboratory (CHEM 410) — Fall 2021

Lecture Instructor – West Virginia University

- Organic Chemistry I (CHEM 233) — Summer 2022
- Organic Chemistry II (CHEM 234) — Spring 2018, Summer 2020

Supervising Teaching Assistant

- Organic Chemistry at WVU — Summer 2017

NMR Teaching Assistant

- WVU Chemistry Department NMR TA — Fall 2013 – Spring 2014

Teaching Assistant

- Organic Chemistry at WVU — Fall 2012 – Fall 2017
- General Chemistry at WVU — Fall 2011, 2017
- General Chemistry at UVM — Fall 2009 – Spring 2011
- Organic Chemistry at Drew University — Fall 2007 – Spring 2009

Tutor

- General Chemistry Review Sessions at WVU — Fall 2015 – Spring 2016
- General, Organic and Analytical at Drew University — Fall 2007 – Spring 2009

Science Outreach

- WVU Discover Chemistry Event — Fall 2025
- WVU Girl Scout Chemistry Badge Event — Spring 2023
- WVU REU K-6 Science Day — Summer 2019
- WVU Children's Science Day — Fall 2012 & Fall 2013

EDUCATION AND RESEARCH

WEST VIRGINIA UNIVERSITY, MORGANTOWN, WEST VIRGINIA
Ph.D. in Organic Chemistry, July 2018

Graduate Research Assistant (September 2011 to July 2018)

- Synthesis of late-transition metal complexes possessing phosphinoborane ligand motifs
- Development of new methodologies for the hydroboration of a variety of vinyl phosphines
- In-situ analysis of structural solution phase dynamics in metal complex scaffolds
- Synthesis of the first copper, silver and gold pincer complexes containing bis(phosphinite) and bis(phosphite) pyridine (PONOP) ligands
- Crystal structure analysis of novel synthesized complexes of late-transition metals
- Wrote standard operating procedures for 270, 400, and 600 MHZ NMR spectrometers

UNIVERSITY OF VERMONT, BURLINGTON, VERMONT
M.S. in Analytical Chemistry

Graduate Research Assistant (September 2009 to August 2011)

- Conducted online monitoring of organic aerosols under relevant conditions in atmospheric chamber studies
- Performed studies pertaining to heterogeneous aerosol processing with a Near-Infrared Laser Desorption/Ionization Aerosol Mass Spectrometer (NIR-LDI-AMS)
- Modified instrumental design and specification to improve sensitivity and reproducibility
- Carried out studies on terpene-based oxidation pertaining to secondary organic aerosols
- Characterized products further with GC and GC-MS
- Wrote standard operating procedure for NIR-LDI-AMS

DREW UNIVERSITY, MADISON, NEW JERSEY
B.A. in Chemistry with ACS Certification, Minor in Physics

Undergraduate Research (January 2008 to December 2008)

- Conducted research pertaining to the reaction of organic lignin pyrolysis products with nitrogen dioxide under atmospherically relevant conditions using in-situ ATR-FTIR reaction monitoring

TEACHING DEVELOPMENT ACTIVITIES

- Advances in Cryogenic NMR Probes for Modern Labs Webinar — Spring 2026
- An Introduction to Fluorine NMR and Its Polymer Applications Webinar — Spring 2026
- Bridging the Equity Gap in Organic Chemistry Webinar — Spring 2024
- Engaging and Re-engaging Students Workshop — Spring 2023
    - WVU Teaching and Learning Commons
- Assessment Development in Organic Chemistry Courses at WVU — Fall 2022

SERVICE

Teaching Associate Professor of Chemistry – West Virginia University

- Safety Committee — Fall 2025 – Summer 2026
- Eberly Outstanding Teacher Award Committee — Fall 2025
- Popp Group Lab Manager — Fall 2025 – Summer 2026
- Shops, X-ray, Major Instruments, and Computers Committee — Fall 2025 – Summer 2026
- Outreach and Community Engagement Committee — Fall 2025 – Summer 2026
- NMR Training and Maintenance — Fall 2025 – Summer 2026

Teaching Assistant Professor of Chemistry – West Virginia University

- Eberly Outstanding Teacher Award Committee — Fall 2024
- Popp Group Lab Manager — Fall 2024 – Summer 2025
- Shops, X-ray, Major Instruments, and Computers Committee — Fall 2024 – Summer 2025
- Outreach and Community Engagement Committee — Fall 2024 – Summer 2025
- NMR Training and Maintenance — Fall 2023 – Summer 2025
- Social Media Committee — Fall 2023 – Summer 2024
- TA Support Committee — Fall 2022 – Spring 2023
- Academic Integrity and Appeals Committee — Fall 2022 – Spring 2023

Assistant Professor of Chemistry – West Liberty University

- Space Utilization Committee — Fall 2018 – Spring 2022
  - Chair of Space Utilization Committee — Spring 2022
- WV NASA Committee — Fall 2018 – Spring 2022
- Retention Committee — Fall 2019 – Spring 2022
- Policy Sub-Committee of Faculty Senate — Fall 2019 – Spring 2022
- Department Split Task Force — Fall 2019
- Faculty Senate Representative — Spring 2020 – Spring 2022
- Tenure & Promotion Committee — Fall 2020
- West Liberty University Science and Engineering Fair Judge — Spring 2019, 2020, 2022
  - Science and Engineering Fair Committee
- Recruitment — Fall 2018-Spring 2022
  - Black and Gold West Liberty Recruitment Days
  - SCI-FI (**S**cience **C**lasses **I F**ind **I**nteresting) Recruiting Video

PUBLICATIONS

Nichols, B. R., Petersen, J. L., Dolinar, B. S., Bopp, B. V. **2025,** "Primary and Secondary Coordination Sphere Lewis Acid Interactions in β-Phosphinoethylborane-ligated Rhodium and Iridium Complexes," *New J. Chem.*, 49, 14073-14081.

Nichols, B. R., Ahkmedov, N. K., Petersen, J. L., Popp, B. V. **2018**, "Access to a Pair of Flexible Ambiphilic Phosphane–Borane Regioisomers by Rhodium-Catalyzed Hydroboration," *Dalton Trans.*, 47, 8456-8465.

Geddes, S., Nichols, B., Todd, K., Zahardis, J., Petrucci, G. A. **2010**, "Near-infrared laser desorption/ionization aerosol mass spectrometry for measuring organic aerosol at atmospherically relevant aerosol mass loadings," *Atmos. Meas. Tech.*, 3, 1175-1183.

Geddes, S., Nichols, B., Flemer, Jr., S., Eisenhauer, J., Zahardis, J., Petrucci, G. A. **2010,** "Near-Infrared Laser Desorption/Ionization Aerosol Mass Spectrometry for Primary and Secondary Organic Aerosols under Low Loading Conditions," *Anal. Chem.,* 82, 7915–7923.

Nichols, B., Rapa, C., Costa, V., Hinrichs, R.Z. **2009**, "Heterogeneous and Photochemical Reactions of Solid Benzophenone-Catechol Films with NO_2," *J. Phys. Chem. C*, 113(6), 2111–2119.

PRESENTATIONS

- Regioselective Preparation of a Flexible Phosphane–Borane by Hydroboration with Simple Rhodium Catalysts
  - 254th American Chemical Society National Meeting
  - Poster Presentation Fall 2017
- Frustrated Lewis Pairs as Ligands for Late-Transition Metal Complexes: Probing Interactions in the Coordination Sphere
  - 253rd American Chemical Society National Meeting

    - Oral Presentation Spring 2017
- Frustrated Lewis Pairs as Ligands for Organometallic Catalysis
    - 247th American Chemical Society National Meeting
    - Poster Presentation Spring 2014
- Near-Infrared Laser Desorption/Ionization Aerosol Mass Spectrometry (NIR-LDI-AMS) for Determining the Composition of Organic Aerosol Particles
    - American Chemical Society Northeast Regional Meeting
    - Oral Presentation Fall 2010
- Heterogeneous and Photochemical Reactions of Solid Benzophenone-Catechol Films with NO_2
    - American Chemical Society Northern New Jersey Local Chapter Meeting
    - Oral Presentation Spring 2009

GRANTS, AWARDS AND FELLOWSHIPS

• WV-NASA Faculty Research Enhancement Award	Fall 2019 – Spring 2020
• Tau Chapter Phi Lambda Upsilon President at WVU	Fall 2013 – Spring 2016
• Phi Lambda Upsilon Travel Grant	Spring 2014 & Spring 2017
• West Virginia University Graduate Student Fellowship	Fall 2013 – Spring 2016
• ECAS Graduate and Doctoral Travel Award	Spring 2014 & Spring 2017
• WVU Chemistry Department HERF Fellowship	Fall 2011 – Spring 2012
• American Institute of Chemists Award	Spring 2009
• Drew Summer Science Institute Poster Awardee	Summer 2008
• Paul Seymour Memorial Service Award	Spring 2008
• Drew University Chemistry Society Treasurer	Fall 2007 – Spring 2009

TECHNICAL PROFICIENCIES

Microsoft Windows/Vista OS, Mac OS X, Microsoft Office Suite, Mathematica 7.0, UV-Vis Spectrophotometer, FTIR Spectrometer, Data Studio, OMNIC, ChemOffice, IGOR, Liquid Chromatography, Thermal Desorption GC/MS, Gaussian 03W, MBraun 200B 4-Port Inert Atmosphere Glove Box, Glass Contour Solvent System, 400 MHz Agilent NMR, 600 MHz Varian Inova NMR, 400 MHz JEOL NMR