Career Academic with a background as a science entrepreneur in the St. Louis area. Founding forensic science program coordinator that has led to its growth into one of the top in the region. Has ties to the forensic and scientific community across the United States. Top educator that utilizes the flipped classroom in all classes and labs. Extremely involved in service on a local and national level to further the advancement of science.

TOM SPUDICH

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636-248-5822

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Linkedin:
https://www.linkedin.com/in/tom-spudich-1372a55a/

Skill Highlights

- Emphasizes problem solving
- Strong decision maker
- Complex problem solver
- Service-focused
- Supervised over 75 students in undergraduate research
- Obtains grants/funding
- Two patents for scientific work

Online Write-ups

https://www.maryville.edu/mpress/maryville-students-experiential-learning-forensic-science/

https://www.maryville.edu/mpress/make-like-gumby-expect-the-unexpected/

https://collection.asdlib.org/asdl-managing-editors/

Experience

Maryville University – St. Louis, MO
Professor of Chemistry and Forensic Science, 2020-
Associate Professor of Chemistry and Forensic Science, 2011-2020
Forensic Science Program Coordinator, Maryville University, 2011-

Missouri S&T – Rolla, MO
Visiting Scientist, spring 2023

United States Military Academy – West Point, NY
Assistant Professor of Chemistry, 2006-2011

Edinboro University – Edinboro PA
Assistant Professor of Chemistry, 2005-2006

Mercyhurst College – Erie, PA
Assistant Professor of Chemistry, 2004-2005

Penn State Erie – Erie, PA
Assistant Professor of Chemistry, 1998-2004

Education

B.S., Chemistry, Truman State University, Kirksville, MO
Ph.D., Analytical Chemistry, Northern Illinois University, DeKalb, IL

Medals, Honors and Awards

President's Award for Strategic Leadership, Active Learning Ecosystem, 2020
Outstanding Faculty Award, Maryville University, 2018
Honorary Membership, Alpha Lambda Delta, 2017
Achievement Medal for Civilian Service, Department of the Army, 2011
Northern Illinois University Dissertation Completion Award, 1997-1998
Kevin Cull Memorial Teaching Award, Northern Illinois University, 1994

SERVICE WORK AT MARYVILLE UNIVERSITY

Michael Johnson seminar coordinator, 2022-present.
Chair, promotion to full professor (recommended for promotion), 2022-2023.
Chair, tenure committee (denial of tenure), 2019-2020, (recommended for tenure), 2020-2021.
Committee member for tenure committee (recommended for tenure), 2019-2020.
Organized summer learning session for Girls, Inc., where students learned about forensic paper analysis, summer 2019.
External promotion reviews for full professor, 2019 & 2021 (different people).
Rhodes Scholar Faculty mentor, 2019-present.
Student Scholarship Weekend, Friday evening event, 2018, 2019.
Faculty supervisor for sports data analytics in bowling, men's basketball, men's soccer & women's volleyball, 2018-present.
Alpha Lambda Delta Faculty Advisor, 2018-present.
Faculty supervisor for sports data analytics in baseball and softball, 2017-present.
Chair, pre-tenure committee (continuing faculty member), 2017-2018.
Apple Teacher, 2017.
Data Robot course offered on campus, summer 2017.
Teach Arduino courses in a summer science and robotics program, July 2017-2019, 2022.
Faculty Mentor, Men's Lacrosse team, 2016-present.
Supported Elizabeth Kiplinger at the Elite 90 Winner's Dinner in Indianapolis, IN, October 16, 2016.
Teach summer undergraduate research for credit course for Rockwood HS students, 2016, 2018, 2019, 2021.
BizDash (5k walk/run) Maryville team organizer, 2016-present. 2022 results
Faculty Sponsor, Men's and Women's cross country and track teams, 2015-2018.
Chair, Forensic Science Biology faculty search, summer 2014.
Faculty mentor, (adjunct) Deanna Mendez, 2012-2013; Jerry Cubbage 2013-2014; Stacy Donovan, 2014-2015; Natalie Ulrich, 2017-2022; Gifty Blankson, 2018-2022.
Faculty Sponsor, Maryville Fitness Club, 2013-2015.
Invited Member, Experiential and Innovative Learning Task Force, 2013-2014.
Committee Member, Psychology faculty search committee, summer 2013.
Co-chair, Biology faculty search committee, 2012-2013.
College Athletics Committee, December 2012-2016.
Online evaluations restructure – committee review member, 2012-2013; chair, May 2013-2015.
Maryville Reaches Out, September 2012, 2018, 2021
Invited Member, Integrated Technology Committee member, September 2012-2018.
Technology Associate member, 2012-2013.
Pie Your Professor "Winner," March 2012.
Undergraduate Research Task Force Member, 2012-present.
Faculty Sponsor, Maryville University Ultimate Frisbee Club, 2012-2015.
Forensic Science Summer Institute Instructor, July 2012, July 2013, July 2015.
Forensic Science Day coordinator, March 11, 2012, May 4, 2012, March 10, 2013, March 2015, 2016 and 2017.
Student recruitment events, 2-3 times per year since 2011.
Regular Goose Cup participant for the faculty/staff teams, 2011-present.
Pumpkin explosion specialist for campus, 2011-present.
Faculty Representative, Wrestling Team, 2011-2014.
Faculty Sponsor, Science and Innovation Club, 2011-2014.
Program Coordinator of Forensic Science, 2011-present.

SERVICE WORK AT THE UNITED STATES MILITARY ACADEMY

Interim Instrument Room Manager, June 2007-September 2008.
Officer Representative, USMA Cycling Team, 2006-2011.
Sponsoring thirteen cadets, 2006-2011.
Committee member for planning the remodeling of Bartlett Hall, 2007-2011.
Serving on the committee/self-study for possible American Chemical Society (ACS) certification, October 2006-2011.
Faculty Council Representative for the Department of Chemistry & Life Science, September 2007-September 2009.
Mentoring new civilian faculty, 2007; new military faculty, 2008-2011,
Training in Chemcad™ and Mathematica™ through the Chemical Engineering program, Summer 2007.
Served as co-coordinator for Capstone Lab in General Chemistry II; supervised one of three labs, Spring 2007, Spring 2009.
Volunteered to incorporate systematic treatment of equilibrium into General Chemistry II, Spring 2007.

SERVICE WORK AT PENN STATE ERIE

Record of Administrative Support Work

Served as Program Chairperson, Penn State Erie, Chemistry Major, Feb. 1999-Dec. 2000; June 2003-March 2004. Contact for students and prospective students regarding the chemistry major and minor.

Mentored Jay Amicangelo, faculty member, 2002-2003

SCHOLARSHIP ACTIVITY

Visiting Scientist, Missouri S&T, Spring 2023, College of Engineering & Computing, Jie Huang lab, Determining the Sex of a Chicken Egg using Raman Spectroscopy.

Peer Reviewed Work

(in-prep for submission to *Applied Spectroscopy*) Alhalabi, F., Jerome, K., Ortiz, A., Reihms, J., Spudich, T., "Non-Destructive Analysis of Native American Pottery Via X-Ray Fluorescence."

(in-prep for submission to *Applied Spectroscopy*) Difani, B., Dunbar, M., Lippincott, M., Luka, M., Majid, M., Meister, N., Ogden, A., Sandman, J., Siech, E., Spudich, T., Young, T., "Solution Cathode Glow Discharge for Atomic Emission Spectroscopy: A Cost-Effective Method to Analyze Metals."

Pham, N., Fahs, A., Pimental, D., Sandman, J., Stich, A., Spudich, T., Blankson, G. *J. Undergrad. Chem. Res*., 21(3) 2022.

Adams, M., Binaku, K., Spudich, T. *Chem. Educ.,* 22(1), 8-11, 2017.

Fountain III, A.W., Riegner, D., Spudich, T. *J. Analyt. Sci. Digital Libr.*, 2011**,** entry 10063.

Scheeline, A., Spudich, T.M. *J. Analyt. Sci. Digital Libr.*, 2009, entry 10056.

Spudich T., Herrmann J., Fietkau R., Edwards G., McCurdy D. J. *Chem. Ed.*, 81(2), 262-265 (2004).

Spudich T., Utz C., Kuntz J., DeVerse R., Hammaker R., McCurdy D.L. *Appl. Spec.*, 57(7), 733-736 (2003).

Miller H., Spudich T., Carnahan J. *Appl. Spec.*, 57(6), 703-710 (2003).

Spudich T., Carnahan J. J. *Anal. At. Spectrom.*, 16(1), 56-61 (2001).

Spudich T., Pelz B.A., Carnahan, J. Appl. *Spec.*, 51(6), 765-769 (1997).

Funding and Grants Awarded

BioGenerator, i6 Proof of Concept grant, $40,000, co-awardee with Brad Postier, 2014-2017.

Junior Science, Engineering, and Humanities Missouri regional symposium, $31,200, co-author Kyra Krakos, 2013-2014.

Sigma-Aldrich funding for Junior Science, Engineering, and Humanities Missouri regional symposium, $15,000, assisted Institutional Advancement with Kyra Krakos and Candace Chambers, 2013-2014.

Building a Raman Spectral for Controlled Substances for in the Field Determination, $4,000, B&W Tek, May 2013.

Sigma-Aldrich funding for Junior Science, Engineering, and Humanities Missouri regional symposium, $15,000, assisted Institutional Advancement with Kyra Krakos and Candace Chambers, 2012-2013.

Junior Science, Engineering, and Humanities Missouri regional symposium, $28,000, co-author Kyra Krakos, 2012-2013.

The Construction & Characterization of a Microfluidic Fluorescence Spectrometer, ARO, $1400, September 2010.

Photo-dissociation of Supercritical Fluid Carbon Dioxide for Potential Use in the Production of Breathable Oxygen, Army Research Office, $1900, December 2009.

Improvement and Integration of an Identification Friend or Foe Emitter using the Laser Carbonized Light Emitting Filament, PEO Soldier, $62,500, February 2009-September 2010.

Thermal Emission Characterization of Pyrolized Kapton, Army Research Office, $1880, December 2008.

The Construction and Characterization of a Simultaneous, Multi-Wavelength, Digital Micro-Mirror Array Atomic Absorption Spectrometer, Army Research Laboratory, $2100, November 2006.

Instrument Proposal for a Hydride Generator. Pennsylvania SeaGrant. $1800, August 2003.

Instrument Proposal for a Microwave Generator. Spectroscopy Society of Pittsburgh. $7,000. July 2000-June 2001.

Modern Data Acquisition & Analysis in the Laboratories Across the Chemistry Curriculum. Fund for Excellence in Learning and Teaching, Penn State, $3,780, July 1999.

Patents

"Miniaturized Spectrometer for Sensitive and Robust Laboratory and Field Use," Spudich, T.M., Postier, B.L., Weter, J.D., Adams, M., Vaughan, E.J.. (US number 10,345,145, *awarded*, July 9, 2019).

"Infrared Light Emitting Filament," Ingram, J.M., Fountain, A.W., Spudich. T.M. (US number 8,587,188, *awarded*, November 19, 2013).

Edited and published work or reviews

Spudich, T., "Print, Build and Use Your Own LED Photometer," Remotelabs.asdlib.org, July 21, 2020.

Ulrich, N., Spudich, T., Kowalski, E., Kalainoff, M., "An open-source, web-based math solver for solving multi-variable equilibrium problems in general chemistry," DivCHED CCCE: Committee on Computers in Chemical Education, Spring 2018, Paper 4. (https://confchem.ccce.divched.org/2018SpringCCCENLP4)

Kalainoff, M.Z., Ulrich, N., Kowalski, E. and Spudich, T., Chemical Equilibrium Using the Systematic Method, September 2017. (electronic)

Spudich, T., "*The Analytical Sciences Digital Library,"* DivCHED CCCE: Committee on Computers in Chemical Education, Fall 2011, Paper 6. (https://confchem.ccce.divched.org/2011FallCCCENLP6)

Spudich T.M. Rice Virtual Lab in Statistics (An Online Statistics Resource: Is There a Normal Distribution for Chemists?). *The Chemical Educator*, 8, 279 (2003).

Spudich T.M. An Online Resource for Analytical Chemistry & Quantitative Analysis Courses. *The Chemical Educator*, 7, 248 (2002).

Presentations/Panels/Talks Note: Student presentations at non-regional conferences where I am a co-author are listed.

"Characterization of a low-cost solution cathode glow discharge emission source," J. Viggers, L. Opilka, T. Spudich, ACS Spring, virtual, March 21, 2022.

"Development and Characterization of a Lateral Flow Assay for Myoglobin Detection," N. Pham (presenter), A. Fahs. D. Pimentel, T. Spudich, G. Blankson, ACS Spring, virtual, March 20, 2022.

"Development and Characterization of a Lateral Flow Assay for Myoglobin Detection," N. Pham (presenter), A. Fahs. D. Pimentel, T. Spudich, G. Blankson, PITTCON, March 6, 2022. (Undergraduate Award Winner)

"Non-Destructive Analysis of Native American Pottery Via X-Ray Fluorescence," F. Alhalabi, A. Ortiz, J Riehms, K. Jerome, T. Spudich, PITTCON, March 6, 2022.

*** <u>Invited talk</u>** "Online options for off-site learning in lower and upper-level analytical chemistry labs," T. Spudich, *SciX*, Providence, RI, September 27, 2021.

*** <u>Invited talk</u>** "Online options for off-site learning in lower and upper-level analytical chemistry labs," T. Spudich, *ACS*, Atlanta, GA, August 22, 2021.

"Utilizing Lateral Flow Assays to Determine Cardiac Troponin Levels for Point-of-Care Application." G. Blankson, J. Sandman (presenter), T. Spudich. *PITTCON*, Chicago, IL March 4, 2020.

"Development and Characterization of a Lateral Flow Assay for Myoglobin Detection." A. Fahs (presenter), N. Pham, G. Blankson, T. Spudich, *PITTCON*, Chicago, IL March 4, 2020.

"Solution Cathode Glow Discharge for Atomic Emission Spectroscopy: A Cost-Effective Method to Analyze Metals." M. Lippincott, T. Spudich, *PITTCON*, Chicago, IL March 4, 2020.

"The Analysis of Historic Paper using ICP-OES to Determine Trace Metal Composition for Preservation Purposes." A. Miller, E. Salter, E. Frankenreiter, T. Spudich (presenter), E. Monroe, *PITTCON*, Chicago, IL March 3, 2020.

"Characterizing Students' Responses to Exam Questions on Equilibrium." N.C. Ulrich, T.M. Spudich, and E.M. Kowalski (presenter), *2019 Gordon Research Conference on Chemistry Education Research & Practice*, June 2019.

"The Analysis of Historic Paper Using Inductively Coupled Plasma-Optical Emission Spectroscopy to Determine Trace Metal Composition for Preservation Purposes," T. Spudich (presenter), K. Vancil, B. Levtchin, E. Monroe, *PITTCON*, Philadelphia, PA, March 21, 2019.

"Using ELISA Methods and Paper-Based Microfluidics to Analyze Myoglobin from the Human Heart," A. Stich (presenter), J. Sandman, G. Sorg, T. Spudich, G. Blankson, *PITTCON*, Philadelphia, PA, March 20, 2019.

"Lab Procedure to Replace EDTA Titration for Calcium and Magnesium Concentration Determination Using Molecular Spectroscopy for Those That are Colorblind," T. Young (presenter), D. Rorah, T. Spudich, *PITTCON*, Philadelphia, PA, March 20, 2019.

"Determination of Trace Metal Content in Paper Using Inductively Coupled Plasma- Optical Emission Spectroscopy for Analysis of Historic Papers," K. Agosta (presenter), K. Vancil, T. Spudich, *PITTCON, NIJ Forensic Session*, Orlando, FL, March 1, 2018.

"Using Paper-Based Microfluidics to Analyze Metals in Water Tributaries to Assess Contamination," A. Stich (presenter), T. Spudich, *PITTCON*, Orlando, FL, February 28, 2018.

"Characterization of a Microspectrophotometer for Quantitative Bio-Applications," N.M. McGhee (presenter), B. Postier, T. Spudich, *PITTCON*, Orlando, FL, February 28, 2018.

Presentations/Panels/Talks (continued)

"Determination of Trace Metal Content in Paper Using Inductively Coupled Plasma – Optical Emission Spectroscopy for Forensic Applications," K. Vancil (presenter), K. Agosta, T. Spudich, *PITTCON*, Orlando, FL, February 28, 2018.

"Development of an Improved Microspectrophotometer for Quantitative Bio-Applications," T. Spudich (presenter), N. Rodriguez, B. Postier, *PITTCON*, Chicago, IL, March 8, 2017.

"Determining the Metal Content in Paper Using Inductively Coupled Plasma-Optical Emission Spectroscopy," K. Agosta (presenter), K. Kloeppel, T. Spudich, *PITTCON*, Chicago, IL, March 8, 2017.

"Study of the Implementation of the Systematic Method in General Chemistry II," V. Y. Reinders (presenter), T. M. Spudich, N. Ulrich, *PITTCON*, Atlanta, GA, March 9, 2016.

"Characterization and Use of a Microspectrophotometer for Quantitative Bio-Applications," T. M. Spudich (presenter), B. Postier, R. Mills, *PITTCON*, Atlanta, GA, March 8, 2016.

*** Invited talk** "The Construction and Characterization of Low-Cost Devices Utilizing Spectrometric Detection," San Diego State University, San Diego, CA, December 4, 2015.

"Identification of Controlled Substances in Forensics with Handheld Raman Spectroscopy," C.R. Cook (presenter), T. M. Spudich, K. Bakeev, *PITTCON*, New Orleans, LA, March 10, 2015.

"Determination of Metal Content in Paper for Forensic Identification Using ICP-OES or ICP-MS," R. M. Goestenkors (presenter), T. M. Spudich, *PITTCON*, New Orleans, LA, March 10, 2015.

"Construction and Characterization of a Portable, Low-Volume Fluorescence Spectrometer," M.S. Scarborough, T. M. Spudich (presenter), *PITTCON*, New Orleans, LA, March 8, 2015.

"Determining the Weight Percent of Dye in Peeps," M.S. Scarborough (presenter), T. Spudich, *PITTCON*, Chicago, IL, March 3, 2014.

"Construction and Characterization of a Micro-Fluorescence Spectrometer," M.S. Scarborough (presenter), E.J. Vaughan, and T. Spudich, *PITTCON*, Chicago, IL, March 3, 2014.

"The Development and Characterization of a Tactical Light Emission System," T. Spudich (presenter), J.D. Weter, E.J. Vaughan, M. Jerrett, *PITTCON*, Chicago, IL, March 3, 2014.

"The Development and Characterization of a Micro-Vis Spectrophotometer with Wireless Communication Connection," J.D. Weter (presenter), M.T. Baker, E.J. Vaughan, T. Spudich, *PITTCON*, Chicago, IL, March 3, 2014.

*** Invited talk** "The Construction and Characterization of Low-Cost Devices Utilizing Spectrometric Detection," Creighton University, Omaha, NE, January 23, 2014.

*** Invited talk** "Forensic Science Advancements," Sisters In Crime, Greater St. Louis Chapter meeting, January 2014.

*** Invited discussion** "Preparing Applications for Faculty Positions at Predominantly Undergraduate Institutions," Washington University Post-doc coffee hour, October 6, 2013.

*** Invited Panel Member** "Getting to the Interview," Panelists: Joe Bedell, Sigma-Aldrich, Tamara Hershey, Washington University, Tom Spudich, Maryville University. Washington University Postdoc Symposium, April 3, 2013.

"A Multidisciplinary Approach to a Criminal Event: From Murder to Trial," G.M. Brandt, and T.M. Spudich (co-presenters), *PITTCON*, Philadelphia, PA, March 2013. Geri asked me to present component the day of the presentation, so I am not listed as a presenter in the abstract.

"Building and Characterizing a Micro-Volume Fluorescence Detection System," R.M. Green, and T.M. Spudich(presenter), *PITTCON*, Philadelphia, PA, March 2013.

"Building and Characterization of an Inexpensive Micro-Spectrophotometer," M.T. Baker (presenter), T.S. Perkins, T.M. Spudich, *PITTCON*, Philadelphia, PA, March 2013.

*** Panelist** "Our First Steps in a Brave New World: What We Learned About Teaching & Learning from Our Inaugural Undergraduate Research Scholars Summer Program," L. Grieshaber, G. Colbeck, K. Krakos, T. Spudich, SoTL, October 2012.

"Analytical Sciences Digital Library – A Unifying Force for Analytical Science Education," T.M. Spudich (presenter), C. Larive, *ACS Regional Meeting*, St. Louis, MO, October 2011.

"Photo-dissociation of Supercritical Fluid Carbon Dioxide in the Production of Breathable Oxygen," B.N. Dotson (presenter), M.E. Tullia, W.D. Zacherl, J.D. DeLong, T.M. Spudich, *ACS Regional Meeting*, Poughkeepsie, NY, April 2010.

"Photo-dissociation of Supercritical Fluid Carbon Dioxide in the Production of Breathable Oxygen," B.N. Dotson (presenter), M.E. Tullia, W.D. Zacherl, J.D. DeLong, T.M. Spudich, *PITTCON*, Orlando, FL, February 2010.

"The Continued Characterization and Modifications of a Mid/Longwave IR Emitter," C.E. Heid, K.W. Johnson (presenter), B.A. Rulison, T.M. Spudich, *PITTCON*, Orlando, FL, February 2010.

*** Invited talk** "Thermal Identification Device," PEO Soldier, Ft. Belvoir, VA. October 2009

"The Characterization of a Mid/Longwave IR Emitter," T.M. Spudich (presenter), J.M. Ingram, *PITTCON*, Chicago, IL. March 2009.

Team Thermasters -- "Characterization of a Light Emitting Filament Based on Pyrolized Polyamide," B.C. Bird, E.C. Creighton, K.M. Fenton, J.C. Teahon, J. Vanecek (presenters); J.M. Ingram & T.M. Spudich (faculty sponsors), *Soldier Design Competition*, Massachusetts Institute of Technology, April 2008.

"Does Moving the Light Work for Atomic Spectroscopy," East Stroudsburg University, East Stroudsburg, PA, October 2007.

Presentations/Panels/Talks (continued)

"The Analysis of Snapping Turtles Collected from Erie County, Pennsylvania, for Mercury by Cold-Vapor Atomic Absorption Spectroscopy." K.A. Ortmann (presenter), T.M. Spudich, M.G. Chisholm, Northeast Regional Meeting of the American Chemical Society, Rochester, NY. November 2004.

"Trace Elemental Analysis of Snapping Turtles Collected from Erie County, Pennsylvania." D.P. Duberow (presenter), T.M. Spudich, J. Schnars, *SAS/ACS May Conference*, Cleveland, OH. May 2004.

"Trace Elemental Analysis of Snapping Turtles Collected from Erie County, Pennsylvania." D.P. Duberow (presenter), T.M. Spudich, J. Schnars, *PITTCON*, Chicago, IL. March 2004.

*** Invited talk** "The Development of Cross-Discipline Undergraduate Research: Trace Metal Analysis of Snapping Turtles Collected from Erie County, Pennsylvania." T.M. Spudich, (presenter), D.P. Duberow, C. Knight, D. Dupres, J. Schnars, *Federation of Analytical Chemistry and Spectroscopy Societies*, Ft. Lauderdale, FL. October 2003.

"Bio-Contamination in the Common Snapping Turtle (*Chelydra serpentina serpentina*), Should We have Consumption Advisories?" J.L. Schnars, (presenter) and T.M. Spudich. Regional Research Symposium, Presque Isle State Park, Erie, PA. August 2003.

*** Invited talk** "Recent Advances in Atomic Spectroscopy Utilizing Radiation Modulation Devices." Illinois State University, Normal, IL. March 2003.

"Characterization of a Digital Micro-Mirror Array for Atomic Absorption Spectroscopy." J.M. Kuntz (presenter), C.K. Utz (presenter), and T. M. Spudich, *Federation of Analytical Chemistry and Spectroscopy Societies*, Providence, RI. October 2002.

*** Invited talk** "Recent Advances in Atomic Emission Spectroscopy." Cleveland Section of the Society for Applied Spectroscopy, Cleveland, OH. September 2002.

"Construction and Use of an Ultraviolet Acousto-Optic Background Correction System for Atomic Emission Spectroscopy." T.M. Spudich (presenter), J.R. Uhal, and S.L. Cox. *PITTCON* (The Pittsburgh Conference), New Orleans, LA. March 2002.

*** Invited talk** "Recent Advances in Atomic Emission Spectroscopy." Erie Section, American Chemical Society, Erie, PA. March 2001.

*** Invited talk** "The Development and Use of Acousto-Optic Background Correction in Atomic Spectroscopy." Truman State University, Kirksville, MO. July 2000.

Earlier presentation information can be provided upon request.

ACADEMIC EXPERIENCE

Courses Taught

Analytics of Baseball, Chemistry of Life I lecture & lab, Forensic Chemistry lecture & lab, Freshman Seminar, General Chemistry (reg. & adv.) I lecture, recitation & lab, General Chemistry (reg. & adv.) II lecture & lab, Instrumental Analysis lecture & lab, Introduction to Forensic Science lecture & lab, Murder to Trial Physical Chemistry II lecture, Quantitative Analysis lecture & lab

Instruments presented in a laboratory setting

AA/AE, ICP, UV-Vis, Raman, Fluorescence, IR(ATR), NMR, GC, GC-MS, LC, CV, XRF, SCGD, Data acquisition/interfacing

New Courses and/or Programs Developed

Introduction to Data Science Research, Spring 2019, Maryville University
Analytics of Baseball, Fall 2016, Maryville University
Forensic Chemistry, Spring 2014, Maryville University
Introduction to Forensic Science lecture and lab, Fall 2013, Maryville University
Maintained Forensic Science Major, Fall 2011-present, Maryville University.
Quantitative Analysis Lab, Mercyhurst College.
Instrumental Analysis, Penn State Erie (CHMBD 445, 446-448), lecture and labs.
Assisted with the ACS certification Penn State Erie and the United States Military Academy.

OUTREACH ACTIVITIES

Journal Editor

Collections Editor, *The Analytical Sciences Digital Library,* www.asdlib.org June 2021-present.
Remote Labs Content Coordinator, *The Analytical Sciences Digital Library,* remotelabs.asdlib.org July 2020-present.
Forensic Content Associate Editor, *The Analytical Sciences Digital Library,* www.asdlib.org March 2012-June 2021.
Contributing Editor, *The Analytical Sciences Digital Library*, www.asdlib.org March 2003-March 2004, June 2008-June 2012.

Reviewer for Refereed Journals

Journal of the Analytical Sciences Digital Library – 1 paper reviewed, May 2021.
The Chemical Educator – 1 paper reviewed, June 2018.
The Chemical Educator – 1 paper reviewed, August 2017.
Applied Spectroscopy – 2 papers reviewed, 2007.
The Chemical Educator – paper reviewed, 2003.
The Analytical Sciences Digital Library – Review Panel Member, March 2002-present.
Council on Undergraduate Research Quarterly – 2 papers reviewed, 2000.

Reviews of Textbooks and Textbook Proposals

Forensic Chemistry by Suzanne Bell. 3rd edition, Pearson, December 2020.
Analytical Chemistry by Christian, Dasgupta and Schug. 7th edition, Wiley, October 2020 (considering 8th edition)
Analytical Chemistry by Hage, Redepenning, and Carr. 1st Edition, Houghton Mifflin, August 2004 (initial text review)
Exploring Chemical Analysis by Harris, D.C. 3rd Edition, Freeman Publishing, May 2003 (text review)
Instrumental Methods of Analysis by F.A. Settle, Jr., Y. Ma, D. McCurdy, B. Lamp, M. Vitha, and B. Gregory. 8th Edition, Brooks/Cole Publishers, April 2003 (textbook proposal)
Principles and Practice of Analytical Chemistry by Fifield, F.W. and D. Kealey. Blackwell Science, July 2000 (text review)

Service to Professional and Industrial Associations

Committee member for writing the standardized ACS exam for instrumental analysis, spring 2023-.
Co-organizer of ACS-SAS St. Louis section undergraduate research conference at Maryville University, November 2019.
Co-hosted speakers with the St. Louis Section of the Society for Applied Spectroscopy, academic year 2016-2019.
Host of ASDLIB meetings at Maryville University, June 2014-2016.
Chair of a presentation session at PITTCON, "Forensic Science: Preparing Students for the Job." March 2013.
New York Section of the Society for Applied Spectroscopy, Host of end-of-year boat ride, June 2010.
Cleveland Section of the Society for Applied Spectroscopy, Vice-President, 2004-2006.
Cleveland Section of the Society for Applied Spectroscopy, Yeager Award Committee member, 2004-2006.
Member of the Presque Isle Bay Public Advisory Committee, 2000-2006.

Outreach Presentations

"I Love the 90s," St. Louis Science Center First Friday event main stage, December 6, 2019.
"Bourne, Bond and Beyond," St. Louis Science Center First Friday event main stage, November 2, 2018.
"What is Forensic Science?" Rockwood Valley Middle School, February 2018 (2 visits), February 2019 (3 visits).
"The Ethics and Real-Life Forensics of Sherlock Holmes," St. Louis Science Center First Friday main stage, February 3, 2017.
"The Science of Superheroes," Case-Halstead Public Library, September 23, 2016.
Co-hosted a spy technology table at the St. Louis Science Center First Friday event, January 1, 2016.
"Review of Back to the Future II predictions," St. Louis Science Center First Friday in OMNIMAX theater, October 2, 2015.
"The Science of Superheroes," St. Louis Science Center First Friday event main stage, February 6, 2015.
"The Science of Sherlock Holmes," St. Louis Science Center First Friday event main stage, November 7, 2014.
"My Career as a Scientist and Educator," Duello Elementary School, Wentzville, MO, May 2013.
"Murder to Trial," Marquette High School, Chesterfield, MO, most fall/spring semesters, 2012-present with Geri Brandt.
"The Electromagnetic Spectrum," Monroe-Woodbury Middle School, 8th grade, Monroe, NY. February 2010.
"Chemistry is Fun." National Chemistry Week Activities. St. James School, 7th grade, Erie, PA. April 2000.

Webpages Maintained

Cleveland Section of the Society for Applied Spectroscopy, webmaster, September 2002-June 2006.
Quantitative Analysis Springboard, 1999-2006. (no longer online)

Participation in Community Activities

Forensic Interactive Activities, Harold Holliday Sr. Montessori, Kansas City, MO, May 10, 2022.
Organized table using Raman and XRF in Forensic Science for Science Center First Friday Event, February 4, 2022.
Forensic Interactive Activities, St. Louis Science Center First Friday event, November 2, 2018.
Forensic Interactive Activities, DeSoto Middle School, DeSoto, MO. March 17, 2017.
Forensic Interactive Activities, Cool Valley Elementary, St. Louis, MO. March 16, 2017.
Forensic Interactive Activities, St. Louis Science Center First Friday event, February 3, 2017.
BALSA idea reviewer, 2016-present.
Forensic Interactive Activities, St. Louis Science Center First Friday event, November 7, 2014.
Ecybermission ambassador, March 2014-present (sponsored virtual student judges in chemistry classes).
Virtual Judge sponsor, Ecybermission, March 2012 (actual judge), March 2013 (sponsored virtual student judges in class).
Evidence collection ride-along with St. Louis County Police Department, January 2012, January 2013, May 2013
Division Representative & Manager, Monroe-Woodbury Little League, January 2008-June 2011.
Judge, Missouri Academy of Science, Collegiate Division, Truman State University, Kirksville, MO. Apr. 2006.
Judge, Pennsylvania Junior Academy of Sciences, Gannon University, Erie, PA. Feb. 1999-2006.
Judge, Undergraduate Research and Creative Accomplishments Conference, Penn State Erie, PA. April 2000-2005.

HONORS THESES SUPERVISED

Duberow, David. Trace Metal Analysis of Snapping Turtles Collected From Erie County, PA. Chemistry, B.S., 2004.
Kuntz, Jennifer. The Characterization and Use of a Digital Micromirror Device in an Atomic Absorption Spectrometer for Simultaneous Multielemental Analysis. Chemistry, B.S., 2003.
Katzenmeyer, Bryan. Radiation Characterization of Photochromic Pt(II) Compounds of *o*-Aminobenzaldehyde. Chemistry, B.S., 2002.

UNDERGRADUATE RESEARCH SUPERVISED AT MARYVILLE UNIVERSITY

STUDENT NAME	YEARS	PROJECT(S)	PRESENTATIONS (year)
Lingle, Meghan Alhalabi, Fadi Gargac, Bailey	2022	Determination of Bacteria Using SERS	ACS spring 2023 (applied)
Alhalabi, Fadi Gargac, Bailey	2022	Determination of Ca and Mg using spectrophotometric methods of EDTA complexes	ACS spring 2023 (applied)
Menard, Jocelyn	2022	Determination of metal content in oil using ICPMS and XRF	ACS spring 2023 (applied)
Alhalabi, Fadi Ortiz, Alex Reihms, Juliana	2021-2022	Non-Destructive Analysis of Native American Pottery Via X-Ray Fluorescence	Pittcon (22), Maryville Research Day (22)
Bean, Carlos Daly, James Coyle, Reid	2020-	Detection of herbicides in runoff water in drinking tributaries	ACS spring 2023 (applied)
Wostoupal, Owen Kline, Edgar	2020-2021	Characterization of a 3D printer fluorometer using Riboflavin as Analyte	Eastern Central Illinois ACS Undergraduate Conference (November 2020)
Elbe, Wyatt Garcia, Christopher	2020	Validation of a spectroscopic EDTA analysis method	
Fahs, Annika Pham, Nhi Pimental, Dinah	2019-2022	ELISA method development for paper-based microfluidic analysis o myoglobin	Pittcon (20), Pittcon (22) – (Undergraduate Award Winner), ACS (spring 2022)
Lippincott, Michael Viggers, Jared Opilka, Luke	2019-2022	The construction and characterization of a low-cost solution cathode glow discharge device	Pittcon (20), ACS (spring 2022), Maryville Researc Day (22)
Miller, Adam	2019-2021	Historic Paper Analysis	Pittcon (20)
Frankenreiter, Emily Salter, Emma	2019-2020	Historic Paper Analysis	Pittcon (20), Maryville Research Day (20)
Sandman, Joy	2018-2020	ELISA method development for paper-based microfluidic analysis o myoglobin and troponin	Pittcon (19), ACS Regional ugrad (18) Maryville Research Day (19, 20)
Young, Tanner	2017-19	Development of an EDTA analysis method for those that are colorblind	Pittcon (19), Maryville Research Day (19)
Stich, April	2017-19	ELISA method development for paper-based microfluidic analysis o myoglobin	Pittcon (18, 19), ACS Regional ugrad (18) Maryville Research Day (18, 19)
Sorg, Garrett	2017-18	ELISA method development for paper-based microfluidic analysis o myoglobin	Pittcon (18), Maryville Research Day (18)
Hendricks, CJ	2016-17	Construction of a computer data acquisition device for gas chromatography	Maryville Ugrad symposium (17)
McGhee, Nick	2016-18	Characterization of spectrophotometric micropipette tips for bio-applications	Pittcon (17), Maryville Ugrad symposium (17)
Rorah, Drayton	2016-18	Development of an EDTA analysis method for those that are colorblind; Development of a portable fossil ID system	Pittcon (18)
Levtchin, Beronika	2016-18	Historic Paper Analysis	Pittcon (18) – I presented, attending a different school
Rodriguez, Nate	2016-17	Characterization of spectrophotometric micropipette device for bio-applications	Pittcon (17) – I presented, sports conflict, Maryvil Ugrad symposium (17), Missouri Academy of Science (17)
Agosta, Katie Kloeppel, Kelsey	2015-18	Historic Paper Analysis & Method for Forensic Crime Scene Matching of Paper via Elemental Analysis	Pittcon (17, 18) 3 total, Maryville Ugrad symposiu (17, 18 (separate talks)), ACS Regional ugrad (17)
Reinders, Victoria	2014-16	Implementation of the Systematic Method in General Chemistry II	Pittcon (16), Maryville Ugrad symposium (15, 16)
Goestenkors, Rachel	2014-15	Determination of Metal Content in Paper for Forensic Identificatio Using ICP-OES	Pittcon (15), Maryville Ugrad symposium (15)
Clawson, Kory	2014-15	Identification of Accelerants Used in Arson Crime	Maryville Ugrad symposium (15)
Truong, Teresa	2013	Development of Quantitative Analysis Labs	
Greaves, Julia	2013	Development of Quantitative Analysis Labs	
Cook, Cassara	2013-15	Characterization of a Portable Raman Spectrometer for Use in the Detection of Controlled Substances	Pittcon (15)
Jerrett, Myles	2013-14	Characterization of low-cost IR light sources	Pittcon (14) – I presented, sports conflict
Weter, Jeremy Vaughn, Ethan	2013-15	Development of Wireless Control System for a micro-spectrometer	Pittcon (14) (both), Maryville Ugrad symposium (15, EV only)
Scarborough, Miranda	2013-15	Quantifying dye percent in Peeps; Characterization of a low-cost fluorescence spectrometer	Pittcon (14, 15)3 total, ACS Regional (13), Maryville Ugrad symposium (13)
Baker, Matthew	2012-13	Construction of a low-cost visible spectrometer	Pittcon (14, 13), Consortium Schools (13), Maryville Ugrad symposium (13)
Green, Raun	2012-13	Construction of a low-cost fluorescence spectrometer	Pittcon (13), Consortium Schools (13), Maryville Ugrad symposium (13)
Perkins, Tim	2011-12	Construction of a low-cost visible spectrometer	Consortium schools (12)
Ottofy, Dylan	2011-12	Construction of a low-cost visible spectrometer	Consortium schools (12)
Schneider, Ben	2011-12	Construction of a low-cost visible spectrometer	Consortium schools (12)

UNDERGRADUATE SPORTS ANALYTICS SUPERVISED AT MARYVILLE UNIVERSITY

STUDENT NAME	YEARS	PROJECT(S)
Chisenga, Ewetse	2022-	Men's Soccer
Grau, Tyler	2022-	Men's Hockey Women's Hockey
Spudich, Jared Puetz, Kelsey Whitworth, Russell	2021-	Softball Analytics
Russell, Kenneth Sems, Nathaniel	2021-2022	Baseball Analytics
Gardner, Tyler Winter, Austin	2021	Men's Basketball Analytics
Aivaliotis, Alex Matava, Christian	2020-2021	Softball Analytics
Rhoads, Samuel	2019-2020	Baseball Analytics
Curran, Victoria	2019-2020	Baseball Analytics
Cowan, Eric	2019-2021	Men's Basketball Analytics
Bao, Yunting (Grace)	2019	Softball Analytics
Forth, Michael	2019	Softball Analytics
Patel, Rajshree	2018-19	Men's Soccer Analytics
Rose, Sarah	2017-18	Baseball and Softball Analytics
Saunders, Janelle	2017-2021	Baseball, Softball, Bowling, Men's basketball & soccer

UNDERGRADUATE RESEARCH SUPERVISED OUTSIDE OF MARYVILLE UNIVERSITY

STUDENT NAME	YEARS	PROJECT(S)	IN-HOUSE GRANTS	PRESENTATIONS (year)
Wynne, Ted	2010-11	Testosterone and Estradiol in chicken eggs	$400	Projects Day (11)
Wright, Tyler	2010-11	Testosterone and Estradiol in chicken eggs	$400	Projects Day (11)
Stein, Anna	2010-11	Testosterone and Estradiol in chicken eggs	$400	Projects Day (11)
Jang, Jeffrey	2010-11	Low-volume & Low-cost fluorescence	$1400	Projects Day (11)
Dotson, Brandon (2010 NSF fellow)	2009-10	Photo-dissociation of Supercritical Carbon Dioxide for Use in the Production of Breathable Oxygen		Pittcon (10), ACS Regional (10), Projects Day (10)
Rulison, Blake	2009-10	LabView Programming to Characterize a Light Emitting Filament Based on Pyrolized Polyamide		Pittcon (10)
Johnson, Kyle	2009-10	Characterization of a Light Emitting Filament		Pittcon(10), Projects Day (10)
Heid, Claire	2009-10	Pre-burn Surface Modification to a Pyrolized Polyamide for Use as a Light Emitting Filament		Projects Day (09) Pittcon (10)
Bird, Bryan	2008	Characterization of a Light Emitting Filament Based on Pyrolized Polyamide	$200	SDC @ MIT (08) Projects Day (08)
Creighton, Eric	2008	Characterization of a Light Emitting Filament Based on Pyrolized Polyamide	$200	SDC @ MIT (08) Projects Day (08)
Fenton, Katie	2008	Characterization of a Light Emitting Filament Based on Pyrolized Polyamide	$200	SDC @ MIT (08) Projects Day (08)
Teahon, Jesse	2008	Characterization of a Light Emitting Filament Based on Pyrolized Polyamide	$200	SDC @ MIT (08) Projects Day (08)
Vanecek, Jenn	2008	Characterization of a Light Emitting Filament Based on Pyrolized Polyamide	$200	SDC @ MIT (08) Projects Day (08)
Michalski, Seth	2006	Building an inexpensive Raman spectrometer		
Scherrer, Andrew	2006	Building an inexpensive Raman spectrometer		
Ke, Lei	2006	Building an inexpensive Raman spectrometer		
Cunningham, Timothy	2005	Using a direct current plasma for metal analysis		
VanDeVelde, Jeneé	2005	Using a direct current plasma for metal analysis		
Sarver, Jessica	2004-05	Turtle analysis (Hg)	$1200	NCUR (05), Sigma Xi (05)
Ortmann, Katie	2004-05	Turtle analysis (Hg)	$1200	Rochester ACS (04)
Duberow, David	2002-04	Turtle analysis (Pb)	$1900	NCUR (03), Sigma Xi (03, 04), Pittcon (04), ACS/SAS Cleve. (04)
Utz, Charles	2001-03	Micromirror array	$1200	Sigma Xi (02, 03), FACSS (02)
Kuntz, Jennifer	2001-03	Micromirror array	$2600	Sigma Xi (02, 03), FACSS (02), ACS/SAS Cleve. (03)
Adamski, Amanda	2000-01	Toxicity of Cu/Zn in crayfish	$500	Sigma Xi (01)
Blood, Brent	1999-2000	Data-acquisition /signal processing	$500	Sigma Xi (00)
Herrmann, Jennifer	1999	Pb-GFAAS	--	--
Uhal, Jeffrey	1998-2000	Acousto-optics	$2400	Sigma Xi (00) NCUR (00)
Katzenmeyer, Bryan	1998-2002	1. Acousto-optics 2. Pt(complex)	$3600	Sigma Xi (00, 01, 02) NCUR (01, 02)