

Mark R. Zierden

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Education	Postdoctoral Researcher University of Wisconsin – Madison, Department of Entomology Advisor: Richard L. Lindroth	Madison, WI
	Temple University Ph.D. Department of Chemistry, December 2016. Advisor: Ann M. Valentine	Philadelphia, PA
	Stockton University Bachelor of Science, Chemistry, December 2010. Advisor: Rogers Barlatt	Pomona, NJ
Appointments	Assistant Professor Lake Superior State University	2022-current
Research	Postdoctoral Researcher University of Wisconsin – Madison, Department of Entomology Advisor: Richard L. Lindroth Developed projects analyzing the effects of metal soil contamination on <i>Populus tremuloides</i> , including the chemical response and quantitation of organic acids and phytochelatins, as well as determining these compounds in active <i>Populus</i> remediation sites. Developed project relating <i>P. tremuloides</i> root and leaf defense chemistry to rhizome microbial communities. This position also involved lab management duties including hiring and managing undergraduate researchers, management and ordering of lab supplies, maintenance of lab and field equipment, performing chemical assays for multiple projects, and training researchers from other labs. Chemical analysis involved quantitation of phenolic glycosides, condensed tannins, fiber and lignin, flavonoids and total phenolics, total nonstructural carbohydrates, and carbon and nitrogen.	2018-2022
	Graduate Research Assistant Temple University, Department of Chemistry Advisor: Ann M. Valentine Thesis: Towards Understanding the Trafficking of Iron and Titanium Ions in Organisms Developed method of isolation and characterization of titanium mineral binding proteins from <i>R. ruber</i> GIN-1 for the purposes of evaluation of specific mineral binding moieties. Studied the kinetics of reduction of iron(III) to iron(II) by nicatransferrin for purposes of further elucidation of the transferrin cycle. Techniques used in these studies include UV-Vis spectroscopy, Fast	2011-2016

Protein Liquid Chromatography, HPLC, LC/MS/MS, ICP-OES, polyacrylamide gel electrophoresis.

Undergraduate Research Assistant

2009-2010

Stockton University, Department of Chemistry

Advisor: Rogers Barlatt

Thesis: Thermochromic complexes of $\text{Ni}(\text{ClO}_4)_2 \cdot 6\text{H}_2\text{O}$ with N,N-dimethylethylenediamine and N,N-diethylethylenediamine

Synthesized and characterized thermochromic compounds of nickel(II)N,N-dimethylethylenediamine perchlorate and nickel(II)N,N-diethylethylenediamine perchlorate using differential scanning calorimetry and thermogravimetric analysis.

NSF-REU Research Fellow

2010

Coe College, Department of Physics

Advisor: Steve Feller

Synthesized alkali-borate glasses varying the alkali metal mole fraction and characterized how this affected the glass transition width of the glass using differential scanning calorimetry.

Positions

Senior Scientist

2018

Eurofins Lancaster Laboratories

Extractable and Leachable Department, LC-MS analysis

Adjunct Assistant Professor

2017

Temple University, Department of Chemistry

STEM Scholars instructor, Department of Chemistry Mass Spectrometrist, Inorganic and General chemistry laboratory instructor

Publications

Zierden, M. R., Valentine A. M. Contemplating a role for titanium in organisms. *Metallomics*, 2016, 8, 9-16.

Gallo, A. D., **Zierden, M. R.**, Profitt, L. A., Jones, K. E., Bonafide, C. P., Valentine, A. M. TiO_2 exposure alters transition metal ion quota in *Rhodococcus ruber* GIN-1. *Metallomics*, 2020, 12, 8-11.

Eisenring, M., Best, R. J., **Zierden, M. R.**, Cooper, H. F., Norstrem, M., Whitham, T. G., Grady K., Allan, G. J., Lindroth, R. L. Genetic divergence along a climate gradient shapes chemical response of a foundational tree species to both climate stress and leaf damage. *Global Change Biology*, 2022, 00, 1-17.

Zierden, M. R., Morrow, C. J., Lindroth R. L. Relationship of *Populus tremuloides* defense compounds among tissues. (In Prep).

Teaching

Temple University, College of Science and Technology

Experience	Philadelphia, PA Adjunct Assistant Professor Science Education Program, STEM Scholars Program
	Temple University, Department of Chemistry Philadelphia, PA Adjunct Assistant Professor General Chemistry II Lab, Basic Core General Chemistry I Lab, Inorganic Synthesis, Inorganic Chemistry
	Temple University, Department of Chemistry Philadelphia, PA Teaching Assistant General Chemistry I, General Chemistry I Laboratory, Honors General Chemistry II, Inorganic Chemistry, Advanced Inorganic Chemistry, Applications of Chemistry, Applications of Chemistry Laboratory
	American Chemical Society Science Coach 2014-2015, 2015-2016 George Washington Carver High School for Engineering and Science
	N.S.F. GK-12 Fellowship/Temple University Scientists as Teachers, Teachers as Scientists, Graduate STEM Fellow 2013-2014
	Stockton University Teaching Assistant General Chemistry I Laboratory, Organic Techniques, Inorganic Chemistry Co-teacher with Dr. Marc Richard Experiential Chemistry
Invited Lectures	Stockton University Chemistry Seminar, September 16, 2013 “Ferrireductase activity of nicatransferrin, a model monolobal transferrin”
Poster Presentations	“Ferrireductase activity of nicatransferrin, a model, monolobal transferrin from the ascidian <i>Ciona intestinalis</i> ” Mark R. Zierden, Jean Gaffney and Ann M. Valentine, MASIS, Temple University, July 2014
	“Ferrireductase activity of nicatransferrin, a model, monolobal transferrin from the ascidian <i>Ciona intestinalis</i> ” Mark R. Zierden, Jean Gaffney and Ann M. Valentine, Philadelphia YCC Symposium, Drexel University, February 2013
	“Ferrireductase activity of nicatransferrin, a monolobal transferrin from the ascidian <i>Ciona intestinalis</i> ” Mark R. Zierden, Jean Gaffney and Ann M. Valentine, ACS National Meeting, Philadelphia, PA. August 2012

“Ferrireductase activity of nicatransferrin, a monolobal transferrin from the ascidian *Ciona intestinalis*” Mark R. Zierden, Jean Gaffney and Ann M. Valentine, MASIS, Johns Hopkins University, August 2012

News Articles	Mark Zierden, “Postdoc Excellence Awards recognize outstanding UW-Madison postdocs and faculty”, <i>UW-Madison News</i> , news.wisc.edu/postdoc-excellence-awards-recognize-outstanding-uw-madison-postdocs-and-faculty/ , 2021, April 27
Awards	Department of Chemistry Guy Allen Award for Outstanding Teaching, 2016 Temple University Doctoral Dissertation Completion Grant, 2016 Pre-doctoral Summer Research Opportunity Grant, 2015 Temple University Bioinorganic Symposium Award, 2012
Certifications	Teaching in Higher Education Certificate Temple University, 2012
Service and Outreach	University of Wisconsin-Madison Postdoctoral Association (UWPA), 2019-21 UWPA Awards Committee Chair, 2021 UWPA Treasurer, 2020-2021 UWPA Communications Director, 2019-2020 Committee Co-chair, Future of Research Mentoring Future Scientists Satellite Event, 2019
	Undergraduate Research Scholar program Mentor 2021-2022
	Presenter, UW-Madison Science Explorations, 2019
	Student Distinguished Lectureship Committee, Temple University, 2013-2016
	Stereotopical Chemistry podcast co-host, 2015-2017