

Michael J. Zdilla, Ph.D., Professor

Office:

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Education	Princeton University Ph.D. and Master of Arts, Inorganic Chemistry Department of Chemistry Thesis: Exploration of Weak-Field Iron-Nitrogen Clusters: Nitrogenase-inspired Synthetic Inorganic Chemistry	Princeton, NJ September 2000 – May 2005
	Millersville University B.S., Chemistry/Biochemistry Magna Cum Laude Departmental Honors University Honors Program Thesis: Synthesis and Characterization of Novel Molybdenum-Diphenylphosphine Complexes	Millersville, PA September 1996 – May 2000
Professional Experience	Professor	July 2019- present
	Associate Professor	July 2015- July 2019
	Robert L. Smith Early Career Professor	July 2013- July 2016
	Assistant Professor	July 2009- July 2015
	Temple University Department of Chemistry Philadelphia, PA Preparation and design of metallocluster and catalyst scaffolds, heterogeneous catalysis, synthesis of novel energetic materials, solid electrolytes, crystallography.	
	Research Assistant, Purdue University Department of Chemistry (postdoctoral) West Lafayette, IN Advisor: Mahdi M. Abu-Omar, Exploration of biomimetic metalloporphyrin and corrole chemistry.	May 2005 – July 2009
	Research Assistant, Princeton University Department of Chemistry (doctoral) Princeton, NJ Advisor: Sonny C. Lee, Synthesis of bio-inspired Fe-N-S clusters as models of the nitrogenase enzyme	June 2001 – May 2005
Undergraduate Research Assistant, Millersville University Department of Chemistry Millersville, PA Advisor: R. Edward Rajaseelan, Synthesis of molybdenum and tungsten complexes of synthetic interest.	May 1999 – May 2000	
Teaching Activities:		
Practical X-Ray Diffraction A theory and user course for grad students desiring certification for use of the department's X-ray diffractometer		Temple Univ, PA Fall, '12-present
Crystallography and Diffraction A laboratory course on theory and practice of X-ray diffraction		Temple Univ., PA Spring '10-present
Bioinorganic Chemistry Graduate level class on roles and trafficking of metals in biology.		Temple Univ., PA Fall '09-present
Inorganic Chemistry Developed and taught Temple's sophomore level Inorganic Course		Temple Univ., PA Summer II, '11, '12
Honors General Chemistry I Taught 2 sections of Honors General Chemistry I		Temple Univ., PA Fall, '16-'18
Honors General Chemistry II Taught 2 sections of Honors General Chemistry II		Temple Univ., PA Spring, '18
General Chemistry		Temple Univ., PA

Taught up to eight sections of General Chemistry I	Summer I, '11, '23
Independent Research	Temple Univ., PA
Continually advising independent research by Grads and Undergrads	Fall, '09 - present
Inorganic Chemistry. – Pickering Award, '03	Princeton Univ., NJ
Taught two sections of precept (recitation class of 5-15 students)	Fall '01/'02, '02/'03, '03/'04
Organic Chemistry.	Princeton Univ., NJ
Taught two sections of organic laboratory	Spring '00/'01, '01/'02
General Chemistry I and II. Teaching Assistant - Alyea Award, '04	Princeton Univ., NJ
Taught three sections of precept (class of 7-20 students)	Fall '00/'01, Spring '03/'04
General Biology. Teacher, Upward Bound summer program,	Millersville Univ., PA
Taught pre-college biology to high school freshmen	Summer, 2000
Intro to Scientific Research. Teacher, Upward Bound summer program	Millersville Univ., PA
Taught a pre-college scientific research for H.S. seniors in physics,	Summer, 2000
chemistry, or biology	
Academic Tutor. Millersville University/Upward Bound	Millersville Univ., PA
Tutored Millersville undergraduates (during the academic year)	1997-2000
and Upward Bound high school students (summer)	

Service

Community Outreach

My most substantial outreach to the non-scientific community is through lay talks and demonstration performances for audiences in Philadelphia and surrounding areas, including shows for both kids and adults. These frequently include the performance of songs, including “The Elements” by Tom Leher on voice and guitar. Specific events and examples are described below.

NanoWeek. As part of the University of Pennsylvania’s Nano Week outreach program, faculty and students in the greater Philadelphia area travel to local schools to perform demonstrations and give lay lectures to students in middle and high school. For example, in 2021, I presented a lecture on energy storage and conversion to about 20 students at the Valley Forge Military Academy, including a lecture, and demonstrations of chemical and physical changes.

Taste of Science. A spring science promotion event in Philadelphia at Fergie’s Pub in Philadelphia. Dr. Zdilla gave a lecture on chemistry and energy and how its relationship to climate change. The talk included demonstrations such as liquid nitrogen Leidenfrost effect, detonating a hydrogen balloon, and the thermite reaction. Photosynthesis and alternative energy were discussed, as well as explosives. The talk also included a vocal and guitar performance of Tom Lehrer’s “The Elements,” which is a common component of Dr. Zdilla’s outreach presentations.

Science Night at Swarthmore and Nether Providence Elementary Schools. 2015- present Coorganizer and presenter. Performed chemistry demonstrations for elementary kids in these Philadelphia Suburbs, including color-changing universal indicator acidified with dry ice, liquid nitrogen demonstrations, including making “Dip ‘n’ Dots” ice cream, and demonstration of phases (solid, liquid, gas, plasma), crystallography, and the chemistry of taste.

Temple University Chemistry Society Charity Volleyball Tournament, 2013-2015. Played in a charity volleyball tournament to raise funds to purchase supplies for chemistry and science classes in Philadelphia public schools. The tournament was hosted and organized by the undergraduate chemistry society. Dr. Zdilla played on the faculty team, The Lachrymators.

Introduction to the Research Laboratory, 2014. Hosted 7 high-school students from Hempfield High School with aspirations for graduate school. These students visited Temple as a field trip to be exposed to graduate school life. They were introduced to synthetic, biological, and laser laboratories, had the opportunity to use a glovebox, and saw demonstrations of the X-ray diffractometer, mass spectrometer, and transmission electron microscope. A Q&A was also held on how to prepare for college and a career in the sciences.

**Service
(cont)**

Technology Symposium for High School Students, 2013. An outreach to urban high-school students, Dr. Zdilla participated in a TU-Teach-sponsored program to encourage interest in STEM fields in youth. Dr. Zdilla presented three lectures on energy, fuels, explosives, and performed chemical demonstrations including detonation of hydrogen balloons, and demonstrating the Liedenfrost effect using liquid nitrogen.

Philadelphia Nerd Nite Café, 2012. A popular social event for science enthusiasts, locals from the Philadelphia area meet at Frankford Hall, a beer garden in eastern Philadelphia, to hear entertaining talks on science and other “nerdy” subjects. Dr. Zdilla gave a lecture on chemistry and energy which included liquid nitrogen Leidenfrost effect, detonating a hydrogen balloon, and the thermite reaction. Photosynthesis and alternative energy were discussed, as well as explosives. The talk also included a vocal and guitar performance of Tom Lehrer’s “The Elements.”

“Sam Kean’s Science Cabaret,” Philadelphia Science Festival, 2011. 1st prize. As part of the scientific outreach of the Philadelphia Science Festival, and in honor of the International Year in Chemistry, Dr. Zdilla participated in an evening of fun science involving three competing performers who provided a “cabaret-themed” chemical demonstration performance for the Philadelphia community. Dr. Zdilla demonstrated the “Briggs-Rauscher oscillating reaction, H₂ generation from magnesium metal, and subsequent detonation, “breathing” liquid nitrogen, and performed “The Elements” by Tom Lehrer. Chemical Heritage Foundation, Philadelphia, PA.

George Washington Carver Science Fair, Judge. 2011, 2016. The George Washington Carver Science Fair is a Philadelphia program designed to encourage early participation in science in urban youth. Judges from local schools and universities select the best poster presentations, and award prizes and honorable mention to participants. Academy of Natural Science, Philadelphia, PA.

Science and Discovery Leader at a local summer school program. **2010-2014.** Exploring science and performing experiments with elementary school children. Topics for the week include plate tectonics, friction, hematology, viscosity, and magnetism.

Iota Sigma Pi National Chemistry Week for Elementary Students, volunteer. **2008, 2006.** Traveled to elementary schools in the Lafayette/West Lafayette area to perform demonstrations and lead elementary children in chemistry experiments in topics such as polymers and surfactants.

Science Expo sponsored by Princeton University Chemistry Department, volunteer. **2002-2004.** A science program for middle school students during which they see chemical demonstrations, and do experiments to excite interest in the subject.

Departmental Service

Science Talks for Temple Alumni Weekend and Temple Recruiting Events The College of Science and Technology hosts annual fundraising events for alumni during Alumni Weekend, and for the college counselors from prospective high schools through cooperation with Temple Admissions. This has often included science talks from faculty for a lay audience. Presentations usually focus on chemistry and alternative energy with ties into the Zdilla labs research and its relationship to global energy challenges.

Temple Undergraduate Chemistry Society, Lunch and the Lab. 2009-present. The Lunch and the Lab seminar series is an outreach to Temple Chemistry undergraduates to get them involved in research at an early stage of their studies.

Graduate recruiting weekend. 2010-present. Temple’s chemistry department held its first graduate student recruitment weekend in Winter of ‘10. For this event, Dr. Zdilla assisted in organization of events, especially the poster session luncheon, and provided transportation for prospective graduate students on their tour of Philadelphia, and their travel to dinner at the Standard Tap.

Departmental Committees (Temple University)

Chair, Graduate Committee 2021-present
Resumption of Research Committee (pandemic planning) 2020-2021
Faculty Advisor (2010-2021)
Departmental Instrument Committee (2013-present)
Undergraduate Curriculum Committee (2010-2021)
Graduate Admissions Committee (2010-2014)
Faculty Recruiting Committee (2010/11, 2016/17)

Service to the College of Science and Technology

College of Science and Technology Committees

Liaison to CST for the Temple University Research Forum 2011-2022
Dean's Advisory Committee, 2016-2020
CST Graduate Committee 2021-present
CST Dean Search Committee 2023

University Service

National Scholarships Mentoring/Interviewing Committee 2016-present
University Sabbatical Committee, 2017
University Commencement Speaker and Awards committee, 2018
Fellowship Campus Committees for UK awards and Knight-Hennessy awards (2016-present)

Other Service

NSF REU Program advisor. 2018-2021. Temple's recently funded NSF REU program brings undergraduates from small teaching institutions to Temple to perform research over the summer. I hosted a student from a local community college, Shaoquan Brooks in 2018. His summer work will lead to a coauthorship on one paper.

Fullbright Program advisor. 2018-present. A graduate student, Prabhat Prakash, from the Indian Institute of Science Education and Research (IISER) Pune won a Fullbright Fellowship to spend 6-9 months in my lab in 2018-19 performing theoretical computations and simulations on our battery electrolyte materials, and learning some experimental synthetic and electrochemistry for the first time.

Undergraduate Research Program (URP) advisor. 2009-present. I have served as an independent research advisor to nine URP students to perform minimum year-long research in the Zdilla lab. Attended discussion meetings with advisees and the whole of the Zdilla research group to discuss students' projects and provide feedback. Undergraduate students in the program have gone on to graduate school at Johns Hopkins, Yale, and Boston College.

Temple University Honors Program, Diamond Scholars, student advisor. 2010-2013. Served as advisor to two diamond scholarship awardees to perform research in the Zdilla lab. Attended discussion meetings with advisees and other diamond scholars and their advisors to discuss students' projects and provide feedback. Students in the program extend across the spectrum of disciplines from science to humanities. Both students are attending top graduate schools (Johns Hopkins and Yale).

Frances Velay Scholarship Mentor. 2016. Served as an advisor for a Velay fellow. The velay fellowship for women encourages science enrichment opportunities for women. A student, Ms. Parichhya Luitel, performed research in battery electrolytes in the Zdilla lab for the summer and Fall semesters, and presented her work at the Velay symposium.

Minority Access to Research Careers (MARC) program advisor. 2012-2014, 2020-present. Served as an advisor to two MARC program students to perform research in the Zdilla lab. Attended discussion meetings with advisees and other diamond scholars and their advisors to discuss students' projects and provide feedback. Students in the program extend across the spectrum of disciplines from science to

humanities. Dr. Zdilla's first student went on to earn a Ph.D from Johns Hopkins University in 2020, and the second one is currently working in the group.

Scientists as Teachers, Teachers as Scientists (SAT-TAS) program advisor. 2012-2013. Advised a graduate student participating in the SAT-TAS program, which placed him into a Philadelphia high school classroom. Attended workshops and symposia by the graduate students and host teachers. Advised research in the laboratory by the host teacher for one summer.

College of Science and Technology Liaison to the Temple University Research Forum and Creative Works Symposium (TURF CreWS). 2011-present. Annually, CST hosts TURF-CreWS, a selective conference for undergraduates to disseminate their research and perform or present their artistic creations. Dr. Zdilla is the CST liaison, and is responsible for reading and deciding upon abstract submissions for science presentations, and assists with organizing and moderating the oral symposium.

Faculty Academic Advisor. 2014-present. Offers advice to students inside and outside the chemistry major regarding courses to take, transfer credits, prerequisite issues, and graduation requirements.

Alumni Weekend, Temple University. 2013, 2017. As part of alumni weekend, Dr. Zdilla presented a short talk on energy and renewables for TedX conference held at Temple University. The theme of the conference was uncertainty. Dr. Zdilla's presentation was on uncertainty in the development of renewable fuels, and discussed topics ranging from fossil fuels to the internal combustion engine, and was presented to a general audience.

Grade Dispute Hearings. 2013-2015. Dr. Zdilla serves as a faculty representative in 3rd stage student grievances in grade disputes. In this courtroom-like setting, students disputing a grade, and the faculty that provided the grade present their case. Some discussion ensues, followed by a vote by the representatives present on the final outcome of the dispute claim.

Mid Atlantic Seaboard Inorganic Symposium (MASIS). 2014. Co-host and organizer of the MASIS, a symposium held every two years hosting research institutions from New Jersey, Pennsylvania, Maryland, and Delaware. This conference provides networking opportunities for graduate students from major schools along the east, but for the university, provides needed visibility for Temple as a new hub of high-impact chemical research.