

Patricia A. Leach

Garland, Texas 75044

paleach86job@gmail.com • 316.644.8255 • linkedin.com/in/patricia-leach-a254191a

QUALIFICATIONS SUMMARY

Knowledgeable chemistry instructor with significant experience in a variety of university and laboratory environments. Experienced lecturer and tutor. Subjects: High School (including International Baccalaureate & AP) Chemistry, Mathematics, and Physics. College & University: Basic Chemistry; Introductory Chemistry: General, Organic, and Biochemistry; College Chemistry I & II; Inorganic Chemistry (undergraduate and graduate); Organic Chemistry; and Physical Chemistry. Experienced at teaching laboratory skills and experimental design for the afore mentioned subjects, as well as, integrated laboratories.

- ▶ **Relationship Development:** Strong interpersonal talents with passion for cultivating lasting relationships with students through direct and collaborative learning environments. Proven ability to collaborate with colleagues and students to achieve goals, as well as, self-supervise and work independently
- ▶ **Curriculum Design:** Employs teaching by analogy, teaching by doing, and collaborative learning techniques in the classroom and laboratory and laboratory design for enhancing lecture material into the teaching process. Incorporates outside resources into the learning process. Experienced at designing evaluation tools for determining mastery of content and skills. Utilizes techniques to reach students with varied learning styles.
- ▶ **Information & Data Management:** Well-developed ability to utilize LMS technologies to present content, links to relevant resources, track student performance, and communicate with students. Responsible handling and reporting of student outcomes and statistical data to authorized personnel.

EDUCATIONAL BACKGROUND

Master of Arts in Chemistry

WESLEYAN UNIVERSITY, Middletown, Connecticut

Teaching Fellow

UNIVERSITY OF PITTSBURGH, Pittsburgh, Pennsylvania

Bachelor of Science in Chemistry

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Massachusetts

TEACHING PHILOSOPHY

I have been teaching for a very long time. The moment that influenced my teaching style the most happened in the second grade. I was very fast at getting in-class work done and was not good at sitting still when I was bored. There were two students in the class who were having a difficult keeping up with their work. My teacher, Miss Stuart, decided to have me help those two students after I was done with my in-class assignments. And so, began my teaching journey, a tutor at seven. It must have been a "coincidence" that every school year until we split into the vocational track or the college preparatory track as we entered junior high school, those two students and I were always assigned the same class. But more than just getting me to help these two struggling students, she gave me the model that became the basis for who I am as a teacher. She taught me to be creative in my approach to helping students solve their own educational issues. She taught me to "meet students at the door." This is the philosophy I bring to my teaching.

continued...

Patricia A. Leach

Page Two

As I strive to “meet students at the door,” I implement a strategy that has three parts. First, for students who arrive at the door to my class unconfident or even unprepared, there must be the resources for students to get to a common starting point in the course, especially if everyone is to all leave my class with the same level of mastery of the material. Second, the students must be held responsible for their own learning, directed by the teacher. Third, the material must be delivered, in as many ways possible, so that students can find their own best learning techniques and styles. They need to learn to be self-sufficient in teaching themselves. In order for this to happen, enough material capable of providing for confidence building needs to be available. Confidence building material is not easy material, by any means. It is just hard enough to make students stretch a little bit, but not too hard for them to succeed. It must result in students seeing their own progress. This is the real way to self-esteem, to do something that you think you cannot do, and succeed anyway. This has been a tried and true method for me in over twenty-five years of teaching all levels of chemistry.

This philosophy ensures the growth of both the person and the student. I believe the goal of higher education must be to help students learn critical thinking and how to teach themselves. This is something I always keep in mind when putting a course together. The content is paramount, but the way in which it is delivered is crucial.

EXPERIENCE

TEXAS A & M UNIVERSITY – COMMERCE, Commerce, Texas

Adjunct Professor – Department of Chemistry (presently). Courses currently being taught: Survey Course in General Chemistry, General Chemistry I Laboratory, and Organic Chemistry I Laboratory.

RICHLAND COLLEGE, Dallas, Texas

Adjunct Instructor – Department of Mathematics, Science, and Allied Health Professions (presently). Currently teaching: Introductory Chemistry I.

BUTLER COMMUNITY COLLEGE, El Dorado, Kansas

Adjunct Instructor—Department of Science, Technology, Education & Mathematics (2007-2017). Developed and delivered courses in chemistry to undergraduate students. Designed innovative and engaging course outlines to reach diverse learners. Monitored student performance and revised lesson plans to meet student goals. Deployed regular assessments to track student progress; maintained accurate records and provided real-time reporting on student performance. Interfaced with other department faculty and administration to deliver excellent outcomes to students.

WESLEYAN UNIVERSITY, Middletown, Connecticut

Teaching Assistant – Department of Chemistry (1998-2004). Subjects included: Organic Chemistry, Organic Laboratory, General Chemistry, General Chemistry Laboratory, Advanced Inorganic Chemistry (graduate).

Research Assistant – Department of Chemistry (1998-2001). Used aseptic techniques for mutation of DNA and RNA and protein synthesis *in vivo*. Used SDS-PAGE, autoradiography, UV-vis spectrophotometry, radio-labelling.

Research Assistant – Department of Chemistry (2001-2002). Used NMR to investigate relaxation times and physical mechanisms of prototropic exchange in potential transition-metal coordination compounds MRI contrast agents.

UNIVERSITY OF PITTSBURGH, Pittsburgh, Pennsylvania

Patricia A. Leach

Page Three

Teaching Assistant – Department of Chemistry (1988-1990). Subjects included: General, Organic, and Biochemistry for Allied Health Professions, General Chemistry II.

Outreach – Department of Chemistry (1988 – 1992). Included designing and implementing a program targeting underachieving middle school students that brought students into the laboratory in small groups to bolster confidence and by allowing them to experience success in a science setting, aiding in developing positive self-esteem. The project was so successful, it was later expanded to include higher achieving students as well.

Research Assistant – Department of Chemistry (1988 – 1995). Synthesis and characterization of highly reduced transition-metal isonitrile complexes using Schlenck, high vacuum, and gas handling techniques. Analytical tools included multi-nuclear NMR, IR spectroscopy, UV/vis spectroscopy, photochemistry, and X-ray crystallography.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Massachusetts

Undergraduate Teaching Assistant – Department of Chemistry (1986). Supervised make-up laboratory periods for the Chemistry Laboratory for Non-Chemistry Majors.

Undergraduate Research Assistant – Department of Chemistry (1987). Investigated Differential Scanning Calorimetry as a tool for investigating second order phase transitions in liquid crystalline compounds.

PUBLICATIONS/PRESENTATIONS

P. Leach, P. Das, C. W. Garland, and R. Shashidahr, "Calorimetric Study of Nonyloxybenzoylcyanobenzene (9OBCAB)" *Mol. Cryst. and Liq. Cryst.* 1989, 168, 183.

P. Leach, S. Geib, and N. Cooper "Synthesis and Characterization of the Triangulo Raft Cluster $[\{AgCo(CN(2,6-Me_2C_6H_3)_4)_3\}]$: A Bimetallic Hexanuclear Isonitrile Cluster," *Organometallics*, 1992, 11, 4367-370.

J. Aigler, J. Brito, **P. Leach**, M. Houalla, A. Proctor, N. Cooper, D. Hercules, "ESCA Study of "Model" Allyl-Based Mo/SiO₂ Catalysis" *J. Phys. Chem.* 1993, 97, 5699-5702.

P. Leach, J. Corella, II, S. Geib, N. Cooper, "The Synthesis and Structural Characterization of $[Co(CN(2,6-Me_2C_6H_3)_4)]^-$, The First Transition Metal Isonitrite" *J. Am. Chem. Soc.* 1994, 116, 8566-8574.

T. Utz, **P. Leach**, S. Geib, and N. Cooper, "Formation of the 1,4-Diazabutadien-2-yl Complex $[Mn(CNPh^*)_4[C(=NPh^*)C(CH_3)=N(Ph^*)]]$ Through Methylation of a Manganese(-I) Isonitrite" *Organometallics* 1997, 16, 4109-4114.

T. Utz, **P. Leach**, S. Geib, N. Cooper, "Synthesis, derivatization, and structural characterization of $[Mn(CNC_6H_3Me_2-2,6)_5]$, a Five-Coordinate Isonitrite Complex Containing Mn(-I)," *Chem. Commun.* 1997, 847-848

P. Leach, S. Geib, N. Cooper, "Synthesis of $[Mn\{CN(2,6-MeC_6H_3)_5\}]^-$, a Five Coordinate Isonitrile Complex of Mn(-I) and Structural Comparison of Ligand Characteristics of CO and $CN(2,6-MeC_6H_3)_5$ " 208th National Meeting, American Chemical Society, Washington, D. C., August 1994.