Richard E. Norman
Professor and Chair
Department of Chemistry
College of Sciences

Degrees Earned

Ph.D. in Chemistry, University of Washington, 1985

M.S. in Chemistry, University of Washington, 1983

B.S. cum laude with Distinction in Chemistry, University of Washington, 1981

Professional Licensure and Certifications

Bachelor's degree certified by the American Chemical Society

Peer-Review Publications and Artistic Performances/Exhibitions

Articles

Berners-Price, S. J.; Norman, R. E.; Sadler, P. J.; "The Autoxidation and Proton Dissociation Constants of Tertiary Diphosphines: Relevance to Biological Activity." *J. Inorg. Biochem.*, **1987**, *31*, 197-209.

Norman, R. E.; Rose, N. J.; Stenkamp, R. E.; "Crystal Structure of a Copper Complex of 2-Carboxypentonic Acid; a Decomposition Product of Dehydroascorbic Acid." *J. Chem. Soc., Dalton Trans.*, **1987**, 2905-10.

Bell, J. D.; Norman, R. E.; Sadler, P. J.; "Coordination Chemistry in Biological Media: Reactions of Antitumor Pt(II) and Au(III) Complexes with Cell Culture Media." *J. Inorg. Biochem.*, **1987**, *31*, 241-6.

Bell, J. D.; Brown, J. C. C.; Newell, D. R.; Norman, R. E.; Sadler, P. J.; "Factors Affecting ^{1}H NMR Spectra of Blood Plasma: Cancer, Diet, and Freezing." *NMR in Biomedicine*, **1988**, *1*, 90-94.

Norman, R. E.; Sadler, P. J.; "^{14}N NMR Studies of Amine Release from Platinum Anticancer Drugs: Models and Human Blood Plasma." *Inorg. Chem.*, **1988**, *27*, 3583-3587.

Norman, R. E.; Stenkamp, R. E.; Rose, N. J.; "Simple, Direct Synthesis and Structure of Hexa-μ-chloro-tetrakis(1-methylimidazole)-μ_4-oxo-tetracopper(II)." *Acta Cryst.* **1989**, *C45*, 1707-1713.

Norman, R. E.; Rose, N. J.; Stenkamp, R. E.; "Mono-Amino-Acid-Copper Complexes: Syntheses and Structures of Chloro(glycinato)(methanol)copper(II) and Chloro(glycinato)(1-methylimidazole)-copper(II)." *Acta Cryst*. **1990**, *C46*, 1-6.

Norman, R. E.; Stenkamp, R. E.; "Structure of a Copper(II) Complex of 2-C-Carboxypentonic Acid (H_3CPA); $[Cu_9Br_2(CPA)_6]_n^{2-} \bullet xH_2O$." *Acta Cryst*. **1990**, *C46*, 6-8.

Norman, R. E.; Yan, S.; Que, L., Jr.; Backes, G.; Ling, J.; Sanders-Loehr, J.; Zhang, J. H.; O'Connor, C. J.; "(μ-Oxo)(μ-carboxylato)diiron(III) Complexes with Distinct Iron Sites. Consequences of the Inequivalence and Its Relevance to Dinuclear Iron-Oxo Proteins." *J. Am. Chem. Soc.* **1990**, *112*, 1554-1562.

Leising, R. A.; Norman, R. E.; Que, L., Jr.; "Alkane Functionalization by Nonporphyrin Iron Complexes: Mechanistic Insights." *Inorg. Chem.* **1990**, *29*, 2553-2555.

Norman, R. E.; Holz, R. C.; Menage, S.; O'Connor, C. J.; Zhang, J. H.; Que, L., Jr.; "Structures and Properties of Dibridged (μ-Oxo)diiron(III) Complexes. Effects of the Fe-O-Fe Angle." *Inorg. Chem.* **1990**, *29*, 4629-4637.

Britton, D.; Norman, R. E.; Que, L., Jr.; "[(2-pyridinium)methyl]amine perchlorate." *Acta Cryst.* **1991**, *C47*, 2415-17.

Norman, R. E.; Ranford, J. D.; Sadler, P. J.; "Studies of Pt(II) Methionine Complexes: Metabolites of Cisplatin." *Inorg. Chem.* **1992**, *31*, 877-888.

Davidson, Y. Y.; Chang, S.-C.; Norman, R. E.; "Synthesis and Crystal Structure of a Novel Cyclic Trinuclear Platinum(II) Complex, Pt_3(L-Methionine)$_3$•H_2O." *J. Chem. Soc., Dalton Trans.*, **1995**, 77-81.

Kubal, G.; Meyer, D. J.; Norman, R. E.; Sadler, P. J.; "Investigations of Glutathione Conjugation *In Vitro* by ^{1}H NMR Spectroscopy. Uncatalyzed and Glutathione-Transferase-Catalyzed Reactions." *Chem. Res. Toxicol.* **1995**, *8*, 780-791.

Tzou, J.-R.; Mullaney, M.; Norman, R. E.; Chang, S.-C.; "Hexakis(dimethylsulfoxide-*O*)iron(III) Trinitrate." *Acta Cryst.* **1995**, *C51*, 2249-2252.

Whalen, J. T.; Chang, S.-C.; Norman, R. E.; "Dichloro(ethylenediaminetetraacetic acid-*N,N*) platinum(II) water(1:6)." *Acta Cryst.* **1996**, *C52*, 297-300.

Vilchiz, V. H.; Norman, R. E.; Chang, S.-C.; "L-Histidine Methyl Ester Dihydrochloride." *Acta Cryst.* **1996**, *C52*, 696-698.

Tzou, J.-R.; Huang, A.; Fleming, F. F.; Norman, R. E.; Chang, S.-C.; "1-Cyanomethyl-6,7,8-trioxabicyclo[3.2.1]octane." *Acta Cryst.* **1996**, *C52*, 1012-1014.

Hussain, Z.; Fleming, F. F.; Norman, R. E.; Chang, S.-C.; "3-Cyano-1-[4-(1,3-dithian-2-yl)butyl]-1,4,5,6-tetrahydropyridine." *Acta Cryst.* **1996**, *C52*, 1010-1012.

Hussain, Z.; Fleming, F. F.; Norman, R. E.; Chang, S.-C.; "(9*S*, 9a*R*)-1,3,4,6,7,8,9,9a-Octahydro-2*H*- quinolizine-1-spiro-2'-(1',3'-dithiane)-9-carbonitrile." *Acta Cryst.* **1996**, *C52*, 1296-1298.

Fleming, F. F.; Hussain, Z.; Mullaney, M.; Norman, R. E.; Chang, S.-C.; "(8*R*, 8a*S*)-Indolizidine-1-spiro-2'-(1',3'-dithiane)-8-carbonitrile." *Acta Cryst*. **1996**, *C52*, 2849-2851.

Norman, R. E.; Peterson, N. L.; Chang, S.-C.; "μ-Acetato-*O*:*O*-μ-oxo-bis[tris(2-pyridylmethyl)amine-*N*,*N*',*N*",*N*"']diiron(III) Tris(trifluoromethanesulfonate) Dihydrate." *Acta Cryst*. **1997**, *C53*, 452-453.

Fleming, F. F.; Hussain, Z.; Weaver, D.; Norman, R. E.; "α,β-Unsaturated Nitriles: Stereoselective Conjugate Addition Reactions." *J. Org. Chem*. **1997**, *62*, 1305-1309.

Ciringh, Y.; Gordon-Wylie, S. W.; Norman, R. E.; Clark, G. R.; Weintraub, S. T.; Horwitz, C. P.; "Multinuclear Paramagnetic NMR Spectra and Solid State X-ray Crystallographic Characterization of Manganese(III) Schiff-Base Complexes." *Inorg. Chem*. **1997**, *36*, 4968-4982.

Mullaney, M.; Chang, S.-C.; Norman, R. E.; "Crystal Structure of Dichloro(ethylenediamine-diacetic acid-*N*,*N*')platinum(II)." *Inorg. Chim. Acta* **1997**, *265*, 275-278. **Invited paper**.

Patterson, R. E.; Gordon-Wylie, S. W.; Woomer, C. G.; Norman, R. E.; Weintraub, S. T.; Horwitz, C. P.; Collins, T. J.; "Electron-Transfer Oxidation by Phase-Separating Reagents." *Inorg. Chem*. **1998**, *37*, 4748-4750.

Norman, R. E.; Leising, R. A.; Yan, S.; Que, L., Jr.; "Unexpected Assembly of a (μ-Oxo)(μ-formato)-diiron(III) Complex." *Inorg. Chim. Acta* **1998**, *273*, 393-396. **Invited paper**.

Tong, B.; Norman, R. E.; Chang, S.-C.; "Di-μ-chloro-bis{[tris(2-pyridylmethyl)amine-κ^4*N*]nickel(II)} bis(triethylammonium) tetraperchlorate." *Acta Cryst*. **1999**, *C55*, 1236-1238.

Tong, B.; Chang, S.-C.; Carpenter, E. E.; O'Connor, C. J.; Lay, J. O., Jr.; Norman, R. E.; "Di-μ-halo-bis{[tris(2-pyridylmethyl)amine-κ^4*N*]nickel(II)} bis(triethylammonium) tetraperchlorate: Magnetostructural Studies." *Inorg. Chim. Acta* **2000**, *300-302*, 855-861. **Invited paper**.

Fleming, F. F.; Pu, Y.; Norman, R. E.; Chang, S.-C.; "Crystal structure of [2-(*tert*-butyldimethylsilyloxy)-6-phenyl]-1-cyclohexene-1-carbonitrile, $C_{19}H_{27}NOSi$." *Z. Kristallogr. NCS* **2001**, *216*, 647-648.

Ariyananda, L. M. D.; Norman, R. E.; "Tris(2,2'-bipyridyl-*N*,*N*')iron(II) tetrachloroferrate(III)." *Acta Cryst*. **2002**, *E58*, m775-m776.

Gunatilleke, S. S.; Norman, R. E.; "*N*,*N*,*N*',*N*'-Tetrakis(2-pyridiniomethyl)ethylenediamine tetraperchlorate." *Acta Cryst*. **2003**, *E59*, o269-o271.

Gosh, A.; Ryabov, A. D.; Mayer, S. M.; Horner, D. C.; Prasuhn, D. E., Jr.; Gupta, S. S.; Vuocolo, L.; Culver, C.; Hendrich, M. P.; Rickard, C. E. F.; Norman, R. E.; Horwitz, C. P.; Collins, T. J.; "Understanding the Mechanism of H^+-Induced Demetalation as a Design

Strategy for Robust Iron(III)-Peroxide-Activating Catalysts." *J. Am. Chem. Soc.* **2003**, *125*, 12378-12379.

Mallikaratchy, P.; Norman, R. E.; Fronczek, F.; Junk, T.; "Tribromo-(3,5-dimethyl-2-nitrophenyl-*C,O*)-tellurium(IV), bromo-(3,5-dimethyl-2-nitrophenyl-*C,O*)-tellurium(II), and bromo-(3,5-dimethyl-2-nitrosophenyl-*C,O*)-tellurium(II)." *Acta Cryst.* **2003**, *C59*, o571-o574.

Ariyananda, W. G. P.; Norman, R. E.; "Tris(2-ammonioethyl)amine tribromide." *Acta Cryst.* **2003**, *E59*, o1601-o1603.

Norman, R. E.; Xie, M.; "Nickel(II) 1,10-phenanthroline complexes: *cis*-[aqua(bromo)*bis*(1,10-phenanthroline)nickel(II)] bromide trihydrate and [*tris*(1,10-phenanthroline)nickel(II)] bromide octahydrate." *J. Coord. Chem.* **2004**, *57*, 425-434.

Baker, R. S.; Norman, R. E.; "Di(acetato-*O*)(bis(2-pyridylmethyl)amine-*N,N',N"*)zinc(II) – acetic acid (1/2)." *Acta Cryst.* **2004**, *E60*, m1761-m1763.

Ariyananda, W. G. P.; Norman, R. E.; "Tetrakis(1,2-diaminobenzene)-κ^2N;κ^4N,N'-nickel(II) dichloride." *Acta Cryst.* **2005**, *E61*, m187-m189.

Mallikaratchy, P.; Norman, R. E.; Fronczek, F.; Junk, T.; "(μ-Diazenediyldiphenyl-κ^2C^2,N^2:$\kappa^2C^{2'},N^{1}$)-bis[(3,5-dimethylphenyl)tellurium(II)]." *Acta Cryst.* **2005**, *E61*, m1370-m1372.

Ariyananda, L. M. D.; Norman, R. E.; "2-{[*N*-(Pyridinium-2-ylmethyl)-*N*-pyridin-2-ylmethylamino]-methyl}-1-(pyridin-2-ylmethyl)-pyridinium diperchlorate." *Acta Cryst.* **2005**, *E61,* o2679-o2681.

Xie, M.; Norman, R. E.; "Di-μ-bromo-bis[bis(1,2-diaminoethane-κ^2N,N)nickel(II)] dibromide." *Acta Cryst.* **2006**, *E62*, m408-m410.

Ariyananda, W. G. P.; Norman, R. E.: "*Trans*-Dibromo-bis(*N,N'*-dimethylethane-1,2-diamine-κ^2N,N')nickel(II),." *Acta Cryst.* **2006**, *E62*. m2336-m2338.

Ariyananda, W. G. P.; Norman, R. E.: "*Trans*-Dichloro-bis(*N,N'*-dimethylethane-1,2-diamine-κ^2N,N')nickel(II)." *Acta Cryst.* **2006**, *E62*. m2339-m2341.

Moore, L. E., Jr.; Norman, R. E.: "*Trans*-Diaqua-bis(*N,N'*-dimethylethane-1,2-diamine-κ^2N,N')nickel(II) dichloride dihydrate." *Acta Cryst.* **2006**, *E62*. m2342-m2344.

Ide, D. M. M.; Norman, R. E.; "*Trans*-Diaqua-bis(*N,N*-dimethylethane-1,2-diamine-κ^2N,N')nickel(II) dichloride dihydrate: a redetermination at 90 K." *Acta Cryst.* **2007**, *E63*, m558-m560.

Smith, C. M.; Norman, R. E.; "μ-Sulfato-1κ*O*:2κ*O*-μ-oxo-bis[tris(2-pyridylmethyl)amine-κ^4*N*,*N'*,*N"*,*N'"*]diiron(III) diperchlorate acetonitrile/water (0.75/0.25) solvate." *Acta Cryst*. **2007**, *E63*, m2480-m2481.

Randeniya, S. R.; Norman, R. E.; "Bis(thiocyanato-κ*N*)[tris(2-pyridylmethyl)amine-κ^4*N*,*N'*,*N"*,*N'"*]nickel(II) methanol hemisolvate." *Acta Cryst*. **2009**, *E65*, m771.

Jayaratna, N. B.; Norman, R. E.; "Crystal Structure of [*N*,*N'*-bis(pyridine-2-yl)benzylidene]-butane-1,4-diamine, $C_{28}H_{26}N_4$." *Z. Kristallogr. NCS*. **2010**, *225*, 179-180.

Jayaratna, N. B.; Norman, R. E.; "2-Phenyl-2-(pyridine-2-yl)-hexahydropyrimidine." *Acta Cryst*. **2010**, *E66*, o3149.

Books
None

Chapters
None

Proceedings
None

Artistic Performances
None

Artistic Exhibitions
None

Research Monographs and Technical Reports
None

Funded External Grants
Heterobimetallic Complexes as Possible Anticancer and AIDS Drugs. Jacob A. and Frieda M. Hunkele Charitable Trust, 1993. Funding: $11,925. Principal Investigator: Norman, R.E. (Duquesne University).

A Joint Proposal to Enhance the Computational Content in Chemistry Courses. Louisiana Board of Regents Support Fund, 1998-1999. Funding: $16,893 (with $16,390 match). Principal Investigator: Ramachandran, B. (Louisiana Tech University). Co-PI: Norman, R.E. (University of Louisiana at Monroe).

Departmental Research Grant. The Robert A. Welch Foundation, 2006-2009. Funding $120,000. Principal Investigator: Norman, R.E. (Sam Houston State University).

MRI: Acquisition of a Cyber-enabled Benchtop Single Crystal X-Ray Diffractometer for Small Molecule Structure Analysis for Research and Educational Purposes. National Science Foundation, 2008. Funding $124,880. Principal Investigator: Martin, B. R. (Texas State University – San Marcos). Consortium member: Norman, R. E. (Sam Houston State University).

Departmental Research Grant. The Robert A. Welch Foundation, 2009-2012. Funding $135,000. Principal Investigator: Norman, R.E. (Sam Houston State University).

Departmental Research Grant. The Robert A. Welch Foundation, 2012-2013. Funding $40,000. Principal Investigator: Norman, R.E. (Sam Houston State University).

Peer-Review Presentations/Posters

Norman, R. E.; Stenkamp, R. E.; Rose, N. J.; "The Crystal and Molecular Structure of Chloro (glycinato)(methanol)copper(II); a Mono Amino Acid Copper Complex"; 39th Northwest Regional Meeting of the American Chemical Society, University of Idaho, Moscow, Idaho, 1984.

Que, L., Jr.; Kumar, V.; Murch, B. P.; Brennan, B. A.; Chen, Q.; "Structure and Reactivity of Binuclear Iron Peroxide Complexes"; Third Chemical Congress of North America & 195th National Meeting of the American Chemical Society, Toronto, Ontario, Canada 1988. INOR 674. I gave the talk for LQ.

Que, L., Jr.; Cox, D. D.; Norman, R. E.; "Modelling the Chemistry of Nonheme Iron Oxygenases."; 4th International Conference on BioInorganic Chemistry, Boston, U.S.A., 1989. *J. Inorg. Biochem.*, **1989**, *36*, 309.

Norman, R. E.; Tong, B.; "Structures of Nickel(II) Tris(2-pyridylmethyl)amine Complexes."; 54th Southwest Regional Meeting of the American Chemical Society, Baton Rouge, Louisiana, 1998. 268.

Norman, R. E.; Ariyananda, W. G. P.; Xie, M.; "Magnetostructural Studies of Halo-bridged Dinickel Complexes."; 58th Southwest Regional Meeting of the American Chemical Society, Austin, Texas, 2002. 320.

Loeffler, P. A.; Plishker, M. F.; Norman, R. E.; "Development of the forensic science and forensic chemistry programs at Sam Houston State University."; 233rd National Meeting of the American Chemical Society, Chicago, Illinois, 2007. CHED 1684.

Posters

Norman, R. E.; Stenkamp, R. E.; Rose, N. J.; "Crystal Structure of a Copper Complex of 2-C-carboxypentonic Acid; A Decomposition Product of Ascorbic Acid."; 23rd International Conference on Coordination Chemistry, University of Colorado, Boulder, Colorado, 1984. THa44-4.

Bell, J. D.; Norman, R. E.; Sadler, P. J.; "Problems Associated With Testing Metal Complexes In Vitro: Reactions of Au(III) with Cell Culture Media."; 24th International Conference on Coordination Chemistry, University of Athens, Athens, Greece, 1986. *Chimika Chronika, New Series,* **1986**, Special Issue, 818.

Bell, J. D.; Norman, R. E.; Sadler, P. J.; "Problems Associated with Testing Metal Complexes In Vitro: Reactions of $AuCl_4^-$ with Cell Culture Media."; 192nd American Chemical Society Meeting, Anaheim, California, 1986, INOR 202.

Bell, J. D.; Norman, R. E.; Sadler, P. J.; "Reactions of Platinum Antitumor Complexes with Cell Culture Media and Blood Plasma: ^1H NMR Studies."; Fifth International Symposium on Platinum and Other Metal Coordination Compounds in Cancer Chemotherapy, Abano Terme (Padua), Italy, 1987, 115-117.

Bell, J. D.; Norman, R. E.; Sadler, P. J.; "Reactions of Platinum Antitumour Drugs with Biologically Relevant Fluids: Cell Culture Medium and Blood Plasma."; 3rd International Conference on BioInorganic Chemistry, Noordwijkerhout, the Netherlands, 1987. *Recl. Trav. Chim. Pays-Bas*, **1987**, *106*, 383.

Bell, J. D.; Norman, R. E.; Ranford, J. D.; Sadler, P. J.; "Multinuclear NMR Studies of Platinum Methionine Complexes: Relevance to Anticancer Activity."; Ninth International Meeting on NMR Spectroscopy, Coventry, U. K., 1989.

Kubal, G.; Norman, R. E.; Sadler, P. J.; Pue, M. A.; Reid, D. G.; Ross, D. A.; "NMR Studies of Hepatocytes: Glutathione Conjugation Pathways."; Ninth International Meeting on NMR Spectroscopy, Coventry, U. K., 1989.

Norman, R. E.; Yan, S.; Que, L., Jr.; "Spectroscopic Studies of Iron(III) Complexes of TPA (Tris(2-pyridylmethyl)amine). Models for Nonheme Iron Proteins."; 4th International Conference on BioInorganic Chemistry, Boston, U.S.A., 1989. *J. Inorg. Biochem.*, **1989**, *36*, 321.

Ranford, J. D.; Sadler, P. J.; Norman, R. E.; "Multinuclear NMR Studies of Platinum(II) Methionine Complexes: Relationship to Cisplatin Metabolism."; 1989 International Chemical Congress of the Pacific Basin Societies. BIOS 88.

Ranford, J. D.; Sadler, P. J.; Norman, R. E.; "Multinuclear NMR Studies of Pt(II) Methionine Complexes: Metabolites of Cisplatin."; 5th International Conference on BioInorganic Chemistry, Oxford, U.K., 1991. *J. Inorg. Biochem.*, **1991**, *43*, 603.

Tzou, J.-R.; Chang, S.-C.; Norman, R. E.; "Syntheses and Properties of Alkoxo Binuclear and Tetranuclear Iron(III) Complexes."; 6th International Conference on BioInorganic Chemistry, San Diego, U.S.A., 1993. *J. Inorg. Biochem.*, **1993**, *51*, 480.

Tzou, J.-R.; Chang, S.-C.; Norman, R. E.; "Studies of Alkoxo Binuclear and Tetranuclear Iron(III) Complexes. The "Dangers" of DMSO."; 208th American Chemical Society Meeting, Washington, D.C., 1994, INOR 294.

Steward, O. W.; Yaukey, T. S.; Chang, S.-C.; Norman, R. E.; Tokii, T.; Matsushima, H.; Nakashima, M.; "Structural Studies of Triphenylacetato Cobalt(II) and Nickel(II) Complexes Crystallized from Aqueous and Alcoholic Solutions."; 31st International Conference on Coordination Chemistry, Vancouver, British Columbia, Canada, 1996.

Norman, R. E.; Xue, J.; Hangun, Y.; Mullaney, M.; "Structures of Iron(III) Tris-(2-pyridylmethyl)-amine Complexes. Trends in Lewis Acidities."; Fifth Chemical Congress of North America, Cancun, Mexico, 1997, 2289.

Ramachandran, B.; Norman, R. E.; Truhlar, D. G.; "Structure and energetics of halide-bridged binuclear complexes of Ni(II): A computational study."; 10th Conference on Current Trends in Computational Chemistry, Jackson, MS, 2001, 189.

Ariyananda, W. G. P.; Norman, R. E.; "Structural Studies of 2-Pyridylmethylamine Complexes of Nickel."; 76th Annual Meeting of the Louisiana Academy of Sciences, Baton Rouge, LA, 2002.

Baker, R. S.; Norman, R. E.; "Synthesis and X-ray Crystal Structure Determination of Di-μ-bromo-bis{[tris(2-aminoethyl)amine-κ^4*N*]nickel(II)} Diperchlorate."; 2003 Student Research Symposium, University of Louisiana at Monroe.

Baker, R. S.; Norman, R. E;. "Syntheses and X-ray Crystal Structure Determinations of Di-μ-halo-bis{[tris(2-aminoethyl)amine]nickel(II)} Diperchlorate."; 59th Southwest Regional Meeting of the American Chemical Society, Oklahoma City, 2003, 6.

Henry, C. M.; Norman, R. E.; "X-Ray Crystal Structure and Properties of $[Fe_2(TPA)_2O(SO_4)](ClO_4)_2 \bullet CH_3CN$"; 62nd Southwest Regional Meeting of the American Chemical Society, Houston, 2006, 465.

Ide, D.; Norman, R. E.; "Synthetic Studies and X-Ray Crystal Structure of *trans*-$[Ni(N,N\text{-dmen})_2(H_2O)_2]Cl_2 \bullet 2H_2O$"; 62nd Southwest Regional Meeting of the American Chemical Society, Houston, 2006, 320.

Work or Professional Experiences

2005 – Present, Professor of Chemistry and Chair, Sam Houston State University

2004, Professor of Chemistry, University of Louisiana at Monroe

2000, granted tenure, University of Louisiana at Monroe

1999-2004, Associate Professor of Chemistry, University of Louisiana at Monroe (note name change)

1997-1999, Assistant Professor of Chemistry, Northeast Louisiana University, Monroe, LA

1990-1996, Assistant Professor of Chemistry, Duquesne University, Pittsburgh, PA

1989-1990, Assistant Professor of Chemistry, University of Arkansas at Little Rock

1987-1989, Postdoctoral Associate, University of Minnesota, Minneapolis

1985-1987, Postdoctoral Fellow, University of London, London, U.K.

1981-1985, Graduate Assistant, University of Washington, Seattle

(Teaching Assistant, Research Associate, Predoctoral Lecturer)

Honors and Awards

B.S. cum laude with Distinction in Chemistry, University of Washington, 1981
Dissertation Fellowship, Achievement Rewards for College Scientists, 1985

Other Competencies