

## CURRICULUM VITAE OF ERIC CARY NIEDERHOFFER

### I. PROFESSIONAL AFFILIATION AND CONTACT INFORMATION

#### A. Present University Department or Unit:

Biochemistry and Molecular Biology  
School of Medicine, MC 6503  
Southern Illinois University  
Carbondale, IL 62901-4310

#### B. Office Address:

600 Agriculture Drive  
Lindegren Hall Room 112

eniederhoffer@siumed.edu

### II. EDUCATION

Ph.D. Chemistry; Texas A&M University; 1983  
B.S. Chemistry; B.A. History; University of Rochester; 1979

### III. PROFESSIONAL EXPERIENCE

Associate Editor, Teaching and Learning in Medicine	2017-present
Deputy Editor, Teaching and Learning in Medicine	2013-2017
Academy Scholar, Southern Illinois University School of Medicine	2011-2016
Honorary Professor, Universidad Nacional de Trujillo, Peru	2000-present
Fulbright Scholar, Universidad Nacional de Trujillo, Peru	2000
Associate Professor, Southern Illinois University at Carbondale	1996-present
Assistant Professor, Southern Illinois University at Carbondale	1990-96
Staff Scientist, Los Alamos National Laboratory	1990
Postdoctoral Fellow, Los Alamos National Laboratory	1985-90
Postdoctoral Associate, Massachusetts Institute of Technology	1983-85

### IV. RESEARCH AND CREATIVE ACTIVITY

#### A. Interests and Specialties:

Active, self-directed learning strategies  
Biochemical and molecular animations  
Metallobiochemistry

#### B. Current Projects:

Internet-based molecular animations and structural representations

#### C. Grants Applied for:

1990-94	Camille and Henry Dreyfus Teacher-Scholar Grant, \$50,000
1990-94	Camille and Henry Dreyfus New Faculty Grant, \$25,000
1990-92	A. P. Sloan Research Fellowship, \$25,000
1990-92	American Chemical Society-Petroleum Research Fund Type G, \$18,000

1990-91 DOE Environmental Restoration/Waste Management Young Faculty Award, \$50,000

1991-92 DOE Environmental Restoration/Waste Management Young Faculty Award, \$50,000

1991-92 Office of Research Development and Administration (SIUC), \$26,928

1991-93 Illinois Department of Energy and Natural Resources-Hazardous Waste Research and Information Center, \$80,900

1992-93 Office of Research Development and Administration (SIUC), \$30,978

1992-93 American Chemical Society-Petroleum Research Fund Type G, \$21,000

1992-94 Materials Technology Center, \$43,200

1992-97 National Institutes of Health-FIRST Award, \$493,445

1992-94 U. S. Environmental Protection Agency-Office of Exploratory Grants, \$271,048

1993-95 National Science Foundation, \$488,720

1993-95 National Science Foundation, \$240,986

1993-98 National Institutes of Health, \$488,454

1993-95 Illinois Department of Energy and Natural Resources-Hazardous Waste Research and Information Center, \$110,000

1993-94 Office of Research Development and Administration-Consortium for Advanced Radiation Sources (SIUC), \$97,188

1995-98 National Science Foundation, \$88,750

1995-98 Illinois Department of Energy and Natural Resources-Hazardous Waste Research and Information Center, \$72,400

1995-97 Office of Research Development and Administration (SIUC), \$18,424

1996-99 National Science Foundation, \$93,294

2005-10 National Institutes of Health, \$287,228

**D. Research Grants Received:**

1. Hazardous Waste Research and Information Center, IDENR-HWR-92-097, "Speciation and Mobilization of Toxic Metal Ions by Methanogenic Bacteria," coinvestigator Dr. John A. Koropchak (Dept. Chemistry and Biochemistry, SIUC); 1/1/92-3/30/93; \$80,900.
2. Office of Research Development and Administration, "Superoxide Dismutases from *Methanobacterium thermoautotrophicum* ΔH, A Strictly Anaerobic Thermophile;" 1/1/92-12/31/93; \$21,928
3. Illinois Board of Higher Education-Consortium for Advanced Radiation Sources, "Metal Ion Interactions in Biodegradation, Bioremediation, and Clinical Medicine Settings;" 11/1/93-8/31/95; \$97,188.
4. Hazardous Waste Research and Information Center, IDENR-HWR-94-116, "Toxic Heavy Metals in Biodegradation and Bioremediation Technologies;" coinvestigator Dr. John A. Koropchak (Dept. Chemistry and Biochemistry, SIUC); 10/1/93-8/31/96; \$108,423.
5. Office of Research Development and Administration, "Regulation of Swarming in *Proteus mirabilis*;" 8/19/96-5/15/99; \$18,424.

**E. Honors and Awards:**

Distinguished visiting faculty, Universidad Nacional de Trujillo (Peru), 1998  
 Honorary Professor, Universidad Nacional de Trujillo, Peru, 2000

**F. Papers and Presentations at Professional Meetings:**

## Presentations:

1. Niederhoffer, E., and A. E. Martell. "Autoxidation of Cobalt Dioxygen Complexes Containing Pyridyl-type Ligands" Presented at the 14th Regional Meeting of the American Chemical Society, Fairfield, CT, May 1984.
2. Niederhoffer, E., and A. E. Martell. "Ligand-to-metal Charge Transfer Transitions in Cobalt Dioxygen Complexes" Presented at the 14th Regional Meeting of the American Chemical Society, Fairfield, CT, May 1984.
3. Niederhoffer, E. C., C. M. Naranjo, and J. A. Fee. "Regulation of the Iron Superoxide Dismutase Gene (*sodB*) by the *fur* Locus in *Escherichia coli* K-12" Presented at the 3rd International Conference on Archaeobacteria: Genome Structure, Transcription, Translation, and Gene Expression", Victoria, B. C., August 1988.
4. Niederhoffer, E. C., C. M. Naranjo, and J. A. Fee. "Regulation of the Iron Superoxide Dismutase Gene (*sodB*) by the *fur* Locus in *Escherichia coli*" Presented at the Joint Meeting of the American Society for Cell Biology and American Society for Biochemistry and Molecular Biology, San Francisco, CA, February 1989. BCI:BCI198936093624
5. Niederhoffer, E. C., C. M. Naranjo, K. L. Bradley, and J. A. Fee. "Regulation of the Iron Superoxide Dismutase Gene (*sodB*) by the *fur* Locus in *Escherichia coli*: Evidence for Pleiotropic Involvement of Iron Superoxide Dismutase in Iron Metabolism" Presented at the Fourth ICN-UCI Symposium: Protein-Nucleic Acid Interaction in Gene Expression, Dana Point, CA, April 1989.
6. Niederhoffer, E. C., C. M. Naranjo, K. L. Bradley, and J. A. Fee. "Involvement of Superoxide Dismutases in *Escherichia coli* Iron Metabolism: Control of *sodA* and *sodB* Expression by the Ferric Ion Uptake Regulation (*fur*) Regulon" Presented at the 1989 FASEB Summer Research Conference: Micronutrients: Trace Elements, Copper Mountain, CO, July 1989.
7. Niederhoffer, E. C., C. M. Naranjo, and J. A. Fee. "Novel Aromatic Ligand Effects on the Iron Dependent Control of Bacterial Superoxide Dismutase Gene Expression" Presented at the UCLA Symposia on Molecular and Cellular Biology, The Inorganic Chemistry/Molecular Biology Interface, Taos, NM, February 1990.
8. Foster, M. S., W. Ding, and E. C. Niederhoffer. "Response of Enterobactin Biosynthesis to Aromatic Amino Acids" Presented at the 1991 FASEB Summer Research Conference: Positive Control of Transcription Initiation of Prokaryotes, Saxtons River, VT, July 1991.
9. Foster, M. S., and E. C. Niederhoffer. "Novel Iron-Dependent, Aromatic Amino Acid-Dependent Signal Pathways for Siderophore Production in *Escherichia coli*" Presented at the 1992 FASEB Summer Research Conference: Micronutrients: Trace Elements, Copper Mountain, CO, June 1992.
10. Foster, M. S., A. Rodabough, T. S. Conner, T. M. Dayton, E. M. Melko, W. Howe, J. A. Koropchak, and E. C. Niederhoffer. "Bioremediation and Biodegradation of Toxic Wastes by Methane-Producing Microorganisms" Presented at the 1993 Sigma Xi Annual Poster Conference, Carbondale, IL, March 1993.
11. Dayton, T. M., K. A. Diefenbach, M. L. Fuller, B. M. Guzik, C. Ligon, and E. C. Niederhoffer. "Bacterial Pathogenesis: Iron Metabolism and Regulation of Superoxide Dismutase Expression in the Kidney Pathogens *Proteus mirabilis* and *Proteus vulgaris*" Presented at the 1993 Sigma Xi Annual Poster Conference, Carbondale, IL, March 1993.

12. Dayton, T. M., K. A. Diefenbach, M. L. Fuller, B. M. Guzik, C. Ligon, and E. C. Niederhoffer. "Bacterial Pathogenesis: Iron Metabolism and Regulation of Superoxide Dismutase Expression in the Kidney Pathogens *Proteus mirabilis* and *Proteus vulgaris*" Presented at the 1993 FASEB Summer Research Conference: Control of Transcription Initiation in Prokaryotes, Saxtons River, VT, July 1993.
13. Foster, M. S., T. S. Conner, C. L. Mountz, J. A. Koropchak, and E. C. Niederhoffer. "Interactions Between Toxic Heavy Metals and *Methanobacterium thermoautotrophicum*" Presented at the 1994 Sigma Xi Annual Poster Conference, Carbondale, IL, March 1994.
14. Wilkerson, M. L., B. M. Guzik, and E. C. Niederhoffer. "Effect of Heavy Metals on the Growth and Swarming of the Kidney Pathogen *Proteus mirabilis*" Presented at the 1994 Sigma Xi Annual Poster Conference, Carbondale, IL, March 1994.
15. Dayton, T., K. A. Diefenbach, J. Eickhoff, M. L. Fuller, E. Potts, J. Valtos, and E. C. Niederhoffer. "Metal- and Dioxygen-Dependent Expression of Superoxide Dismutase Genes from *Proteus mirabilis* and *Proteus vulgaris*" Presented at the 1994 Gordon Research Conference: Microbial Stress Responses, Plymouth, NH, July 1994.
16. Wilkerson, M. L., and E. C. Niederhoffer. "Effects of Toxic Heavy Metals on Biofilm Formation by *Proteus mirabilis*" Presented at the 1994 Gordon Research Conference: Microbial Stress Responses, Plymouth, NH, July 1994.
17. Wilkerson, M. L., and E. C. Niederhoffer. "Toxic heavy metals affect *Proteus mirabilis* growth, swarming, and biofilm formation" Presented at the 1995 Sigma Xi Annual Poster Conference, Carbondale, IL, March 1995.
18. Dayton, T., K. A. Diefenbach, J. Eickhoff, M. L. Fuller, E. Potts, J. Valtos, and E. C. Niederhoffer. "Effects of essential and toxic metal ions and dioxygen on the expression of iron-, manganese-, and copper,zinc-containing superoxide dismutases from *Proteus mirabilis* and *Proteus vulgaris*" Presented at the 1995 Sigma Xi Annual Poster Conference, Carbondale, IL, March 1995.
19. Wilkerson, M. L., and E. C. Niederhoffer. "Effects of Essential and Toxic Metal Ions on Swarming of *Proteus mirabilis*" Presented at the University Women's Professional Advancement and Women's Studies: Celebrating Scholarship Through Posters, Carbondale, IL, May 1995.
20. Brakebill, C., and E. C. Niederhoffer. "Production of Flagellin and Polysaccharides During Cellular Differentiation of *Proteus mirabilis*" Presented at the SIUC Third Annual Molecular and Cellular Biology Retreat, Carbondale, IL, March 1997.
21. Niederhoffer, E. C. "On-line Resources for Problem-Based Learning: A Virtual Guide to Learning for Medical Students" Presented at the Medical Biochemistry Education Strategies Workshop (Association of Biochemistry Course Directors), Myrtle Beach, SC, April 2009.
22. Niederhoffer, E. C. "Organ-Systems-Based Integration of Biochemistry; The Best and Worst Of Times" Presented at the Medical Biochemistry Education Strategies Workshop (Association of Biochemistry Course Directors), Myrtle Beach, SC, April 2009.
23. Niederhoffer, E. C. "Making Basic Sciences Clinically Relevant: The Biochemistry Example" Presented at the First Annual Symposium on Teaching and Learning, Springfield, IL, February 2010.
24. Niederhoffer, E. C. "Writing USMLE-Style Questions for SIU-SOM Exams" Presented at the First Annual Symposium on Teaching and Learning, Springfield, IL, February 2010.

25. Niederhoffer, E. C. "Phosphofructokinase-1 Regulation: Too Much of a Good Theme?" Presented at the Third International Meeting of the Association of Biochemistry Course Directors, Myrtle Beach, SC, May 2011.
26. Niederhoffer, E. C. "Internet-Based Problem-Based Learning Modules: Electronic Patients for an Organ System Based Multidiscipline Integrated Curriculum" Presented at the Third International Meeting of the Association of Biochemistry Course Directors, Myrtle Beach, SC, May 2011.
27. Lindsley, J., E. McKee, E. Niederhoffer, and C. Slaughter. "Workshop on Writing USMLE Multiple Choice Questions" Presented at the Third International Meeting of the Association of Biochemistry Course Directors, Myrtle Beach, SC, May 2011.
28. Niederhoffer, E. C. "Patient summaries: an educational vehicle towards developing critical thinking and clinical reasoning" Presented at the Third Annual Symposium on Teaching and Learning, Springfield, IL, April 2012.
29. Niederhoffer, E. C., and D. Klamen. "PBL: why all the effort?" Presented at the Fourth International Meeting of the Association of Biochemistry Course Directors, Santa Fe, NM, May 2013.
30. Niederhoffer, E. C., and E. McKee. "Designing clinical and investigative scenarios for use in medical biochemistry" Presented at the Fourth International Meeting of the Association of Biochemistry Course Directors, Santa Fe, NM, May 2013.
31. Abali, E., M. Sanders, K. Symes, E. Buxbaum, N. Osheroff, and E. C. Niederhoffer. "Biochemistry in an integrated curriculum: best practices in interdepartmental interactions/shared responsibilities in course directorship" Presented at the Fourth International Meeting of the Association of Biochemistry Course Directors, Santa Fe, NM, May 2013.
32. Niederhoffer, E. C. "Channeling a clinician: design and construction of clinical scenarios for teaching and assessment" Presented at the Fifth International Meeting of the Association of Biochemistry Course Directors, Santa Fe, NM, May 2015.
33. Niederhoffer, E. C. "Educational research: do we know what we are trying to do?" Presented at the Fifth International Meeting of the Association of Biochemistry Course Directors, Santa Fe, NM, May 2015.
34. Lindsley, J. E., and E. C. Niederhoffer. "What is biochemistry? NBME subject and USMLE step exam observations from writers and reviewers" Presented at the Fifth International Meeting of the Association of Biochemistry Course Directors, Santa Fe, NM, May 2015.
35. Osheroff, N., J. M. Simmons, S. Arbor, J. D. Fontes, and E. C. Niederhoffer. "Using competency-based assessments to monitor and coach pre-clerkship medical students" Presented at the Sixth International Meeting of the Association of Biochemistry Educators, Clearwater Beach, FL, May 2017.
36. Niederhoffer, E.C. "How do we cultivate self-directed learning?" Presented at the Sixth International Meeting of the Association of Biochemistry Educators, Clearwater Beach, FL, May 2017.

#### **Invited Talks:**

1. Niederhoffer, E. C., and A. E. Martell. "Autoxidation Reaction and Electronic Properties of Cobalt Dioxygen Complexes" Presented at the Department of Chemistry, University of Toledo, Toledo, OH, May 1984.
2. Niederhoffer, E. C., R. P. Hausinger, B. K. Teo, C. T. Walsh, and W. H. Orme-Johnson. "The Role of Nickel in Methanogenesis" Presented at the Department of Chemistry, Rutgers University, Newark, NJ, December 1984.

3. Niederhoffer, E. C., R. P. Hausinger, B. K. Teo, C. T. Walsh, and W. H. Orme-Johnson. "The Role of Nickel in Methanogenesis" Presented at the Department of Chemistry and Biochemistry, The University of Texas at Arlington, Arlington, TX, November 1984.
4. Niederhoffer, E. C., N. R. Bastian, R. P. Hausinger, B. K. Teo, C. T. Walsh, and W. H. Orme-Johnson. "Nickel in the Methanogens: EXAFS and XANES as Structural Probes" Presented at the Department of Chemistry, University of Oklahoma, Norman, OK, January 1985.
5. Niederhoffer, E. C., N. R. Bastian, R. P. Hausinger, B. K. Teo, C. T. Walsh, and W. H. Orme-Johnson. "Nickel in the Methanogens: EXAFS and XANES as Structural Probes" Presented at the Department of Chemistry, Marquette University, May 1985.
6. Niederhoffer, E. C., C. M. Naranjo, and J. A. Fee. "Evidence that the Superoxide Dismutases are Part of the *fur* Regulon in *Escherichia coli* K-12" Presented at the UCLA Symposia on Molecular and Cellular Biology, Metal Ion Homeostasis: Molecular Biology and Chemistry, Frisco, CO, April 1988.
7. Niederhoffer, E. C., C. M. Naranjo, and J. A. Fee. "Iron Superoxide Dismutase and Iron Uptake in *Escherichia coli*" Presented at the Department of Pharmaceutical Chemistry, University of California, San Francisco, August 1988.
8. Niederhoffer, E. C., C. M. Naranjo, and J. A. Fee. "Iron Superoxide Dismutase and Iron Uptake Regulation in *E. coli*" Presented at the Department of Biochemistry, University of California, Berkeley, August 1988.
9. Niederhoffer, E. C., C. M. Naranjo, and J. A. Fee. "Relationship of the Superoxide Dismutase Genes, *sodA* and *sodB*, to the Iron Uptake (*fur*) Regulon in *Escherichia coli* K-12" Presented at the Department of Chemistry, University of Denver, Denver, Co, February 1989.
10. Niederhoffer, E. C., C. M. Naranjo, K. L. Bradley, and J. A. Fee. "Involvement of Superoxide Dismutases in *Escherichia coli* Iron Metabolism: Control of *sodA* and *sodB* Expression by the Ferric Ion Uptake Regulation (*fur*) Regulon" Presented at the Department of Anaerobic Microbiology, Virginia Polytechnic Institute of State University, Blacksburg, VA, August 1989.
11. Niederhoffer, E. C., C. M. Naranjo, K. L. Bradley, and J. A. Fee. "Novel Iron Dependent Regulatory Mechanisms for Bacterial Superoxide Dismutases" Presented at the Department of Biology, The University of Texas at Dallas, Dallas, TX, December 1989.
12. Niederhoffer, E. C., C. M. Naranjo, K. L. Bradley, and J. A. Fee. "Novel Iron Dependent Regulatory Mechanisms for Bacterial Superoxide Dismutases" Presented at the Department of Chemistry and Biochemistry, University of Maryland, College Park, MD, January 1990.
13. Niederhoffer, E. C., C. M. Naranjo, K. L. Bradley, and J. A. Fee. "Discovery of Novel Iron Dependent Regulatory Mechanisms for Bacterial Superoxide Dismutases" Presented at the Gordon Research Conference, Metals in Biology, Ventura, CA, January 1990.
14. Niederhoffer, E. C., C. M. Naranjo, K. L. Bradley, and J. A. Fee. "Novel Iron Dependent Regulatory Mechanisms for Bacterial Superoxide Dismutases" Presented at the Department of Microbiology, Southern Illinois University at Carbondale, Carbondale, IL, April 1991.
15. Niederhoffer, E. C., W. Ding, and M. S. Foster. "Aromatic Amino Acids as Signals for the Iron Dependent Expression of Enterobactin in *Escherichia coli* K-12" Presented at the Department of Physiology, Southern Illinois University at Carbondale, Carbondale, IL, November 1991.

16. Niederhoffer, E. C., W. Ding, and M. S. Foster. "Aromatic Amino Acids as Signals for the Iron Dependent Expression of Enterobactin in *Escherichia coli* K-12" Presented at the Department of Chemistry and Biochemistry, Southern Illinois University at Carbondale, Carbondale, IL, November 1991.
17. Niederhoffer, E. C., M. S. Foster, and L. A. Young. "Bacterial Iron Metabolism: An Ironic Component of Aromatic Amino Acid Biosynthesis" Presented at the Department of Medical Microbiology and Immunology, Southern Illinois University, Springfield, IL, March 1992.
18. Niederhoffer, E. C., J. A. Koropchak, M. A. Foster, T. S. Conver, E. M. Melko, and S. S. Szegedi. "Speciation and Mobilization of Toxic Heavy Metal Ions by Methanogenic Bacteria" Presented at the Hazardous Waste Research and Information Center, Champaign, IL, March 1992.
19. Niederhoffer, E. C., M. S. Foster, and L. A. Young. "Bacterial Iron Metabolism: An Ironic Component of Aromatic Amino Acid Biosynthesis" Presented at the Department of Chemistry, University of Missouri, St. Louis, MO, April 1992.
20. Niederhoffer, E. C., M. S. Foster, and L. A. Young. "Bacterial Iron Metabolism: An Ironic Component of Aromatic Amino Acid Biosynthesis" Presented at the Department of Chemistry and Biochemistry, University of Arkansas, Fayetteville, AR, April 1992.
21. Niederhoffer, E. C., and M. S. Foster. "Novel Iron-Dependent, Aromatic Amino Acid-Dependent Signal Pathways for Siderophore Production in *Escherichia coli*" Presented at the Department of Chemistry, University of Iowa, Iowa City, IA, April 1992.
22. Niederhoffer, E. C., K. A. Diefenbach, and M. L. Fuller. "Iron Metabolism in the Kidney Pathogens, *Proteus mirabilis* and *Proteus vulgaris*" Presented at the Department of Microbiology, Southern Illinois University at Carbondale, Carbondale, IL, September 1992.
23. Niederhoffer, E. C., K. A. Diefenbach, and M. L. Fuller. "Iron Metabolism in the Kidney Pathogens, *Proteus mirabilis* and *Proteus vulgaris*" Presented at the Department of Chemistry, Murray State University, Murray, KY, September 1992.
24. Niederhoffer, E. C., T. M. Dayton, M. S. Foster, E. M. Melko, and A. Rodabough. "Bioremediation and Biodegradation of Toxic Wastes by Methane-Producing Microorganisms" Presented at the Department of Chemistry, University of Evansville, Evansville, IN, January 1993.
25. Niederhoffer, E. C., T. M. Dayton, K. A. Diefenbach, J. Eickhoff, M. L. Fuller, E. Potts, J. Valtos, and M. L. Wilkerson. "Iron and Superoxide Dismutase in Bacterial Virulence and Infection" Presented at the SIUC First Annual Cellular and Molecular Biology Retreat, Giant City, IL, October 1994.
26. Niederhoffer, E. C., T. M. Dayton, K. A. Diefenbach, J. Eickhoff, M. L. Fuller, E. Potts, J. Valtos, and M. L. Wilkerson. "Virulence Factors in *Proteus mirabilis*" Presented at the School of Medicine, Southern Illinois University, Carbondale, IL, November 1994.
27. Niederhoffer, E. C., T. M. Dayton, K. A. Diefenbach, J. Eickhoff, M. L. Fuller, E. Potts, J. Valtos, and M. L. Wilkerson. "*Proteus*: Dr. Jekyll and Mr. Hyde of the Microbial World" Presented at the Department of Microbiology, Southern Illinois University, Carbondale, IL, December 1994.
28. Niederhoffer, E. C. "Virulence Factors for Cellular Adhesion and Invasion Associated with Urinary Tract Infections" Presented at Interdisciplinary Grand Rounds, Department of Internal Medicine, Southern Illinois University, Springfield, IL, February 1995.

29. Brakebill, C., M. L. Kalmer, A. Sutton, and E. C. Niederhoffer. "Metal Ions and Dioxygen in Swarmer Cell Differentiation of *Proteus mirabilis*" Presented at the 1997 American Chemical Society National Meeting, San Francisco, CA, April 1997. WOS:A1997WP18700948
30. Niederhoffer, E. C. "Building Knowledge in an Electronic Society: Beyond Textbooks" Presented at the International Conference on Innovations in Medical Education for the 21st Century, Universidad Nacional de Trujillo (Peru), January 1998.
31. Niederhoffer, E. C. "Metal Ions and Dioxygen in Swarmer Cell Differentiation of *Proteus mirabilis*" Universidad Nacional de Trujillo (Peru), November 2000.
32. Niederhoffer, E. C. "Resource Sessions, Self-Assessment, and Examinations: Focusing Students' Learning" Presented at Touro University College of Medical, Hackensack, NJ, May 2008.
33. Niederhoffer, E. C. "Writing USMLE-Style Questions" and "Designing USMLE-Style Scenarios and Questions" Presented at College of Osteopathic Medicine, Touro University Nevada, Henderson, NV, August 2013.
34. Niederhoffer, E. C. "Writing USMLE-Style Questions" and "Designing USMLE-Style Scenarios and Questions" Presented at School of Medicine, Tulane University, New Orleans, LA, January 2014.
35. Niederhoffer, E. C. "Executive Summary of the Association of Biochemistry Educators" and "Medical Biochemistry Education in the 21<sup>st</sup> Century: Trends, Outcomes and Implications for Curricula" Presented at the 2017 meeting of the Association of Medical and Graduate Departments of Biochemistry and Molecular Biology, San Jose, Costa Rica, January 2016.
36. Niederhoffer, E. C. "Connecting basic and clinical sciences in the context of patient cases: Designing integrated interdisciplinary patient cases" Presented at Rosalind Franklin University of Medicine and Science, North Chicago, IL, November 2016.

## V. PUBLICATIONS AND CREATIVE WORKS

### A. Books:

None

### B. Articles in Professional Journals:

1. Niederhoffer, E. C., A. E. Martell, P. Rudolf, and A. Clearfield. 1982. Structures of (carbonato)bis(2,2'-bipyridine)cobalt(III) and (carbonato)bis(1,10-phenanthroline)cobalt(III) complexes. *Inorg. Chem.* **21**:3734-3741. DOI:10.1021/ic00140a028
2. Niederhoffer, E. C., C. J. Raleigh, A. E. Martell, P. Rudolf, and A. Clearfield. 1982. Nitro[2R,8R-1,9-bis(2-pyridyl)-2,5,8-triazanonane]cobalt(III) diperchlorate, [Co(C<sub>16</sub>H<sub>23</sub>N<sub>5</sub>)NO<sub>2</sub>](ClO<sub>4</sub>)<sub>2</sub>. *Cryst. Struct. Commun.* **11**:1163-1168. WOS:A1982QF41400059
3. Niederhoffer, E. C., A. E. Martell, P. Rudolf, and A. Clearfield. 1982. Tris(1,10-phenanthroline)cobalt(III) triperchlorate dihydrate, [Co(C<sub>12</sub>H<sub>8</sub>N<sub>2</sub>)<sub>3</sub>].2H<sub>2</sub>O. *Cryst. Struct. Commun.* **11**:1951-1957.
4. Niederhoffer, E. C., J. H. Timmons, and A. E. Martell. 1984. Thermodynamics of oxygen binding in natural and synthetic dioxygen complexes. *Chem. Rev.* **84**:137-203. DOI:10.1021/cr00060a003



5. Niederhoffer, E. C., R. Peascoe, P. Rudolf, A. Clearfield, and A. E. Martell. 1986. Structure of *trans*-dichlorobis(ethylenediamine)cobalt(III) perchlorate, *trans*-[Co(C<sub>2</sub>H<sub>8</sub>N<sub>2</sub>)<sub>2</sub>(Cl)<sub>2</sub>]ClO<sub>4</sub>. *Acta Crystallogr. Sect. C.* **42**:568-570. DOI:10.1107/S0108270186095379
6. Wackett, L. P., J. F. Honek, T. P. Begley, S. L. Shames, E. C. Niederhoffer, R. P. Hausinger, W. H. Orme-Johnson, and C. T. Walsh. 1988. Methyl-S-coenzyme M reductase: a nickel-dependent enzyme catalyzing the terminal redox step in methane biogenesis, p. 249-274. *In* J. R. Lancaster, (ed.), *Bioinorganic chemistry of nickel*. VCH, Weinheim, Federal Republic of Germany. BCI:BCI198936102743
7. Bastian, N. R., G. Diekert, E. C. Niederhoffer, B. K. Teo, C. T. Walsh, and W. H. Orme-Johnson. 1988. Nickel and iron EXAFS of carbon monoxide dehydrogenase from *Clostridium thermoaceticum* strain DSM. *J. Am. Chem. Soc.* **110**:5581-5582. DOI:10.1021/ja00224a058
8. Fee, J. A., E. C. Niederhoffer, and C. M. Naranjo. 1988. First description of a variant of *E. coli* lacking superoxide dismutase activity yet able to grow efficiently on minimal, oxygenated medium, p. 239-243. *In* L. Hurley, C. Keen, B. Lonnerdal, and R. Rucker, (eds.), *Trace elements in man and animals*. TEMA-6, Plenum Publishing Corp., New York.
9. Niederhoffer, E. C., J. A. Fee, V. Papaefthymiou, and E. Münck. 1988. Magnetic resonance studies involving the iron superoxide dismutase from *Escherichia coli*, p. 79-84. *In* Isotope and Nuclear Chemistry Division annual report FY 1987. Los Alamos National Laboratory report LA-11291-PR (May 1988). Los Alamos National Laboratory, Los Alamos, NM.
10. Niederhoffer, E. C., C. M. Naranjo, and J. A. Fee. 1988. Relationship of the superoxide dismutase genes, *sodA* and *sodB*, to the iron uptake (*fur*) regulon in *Escherichia coli* K-12, p. 149-158. *In* D. Winge and D. Hamer, (eds.), *Metal ion homeostasis: molecular biology and chemistry*, UCLA symposia on molecular and cellular biology, New Series, vol. 98, Alan R. Liss, Inc., New York. BCI:BCI198937006993
11. Fee, J. A., E. C. Niederhoffer, C. M. Naranjo, and K. L. Bradley. 1990. Regulation of *Escherichia coli* superoxide dismutases: evidence for the involvement of the *fur* locus. *Journal of Cellular Biochemistry Supplement* **14(C)**:188. BCI:BCI199038092521
12. Niederhoffer, E. C., C. M. Naranjo, K. L. Bradley, and J. A. Fee. 1990. Novel aromatic ligand effects on the iron dependent control of bacterial superoxide dismutase gene expression. *Journal of Cellular Biochemistry Supplement* **14(C)**:208. BCI:BCI199038092572
13. Niederhoffer, E. C., C. M. Naranjo, K. L. Bradley, and J. A. Fee. 1990. Control of *Escherichia coli* superoxide dismutase (*sodA* and *sodB*) genes by the ferric ion uptake regulation (*fur*) locus. *J. Bacteriol.* **172**:1930-1938. PMID:[2180912](#) PMID:[PMC208688](#)
14. Niederhoffer, E. C., and J. A. Fee. 1990. Novel effect of aromatic compounds on the iron-dependent expression of the *Escherichia coli* K12 manganese superoxide dismutase (*sodA*) gene. *Biol. Metals* **3**:237-241. DOI:10.1007/BF01140586
15. Bull, C., E. C. Niederhoffer, T. Yoshida, and J. A. Fee. 1991. Kinetic studies of superoxide dismutases: properties of the manganese-containing protein from *Thermus thermophilus*. *J. Am. Chem. Soc.* **113**:4069-4076. DOI:[10.1021/ja00011a003](#)
16. Foster, M. S., A. Rodabough, T. M. Dayton, E. M. Melko, S. S. Szegedi, and E. C. Niederhoffer. 1993. Improved methods for the cultivation of strictly anaerobic, extremely thermophilic methanogens. *Biotechniques* **15**:996-1002. WOS:A1993MK53300008

17. Foster, M. S., T. S. Conner, A. Rodabough, T. M. Dayton, J. A. Koropchak, and E. C. Niederhoffer. 1993. Speciation and mobilization of toxic heavy metal ions by methanogenic bacteria. Contract ENR-HWR-92-097. Hazardous Waste Research and Information Center, Champaign, IL.
18. Foster, M. S., J. C. Carroll, and E. C. Niederhoffer. 1994. Phenylalanine- and tyrosine-dependent production of enterobactin in *Escherichia coli*. FEMS Microbiology Letters **117**:79-84. WOS:A1994NB04900013
19. Guzik, B. W., and E. C. Niederhoffer. 1994. Isolation of superoxide dismutase genes from *Proteus mirabilis*. Abstracts of the General Meeting of the American Society for Microbiology **94**:235. BCI:BCI199497344386
20. Foster, M. S., M. Wilkerson, C. L. Mountz, B. W. Guzik, T. S. Conner, J. A. Koropchak, and E. C. Niederhoffer. 1994. Characterization of toxic heavy metal interactions with *Methanobacterium thermoautotrophicum* Marburg, *M. thermoautotrophicum* DELTA-H, and *Proteus mirabilis*. Abstracts of the General Meeting of the American Society for Microbiology **94**:404. BCI:BCI199497345330
21. Rodabough, A., M. S. Foster, and E. C. Niederhoffer. 1995. Plating techniques for extremely thermophilic methanogens, p. 57-60. In F. T. Robb, A. R. Place, K. R. Sowers, H. J. Schreier, S. DasSarma, and E. M. Fleischmann, (eds.), *Archaea: a laboratory manual*, vol. 1. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York. BCI:BCI199598528422
22. Eickhoff, J., E. Potts, J. Valtos, and E. C. Niederhoffer. 1995. Heavy metal effects on *Proteus mirabilis* superoxide dismutase production. FEMS Microbiology Letters **132**:271-276. DOI:10.1111/j.1574-6968.1995.tb07845.x
23. Wilkerson, M. L., and E. C. Niederhoffer. 1995. Swarming characteristics of *Proteus mirabilis* under anaerobic and aerobic conditions, *Anaerobe* **1**:345-350. DOI:10.1006/anae.1995.1037
24. Dayton, T. M., K. A. Diefenbach, M. L. Fuller, J. Valtos, and E. C. Niederhoffer. 1996. Production of superoxide dismutases from *Proteus mirabilis* and *Proteus vulgaris*. *BioMetals* **9**:131-137. WOS:A1996UG70700003
25. Niederhoffer, E. C. 1996. A medical sciences database for PBL students. *Academic Medicine* **71**:4-5. DOI:10.1097/00001888-199601000-00007
26. Niederhoffer, E. C. 1996. Will increased primary care bring about increased medical access? *Nature Medicine* **2**:948. DOI:10.1038/nm0996-948a
27. Howell, M. L., E. Alsabbagh, J.-F. Ma, U. A. Ochsner, M. G. Klotz, T. J. Beveridge, K. M. Blumenthal, E. C. Niederhoffer, R. E. Morris, D. Needham, G. E. Dean, M. A. Wani, and D. J. Hassett. 2000. AnkB, a periplasmic ankyrin-like protein in *Pseudomonas aeruginosa*, is required for optimal catalase B (KatB) activity and resistance to hydrogen peroxide. *Journal of Bacteriology* **182**:4545-4556. DOI:10.1128/JB.182.16.4545-4556.2000
28. Niederhoffer, E. C. 2001. New insights of the structure, catalytic mechanism, and regulation of expression of the iron superoxide dismutase from *Escherichia coli* K-12. *Revista Medica de Trujillo* **5**:7-12.
29. Clough, R. W., N. S. Viscomi, E. C. Niederhoffer, and S. L. Shea. 2011. The tutor guide: a hidden gem in tutor facilitated, small group, case based learning in a medical school. **25**:494.3. WOS:000310708402533
30. Sabina, R. L., E. E. McKee, N. Osheroff, T. B. Fulton, D. S. Franklin, T. Hogg, K. R. Kearney, S. C. King, E. C. Niederhoffer, S. Normaly, K. Thompson, and M. J. Wimmer. 2013. Teaching biochemistry to students of medicine, pharmacy & dentistry: 4th International Conference of the

Association of Biochemistry Course Directors (ABCD), Santa Fe, NM, USA, May 5-9, 2013. *Medical Science Educator* **23**:394-399.

31. Niederhoffer, E. C. 2014. An animation-enhanced presentation for illustrating hormonal and metabolite regulation of metabolic pathways in the context of diabetes. MedEdPORTAL. Available from: [www.mededportal.org/publication/9661](http://www.mededportal.org/publication/9661)
32. Abali, E., M. Sanders, K. Symes, E. Buxbaum, N. Osheroff, and E.C. Niederhoffer. 2014. Evolving role of the basic science course director in an integrated curriculum. *Medical Sciences Educator*, **24**(3):349-351.
33. Osheroff, N., E. C. Niederhoffer, R. L. Sabina, S. D. Cline, M. J. Wimmer, D. S. Franklin, A. B. Diekman, T. Hogg, K. R. Kearney, S. C. King, D. Pearson, C. A. Slaughter, and K. Thompson. 2015. Teaching biochemistry to students of medicine, pharmacy & dentistry: 5th International Conference of the Association of Biochemistry Course Directors (ABCD), Santa Fe, NM, USA, May 3-7, 2015. *Medical Science Educator* **25**(4):473-477 (published online July 22, 2015). <http://www.ncbi.nlm.nih.gov/pubmed/26693393>
34. E. C. Niederhoffer, S. D. Cline, N. Osheroff, J. M. Simmons, A. B. Diekman, D. S. Franklin, E. E. Abali, R. C. Bateman, Jr., J. D. Fontes, J. E. Lindsley, D. Pearson, P. A. Rubenstein, C. A. Slaughter, J. A. Bernstein, K. M. Hyland, V. M. Park, A. K. Sobering, T. A. Weiler, and S. Dasgupta. 2015. Teaching biochemistry and genetics to students of medicine, pharmacy & dentistry: 6th International Conference of the Association of Biochemistry Educators (ABE), Clearwater Beach, FL, USA, May 7-11, 2017. *Medical Science Educator* **27** (published online July 18, 2017). DOI 10.1007/s40670-017-0441-1

**C. Creative Contributions:**

1. Niederhoffer, E. C. 1996. Damian Hoover: Varicella-Zoster. Southern Illinois University, Carbondale, IL.
2. Niederhoffer, E. C. 1997. Cleland Ferris: Anemia. Southern Illinois University, Carbondale, IL.
3. Niederhoffer, E. C. 2003-present. Powerpoint Animations. Southern Illinois University, Carbondale, IL.
4. Niederhoffer, E. C. 2007. Web Lessons. Southern Illinois University, Carbondale, IL.

**D. Chapters in Professional Books:**

None

**E. Book Reviews:**

1. Niederhoffer, E. C. 1996. Review of *Essentials of Biochemistry*, 2nd Edition, by Dorothy E. Schumm, *The Physiologist* **39**(2):75-76.
2. Niederhoffer, E. C. 1997. Review of *X-Ray Absorption Fine Structure for Catalysts and Surfaces*, edited by Yasuhiro Iwasawa, *Journal of the American Chemical Society* **119**(28):6692.

**VI. TEACHING EXPERIENCE**

**A. Teaching Interests and Specialties:**

1. Biochemistry, inorganic biochemistry, metallobiology, molecular biology.
2. Approaches and strategies for active, self-directed learning curricula.

**B. Teaching and Training Grants:**

1993 American Society for Microbiology Undergraduate Research Fellowship; sponsor for Brian Guzik (B.S., Microbiology, 1994); "Iron- and Dioxygen-Regulated Gene Expression in *Proteus mirabilis*," \$4,000.

**C. Teaching Awards and Honors:**

Academy Scholar, Southern Illinois University School of Medicine 2011-2016

**D. Current Graduate Faculty Status:**

Full

**E. Number of Master's and Ph.D. Committees on which you have served:**

7 Master's committees; 4 Ph.D. committees

**F. Names of Students who have completed Master's Theses and Doctoral Dissertations under your direction:**

Mark Foster (M.S., Chemistry and Biochemistry, 1995)

**G. Other:**

Undergraduate Students - (8)

Lorrie Young (B.S., Chemistry and Biochemistry, 1991)

Karen Diefenbach (B.A., Biological Sciences, 1992)

Mark Foster (B.S., Chemistry and Biochemistry, 1992)

Michelle Fuller (B.A., Biological Sciences, 1992)

Brian Guzik (B.S., Microbiology, 1994)

Charles L. Mountz (B.S., Microbiology, 1995)

Michelle Wilkerson (B.A., Microbiology, 1995)

Joshua Valtos (B.S., Chemistry and Biochemistry, 1996)

Christina Brakebill (B.A., Biological Sciences, 1999; transferred to Univ Illinois)

Janet Brown (B.S., Microbiology, 1999)

21 total sponsored, 13 from SIUC, 4 from University of Evansville, 1 each from University of Illinois, University of Pittsburgh, Mt. Holyoke, and Washington University

Medical Students - (3)

Michael Braun - "Community heart disease prevention program." Spring 1996

Anna Mies and Suneel Chaudry - "PBLM-Courtney Johnson-acute hematogenous osteomyelitis." Spring 1996

Chris Stephenson - "A searchable, hyperlinked, dynamic, metalloprotein clinical database." Summer 2010.

**Courses taught at SIUC**

Biochemistry, undergraduate and graduate lecture course                      1990-1992, 2000

Biochemistry Laboratory, graduate course	1990-2000
Carbohydrate metabolism problem module, lecturer	1999-2000
Cardio/Respiratory/Renal, tutor and unit coordinator	2000-2017
Cardio/Respiratory/Renal, tutor and unit co-coordinator	2017-present
Doctoring, tutor	2000-2001
Endocrine/Reproduction, resource	1994
Endocrine/Reproduction/Gastrointestinal, tutor	2000-present
Energy and Nutrition, tutor	1999
Enzymes in Medicine, prematriculation lecture course	1998-2000
Enzymes problem module, lecturer	1993
Honors undergraduate research project	1994
Master's thesis research	1992-95
Master's research	1992-95
Mentored Professional Enrichment Experience, program coordinator	2001-present
Metabolic Pathways in Medicine, prematriculation lecture course	2003-2005
Neural/Muscular/Behavioral, tutor and discipline expert	2015-present
Panoply of Medicine/Respiratory, tutor and resource	1993-1999
Postdoctoral research	1994-95
Sensorimotor Systems and Behavior, tutor and discipline expert	2000-2015
Sensory Motor Systems and Behavior, tutor and resource	1993-1999
Undergraduate microbiology research project	1992-1996
Undergraduate research project	1990-1997
Year One Biochemistry Coordinator	2008-present

## VII. UNIVERSITY SERVICE

### A. Department Committees:

American Chemical Society Student Affiliate Advisor, 1990-92  
 MBI Eukaryotic Molecular Biologist Search Committee, 1990  
 MBI Protein Crystallographer Search Committee, 1990  
 Undergraduate Advisement and Career Counseling Committee, 1992  
 Instruction, Evaluation, and Improvement Committee, 1992  
 Graduate Brochure (hard copy and WWW versions), 1993-present  
 Admissions Committee, 1993-96  
 Recruitment Subcommittee, 1993-96  
 Biochemistry & Molecular Biology Reading Room (expanded and organized), 1993-present  
 Biochemistry and Molecular Biology Online, editor, 1995-present  
 Biochemistry and Molecular Biology Resources Online, editor, 2003-present  
 Tenure and Promotion Committee, Chair, 2013-present  
 Chair Evaluation Committee, Chair, 2015-present

### B. School of Medicine Committees:

Educational Policy Committee, 1993-1999  
 EPC Curriculum Content Working Group, 1994-95  
 Freshman Problem Based Learning Curriculum, 1994-1999  
 EPC Honors Task Force, 1995  
 PBLC Assessment Subcommittee, 1995  
 SOM Information Strategies Subcommittee, 1995-1999  
 PBLC Admissions Committee, Chair, 1995-1999  
 Clerkship and Electives Committee, 1995-1999  
 Medical School Admissions Seminar (for Illinois Medical Schools), 1995-1998

Carbondale Electives Coordinator, 1996-2002  
Faculty Council, 1996-1998  
Physician Assistant Admissions Committee, 1996-98  
Preclinical Research Project Committee, Chair, 1996-2000  
Budget Advisory Committee Subcommittee on Planning Review, 1996  
Parallel Curricula Subcommittee, 1996  
Physician Assistant Curriculum Committee, 1997-2000 (Chair, 1998-2000)  
Freshman Medical Student Advisor, 1997-1998  
EPC Single Curriculum Task Force, 1998  
Year One Curriculum Committee, 2002-present  
Year Four Curriculum Committee, 2002-2004  
Mentor Professional Enrichment Experience, Program Coordinator, 2001-present  
Cardio/Respiratory/Renal Unit Coordinator, 2004-present  
Year One Biochemistry Discipline Coordinator, 2009-present

**University Committees:**

Career Day, Women in Science, 1990-91  
Science Fair, Southern Illinois area, 1991-93  
Center for Rural Health and Social Service Development Task Force, 1993  
SIUC Student Faculty Science Seminar Program, 1993-95  
NIH Small Instrument Program, 1994  
Faculty Senate, 1997-2000  
Governance Committee, 1997  
Undergraduate Education Policy Committee, 1998-2000

**C. Other:**

1. Niederhoffer, E. C., D. Krupp, J. Patel, K. Puca, and C. Ballard. "Problem-Based Learning" Presented at the Fall 1995 Medical School Admissions Seminar, Illinois Medical Schools, Springfield, IL, October 1995.
2. Niederhoffer, E. C., S. Merideth, M. Lockwood, J. Patel, and M. Sawa. "Problem-Based Learning" Presented at the Fall 1996 Medical School Admissions Seminar, Illinois Medical Schools, Champaign, IL, October 1996.

**VIII. PROFESSIONAL SERVICE**

**A. Membership in Professional Associations:**

American Association for the Advancement of Science  
American Society for Biochemistry and Molecular Biology (elected 1988)  
Association for Biochemistry Course Directors (2008-2015)  
Association of Biochemistry Educators (2015-present)  
Phi Lambda Upsilon-Beta Beta Chapter (elected 1981)

**B. Office Held and Honors Awarded in Professional Associations:**

Association of Biochemistry Educators (previously Association of Biochemistry Course Directors Executive Committee) (2011-present), Chair-elect (2013-2015), President (2015-2017), Past President (2017-2019)  
USMLE Step 1 Pharmacology and Biochemistry Test Material Development Committee (2010-2014)  
NBME Basic Science Subject Examination Task Force (2013)

USMLE Step 1 Interdisciplinary Review Committee (2013-present)  
USMLE Metabolic Map Task Force (2018)

**C. Consultantships:**

Los Alamos National Laboratory, Biological and Environmental Chemistry Section, 1990-1991

USMLE Question Writing and Clinical Scenario Designing Workshop, College of Osteopathic Medicine, Touro University Nevada, Henderson, NV, August 2013.

USMLE Question Writing and Clinical Scenario Designing Workshop, School of Medicine, Tulane University New Orleans, LA, January 2014.

Academic Review Panel for the Lilly eLearning Drug Discovery and Development course, January 2015 – January 2016.

USMLE Biochemistry consultant, 2014-present.

**D. Evaluation of Manuscripts for Journals and Book Publishers and of Grant Proposals for Agencies:**

Occasional reviewer for Illinois Department of Energy and Natural Resources-Hazardous Waster Research and Information Center, Free Radicals Biology & Medicine, Inorganic Chemistry, International Science and Technology Center, Molecular Microbiology, National Science Foundation, Oak Ridge Associated Universities, Teaching and Learning in Medicine

Book reviewer for the American Physiological Society, Journal of the American Chemical Society, Blackwell Publishing, and Wiley Scientific.

Teaching & Learning in Medicine, Deputy Editor (2013-2017)

Teaching & Learning in Medicine, Associate Editor (2017-present)

**E. Papers and Presentations at Professional Meetings:**

1. Niederhoffer, E. C., D. Krupp, J. Patel, K. Puca, and C. Ballard. "Problem-Based Learning" Presented at the Fall 1995 Medical School Admissions Seminar, Illinois Medical Schools, Springfield, IL, October 1995.
2. Niederhoffer, E. C., S. Merideth, M. Lockwood, J. Patel, and M. Sawa. "Problem-Based Learning" Presented at the Fall 1996 Medical School Admissions Seminar, Illinois Medical Schools, Champaign, IL, October 1996.
3. Merideth, S., M. Aiello, P. Hopkins-Price, E. Niederhoffer. "The Mentored Professional Enrichment Experience at Southern Illinois University School of Medicine." Association of American Medical Colleges (AAMC) Central Group on Educational Affairs Spring Conference. Kansas City, MO. March 2006.

**F. Other:**

USMLE Step 1 Pharmacology and Biochemistry Test Material Development Committee (2009-2014)

NBME Basic Science Subject Examination Task Force (2013)

USMLE Step 1 Interdisciplinary Review Committee (2013-present)

NBME Pharmacology and Biochemistry Test Committee (2013-present)

Attended "Managing Beta-Lactam Resistance: A Framework for Integrating Pharmacoeconomic and Therapeutic Outcomes," Continuing Pharmacy

Education, College of Pharmacy, University of Kentucky, held at St. Louis, MO, April 1995.

Presented Master Tutor Workshop, Carbondale, IL August 1995.

Presented Master Tutor Workshop, Carbondale, IL January 1996.

Presented Master Tutor Workshop, Carbondale, IL October 1996.

Attended Interinstitutional Faculty Summer Institute on Learning Technologies, Office of Continuing Education and Public Service, University of Illinois at Urbana-Champaign, May 2000.

Attended Medical Biochemistry Education Strategies Workshop, Myrtle Beach, SC, April 2008.

Attended Second International Meeting of the Association of Biochemistry Course Directors, Myrtle Beach, SC, April 2009.

Attended Third International Meeting of the Association of Biochemistry Course Directors, Myrtle Beach, SC, April 2011.

Attended Fourth International Meeting of the Association of Biochemistry Course Directors, Santa Fe, NM, May 2013.

Attended Fifth International Meeting of the Association of Biochemistry Course Directors, Santa Fe, NM, May 2015.

Attended Meeting of the Association of Medical and Graduate Departments of Biochemistry and Molecular Biology, San Jose, Costa Rica, January 2016.

#### **IX. COMMUNITY SERVICE**

American Red Cross Elite Blood Donor (7 gallons)

Founding Editor of Chimesquare.com

Hometown Housecall Season Five, Mentored Professional Enrichment Experience, Series #501, 2007.

Principle Photographer for St. Louis Sports Online

Transportation services and overnight accommodations supporting local and regional canine rescue group activities