José Manuel Cerrato

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EDUCATION

Washington University in St. Louis — **Saint Louis, Missouri**
Postdoctoral Research Associate — 2010 – 2013
Department of Energy, Environmental and Chemical Engineering

Virginia Polytechnic Institute and State University (Virginia Tech) — **Blacksburg, Virginia**
Doctorate of Philosophy, Civil Engineering — 2005 - 2010
Dissertation: Biogeochemical Cycling of Manganese in Drinking Water Systems

Virginia Polytechnic Institute and State University (Virginia Tech) — **Blacksburg, Virginia**
Master of Science in Environmental Engineering — 2003 - 2005
Thesis: Impact of Piping Materials on Water Quality in Tegucigalpa, Honduras

Universidad Nacional Autónoma de Honduras (UNAH) — **Tegucigalpa, Honduras**
Bachelor of Science in Civil Engineering — 1996 – 2001

APPOINTMENTS

The University of New Mexico — **Albuquerque, New Mexico**
Associate Professor — 2018 – Present
Department of Civil, Construction & Environmental Engineering

The University of New Mexico — **Albuquerque, New Mexico**
Assistant Professor — 2013 – 2018
Department of Civil Engineering

Washington University in St. Louis — **Saint Louis, Missouri**
Postdoctoral Research Associate — 2010 – 2013
Department of Energy, Environmental and Chemical Engineering

Virginia Polytechnic Institute and State University (Virginia Tech) — **Blacksburg, Virginia**
Graduate Research Assistant — 2004 - 2010
Department of Civil and Environmental Engineering

AWARDS AND HONORS

- Excellence in Review Award for the journal *Environmental Science & Technology*, 2017
- New Mexico Alliance for Minority Participation (AMP) Mentor Award, 2017
- New Mexico EPSCoR Mentor Award, 2017
- Stamm Outstanding Research Faculty Award (UNM Department of Civil Eng.), 2017
- UNM School of Engineering Junior Faculty Research Award, 2017
- National Science Foundation (NSF) CAREER Award, 2017-2022.
- University of New Mexico Faculty of Color Research Award, 2016.

- Oak Ridge Associated University (ORAU) Program Ralph E. Powe Junior Faculty Enhancement Award, 2015-2016.
- American Society of Civil Engineers (ASCE) ExCEEd Teaching Fellowship, 2015.
- Selected as Oral Presenter and Recipient of an Early Career Travel Award for Synchrotron Environmental Science VI, Argonne National Laboratory, September 11-12, 2014.
- Selected as a Poster Presenter for the Paul E. Torgersen Graduate Student Research Excellence Award, College of Engineering, Virginia Tech, 2010.
- US National Science Foundation (NSF), Exploring Interfaces through Graduate Education and Research (EIGER) – Integrative Graduate Education and Research Traineeship (IGERT) Program, Associate Fellow, 2007 - 2010.
- Best Student Poster Presentation - Third Place Award in the Natural and Earth Sciences Category, Virginia Tech Graduate Student Assembly (GSA) Research Symposium, 2007.
- Best Student Paper Presentation, Virginia Water, Science and Technology Symposium, 2006.
- Edna Bailey Sussman Fellowship, 2006.
- Waste Policy Institute Fellowship, 2006.
- Fulbright - Organization of American States (OAS), Full Masters Degree Scholarship, 2003 - 2005.
- Universidad Nacional Autónoma de Honduras (UNAH), Diploma of Academic Excellence, 2000 - 2001.

REFEREED JOURNAL PUBLICATIONS

Gayen, Pralay, Spataro, Jason, Avasarala, Sumant, Abdul-Mehdi S., Cerrato, José M., and Chaplin, Brian (**2018**). Electrocatalytic Reduction of Nitrate using Magnéli Phases TiO_2 Reactive Electrochemical Membranes Doped with Pd-based Catalysts. *Environmental Science & Technology, 52, 9370-9379.*

Rahman, Asifur, El Hayek, Eliane, Blake, Johanna M., Bixby, Rebecca, Ali, Abdul-Mehdi S., Spilde, Michael, Otieno, Amanda A., Miltenberger, Keely, Ridgeway, Cyrena, Artyushkova, Kateryna, Atudorei, Viorel, and Cerrato, José M., (**2018**). Metal Reactivity in Laboratory Burned Wood from a Watershed Affected by Wildfires. *Environmental Science & Technology, 52, 8115-8123.*

Shaikh, Nabil; Zhang, Huichun; Rasamani, Kowsalya Devi, Artyushkova, Kateryna, Ali, Abdul-Mehdi, Cerrato, José M, (**2018**) Reaction of Bisphenol A with Synthetic and Commercial MnOx(s): Spectroscopic and Kinetic Study. *Environmental Science: Processes & Impacts*, 20, 1046-1055.

Zychowski, KatherineE.; Kodali, Vamsi; Harmon, Molly; Tyler, Christina; Sanchez, Bethany; Ordonez Suarez, Yoselin; Herbert, Guy; Wheeler, Abigail; Avasarala, Sumant; Cerrato, José M.; Kunda, NiteshK.; Muttil, Pavan; Shuey, Chris; Brearley, Adrian; Ali, AbdulMehdi; Lin, Yan; Shoeb, Mohammad; Erdely, Aaron; and Campen, Matthew J. (2018) Respirable Uranyl-Vanadate Containing Particulate Matter Derived from a Legacy Uranium Mine Site Exhibits Potentiated Cardiopulmonary Toxicity. *Toxicological Sciences*, 164, 101-114.

Lopez Moruno, Francisco, Rubio, Juan E., Atanassov, Plamen, Cerrato, José M., Arges, Christopher G., and Santoro, Carlo (**2018**) . Microbial desalination cell with sulfonated sodium poly(ether ether ketone) as cation exchange membranes for enhancing power generation and salt reduction**.** *Bioelectrochemistry*, 121, 176-184.

Lopez, Francisco, Rubio, Juan E., Santoro, Carlo, Atanassov, Plamen, Cerrato, José M., and Arges, Christopher, (**2017**) Investigation of patterned and non-patterned poly(2,6-dimethyl 1,4-pheneylene) oxide based anion exchange membranes for enhanced desalination and power generation in microbial desalination cell. *Solid State Ionics,* 314, 141-148.

Avasarala, Sumant, Lichtner, Peter, Ali, Abdul-Mehdi S., González-Pinzón, Ricardo, Blake, Johanna M., and Cerrato, José M., (**2017**) Reactive transport of U and V from abandoned mine wastes. *Environmental Science & Technology,* 51, 12385-12393.

Ilgen A.G., Kukkadapu R.K., Dunphy D.R., Artyushkova K., Cerrato, José M., Kruichak J.N., Janish M.T., Sun C. J., Argo J. M., and Washington R. E. (**2017**). Synthesis and characterization of redox-active ferric nontronite. *Chemical Geology*, 470, 1-12.

Blake, Johanna, DeVore, Cherie, Avasarala, Sumant, Ali, Abdul-Mehdi, Roldan, Claudia, Bowers, Fenton, Spilde, Michael, Artyushkova, Kateryna, Kirk, Matthew F., Peterson, Eric, Rodríguez-Freire, Lucia, and Cerrato, José M., (**2017**). Uranium mobility and accumulation along the Rio Paguate, Jackpile Mine in Laguna Pueblo, New Mexico. *Environmental Science: Processes & Impacts*, 19, 605-621.

Saup, Casey, Williams, Kenneth, Rodríguez-Freire, Lucia, Cerrato, José M., Johnston, Michael D., and Wilkins, Michael J., (**2017**). Anoxia stimulates microbially catalyzed metal release from Animas River sediments. *Environmental Science: Processes & Impacts*, 19, 578-585.

Rodriguez-Freire, Lucia, Avasarala, Sumant, Ali, Abdul-Mehdi S., Agnew, Diane, Hoover, Joseph, Artyushkova, Kateryna, Latta, Drew, Peterson, Eric, Lewis, Johnnye, Brearley, Adrian J., and Cerrato, José M., (**2016**) Post Gold King Mine spill investigation of metal stability in water and sediments of the Animas River watershed. *Environmental Science & Technology,* 50, 11539–11548.

Ruiz, Omar, Thomson, Bruce, and Cerrato, José M., (**2016**) Investigation of in-situ leach (ISL) mining of uranium in New Mexico and post-mining reclamation. *New Mexico Geology,* 38, 77-89.

Shaikh, Nabil, Taujale, Saru, Zhang, Huichun, Artyushkova, Kateryna, Ali, Abdul-Mehdi S., and Cerrato, José M., (**2016**) Spectroscopic investigation of interfacial interaction of manganese oxide with Triclosan aniline, and phenol. *Environmental Science & Technology,* 50,10978-10987.

Asadi, M., Kim, K., Liu, C., Addepalli, A.V., Abbasi, P., Yasaei, P., Phillips, P., Behranginia, A., Cerrato J.M., Haasch, R., Zapol, P., Kumar, B., Klie, R.F., Abiade, J., Curtiss, L.A., Salehi-Kojin, A., (**2016**). Nanostructured transition metal dichalcogenide electrocatalysts for CO_2 reduction in ionic liquid. *Science,* 353 (6298), 467-470.

Cerrato, José M., Blake, Johanna M., Hirani, Chris, Clark, Alexander L., Ali, Abdul-Mehdi S., Artyushkova, Kateryna, Peterson, Eric, and Bixby, Rebecca (**2016**). Wildfires and Water Chemistry: Effect of Metals Associated with Wood Ash. *Environmental Science: Processes & Impacts,* 18, 1078-1089.

Blake, Johanna M., Avasarala, Sumant, Artyushkova, Kateryna, Ali, Abdul-Mehdi S., Brearly, Adrian J., Shuey,Christopher, Robinson, Wm. Paul, Nez, Christopher, Bill, Sadie, Lewis, Johnnye, Hirani, Chris, Lezama-Pacheco, Juan S., and Cerrato, José M., (**2015**) Elevated concentrations of U and co-occurring metals in abandoned mine wastes in a Northeastern Arizona Native American community. *Environmental Science & Technology,* 49, 8506-8514.

Lezama-Pacheco, Juan S., Cerrato, José M., Alessi, Daniel S., Veeramani, H., Suvorova, Elena I., Bernier-Latmani, Rizlan, Giammar, Daniel E., Long, Phillip, E., Williams, Kenneth H., and Bargar, John R., (**2015**) Long-term in-situ oxidation of biogenic uraninite in an alluvial aquifer: impact of dissolved oxygen and calcium, *Environmental Science & Technology,* 49, 7340-7347.

Alessi, Daniel S., Lezama-Pacheco, Juan S., Janot, Noémie, Suvorova, Elena I., Cerrato, José M., Giammar, Daniel E., Davis, James A., Fox, Patricia M., Williams, Kenneth H., Long, Phillip E., Handley, Kim M., Bernier-Latmani, Rizlan, and Bargar, John R. (**2014**) Speciation and reactivity of uranium products formed during *in situ* bioremediation in an alluvial aquifer, *Environmental Science & Technology,* 48, 12842-12850.

Massey, Michael S., Lezama-Pacheco, Juan S., Jones, Morris E., Ilton, Eugene S., Cerrato, José M., Bargar, John R., and Fendorf, Scott, (**2014**) Competing retention pathways of uranium upon reaction with Fe(II), *Geochimica et Cosmochimica Acta*, 142, 166 - 185.

Cerrato, José M., Ashner, Matthew N., Alessi, Daniel S., Bernier-Latmani, Rizlan, Lezama-Pacheco, Juan S., Bargar, John R., and Giammar, Daniel E., (**2013**) Relative Reactivity of Biogenic and Chemogenic Uraninite and Biogenic Non-crystalline U(IV), *Environmental Science & Technology,* 47, 9756 - 9763.

Giammar, Daniel E., Cerrato, José M., Mehta, Vrajesh, Wang, Zimeng, Wang, Yin, Pepping, Troy J., Ulrich, Kai-Uwe, Lezama-Pacheco, Juan S., and Bargar, John R., (**2012**) Effect of diffusive transport limitations on UO_2 dissolution, *Water Research*, 46, 6023 - 6032.

Cerrato, José M., Barrows, Charles J., Blue, Lisa Y., Lezama-Pacheco, Juan S., Bargar, John R., and Giammar, Daniel E., (**2012**) Effect of Ca^{2+} and Zn^{2+} on UO_2 dissolution rates, *Environmental Science & Technology,* 46, 2731 - 2737.

Cerrato, José M., Knocke, William R., Hochella, Jr., Michael F., Dietrich, Andrea M., Jones, Andrew, and Cromer, Thomas F., (**2011**) Application of XPS and solution chemistry analyses to investigate soluble

manganese removal by MnO_x(s)-coated media, *Environmental Science & Technology*, 45, 10068 - 10074.

Cerrato, José M., Hochella, Jr., Michael F., Knocke, William R., Dietrich, Andrea M., and Cromer, Thomas F., (**2010**) Use of XPS to identify the oxidation state of Mn in solid surfaces of filtration media oxide samples from drinking water treatment plants. *Environmental Science & Technology*, 44, 5881 - 5886.

Cerrato, José M., Falkinham III, Joseph O., Dietrich, Andrea M., Knocke, William R., McKinney, Chad W., and Pruden, Amy. (**2010**) Manganese-oxidizing and -reducing microorganisms isolated from biofilms in chlorinated drinking water systems. *Water Research*, 44, 3935 - 3945.

Cerrato, José M., Reyes, Lourdes P., Alvarado, Carmen N., and Dietrich, Andrea M. (**2006**) Effect of PVC and iron materials in drinking water distribution systems on Mn(II) deposition. *Water Research*, 40 2720 - 2726.

PRESENTATIONS

Selected Oral Presentations

Invited: Cerrato, José M., Transport of Uranium and Co-occurring Constituents in Abandoned Mines in Native American Communities, 255th National Conference and Exposition of the American Chemical Society, New Orleans, LA, 2018.

Invited: Cerrato, José M., Interfacial Processes Affecting the Transport of Uranium and Co-occurring Metals in Abandoned Mines in Native American Communities, Department of Geology and Geological Engineering, Colorado School of Mines, Golden, CO, 2018.

Invited: Cerrato, José M., Uranium Transport in Native American Communities, Department of Civil Engineering, South Dakota School of Mines and Technology, Rapid City, SD, 2017.

Invited: Cerrato, José M., Spectroscopy and Microscopy Investigation of Interfacial Processes Affecting Uranium in Abandoned Mines, SCiX 2017, Reno, NV, 2017.

Invited: Cerrato, José M., Metal Mixtures in Abandoned Uranium Mine Wastes of the Southwestern US, Department of Earth and Environmental Science, New Mexico Tech, Socorro, 2016.

Cerrato José M., Blake, Johanna M., Hirani, Chris, Clark, Alexander, Ali, Abdel-Mehdi S., Artyushkova, Kateryna, Peterson, Eric, and Bixby, Rebecca, Reactivity of Metals from Wildfire Ash, 251st National Conference and Exposition of the American Chemical Society, San Diego, CA, 2016.

Invited: Cerrato, José M., Metal Occurrence in Abandoned Uranium Mine Wastes. Society of Hispanic Professional Engineers (SHPE), Baltimore, MD, 2015.

Invited: Cerrato, José M., Aplicación de Microscopía y Espectroscopia Avanzada para la Investigación de Procesos Biogeoquímicos de Metales que Afectan la Calidad del Agua, Congreso de la Conferderación Panoamericana de Ingeniería Mecánica, Eléctrica, Industrial y Ramas Afines (COPIMERA) 2016, Tegucigalpa, Honduras.

Invited: Cerrato, José M., Avasarala, Sumant, Blake, Johanna, Ali, Abdul-Mehdi, Brearly, Adrian, Aryushkove, Kateryna, Lezama-Pacheco, Juan S., Metal Reactivity in Abandoned Uranium Mine Wastes. 250th National Conference and Exposition of the American Chemical Society, Boston, MA, 2015.

Invited: Cerrato, José M., Avasarala, Sumant, Blake, Johanna, Ali, Abdul-Mehdi, Brearly, Adrian, Aryushkove, Kateryna, Lezama-Pacheco, Juan S., Interactions of Uranium and Co-occurring Elements in Abandoned Mine Wastes. 250th National Conference and Exposition of the American Chemical Society, Boston, MA, 2015.

Invited: Cerrato, José M. Reactivity of Metals in Abandoned Uranium Mine Wastes, Department of Earth and Planetary Sciences, UNM, Albuquerque, NM, 2015.

Invited: Cerrato, José M. Spectroscopy and Microscopy Study of Abandoned Uranium Mine Wastes in Northeastern Arizona, Stanford Synchrotron Radiaton Lightsource (SSRL) Annual User Meeting, Menlo Park, CA, 2014.

Invited: Cerrato, José M. Integrated Spectroscopy, Microscopy, and Aqueous Chemistry Investigation of Heavy Metals in Abandoned Mine Wastes in the Southwest, Argonne National Laboratory, IL, 2014.

Invited: Cerrato, José M. Reactivity of Metals in Abandoned Uranium Mine Wastes, Department of Earth and Planetary Sciences, UNM, Albuquerque, NM, 2015.

Invited: Cerrato, José M. Spectroscopy and Microscopy Study of Abandoned Uranium Mine Wastes in Northeastern Arizona, Stanford Synchrotron Radiaton Lightsource (SSRL) Annual User Meeting, Menlo Park, CA, 2014.

Invited: Cerrato, José M. Integrated Spectroscopy, Microscopy, and Aqueous Chemistry Investigation of Heavy Metals in Abandoned Mine Wastes in the Southwest, Argonne National Laboratory, IL, 2014.

Cerrato, José M., Lezama-Pacheco, Juan S., Williams, Kenneth H., Long, Phillip, Alessi, Daniel S., Suvorova, Elena I., Bernier-Latmani, Rizlan , Giammar, Daniel E., and Bargar, John. Effect of Groundwater Solutes on Uraninite Stability: Laboratory and Field Studies, Goldschmidt, Sacramento, CA, 2014.

Cerrato, José M., Bargar, John, Janot, Noémie, Alessi, Daniel S., Jones, Morris, Williams, Kenneth H., Long, Phillip, and Bernier-Latmani, Rizlan. Bioremediation to Plume Persistence: Uranium Biogeochemistry in Naturally and Artificially Bioreduced Aquifer Sediments, Goldschmidt, Sacramento, CA, 2014.

Invited: Cerrato, José M., Stability and Reactivity of U(IV) in Groundwater Remediation, University of Houston, TX, 2014.

Cerrato, José M., Ashner, Matthew N., Alessi, Daniel S., Bernier-Latmani, Rizlan, Lezama-Pacheco, Juan S., Bargar, John R., and Giammar, Daniel E., Use of chemical extractions to evaluate the reactivity of U(IV) species. 245th National Conference and Exposition of the American Chemical Society, New Orleans, LA, 2013.

Selected Poster Presentations

Cerrato, José M., Blake, Johanna, Hirani, Chris, Clark, Alexander, Ali, Abdul-Mehdi S., Artyushkova, Kateryna, Peterson, Eric, and Bixby, Rebecca, Effects of Wildfire Ash on Water Quality. Gordon Research Conference - Environmental Sciences: Water, Holderness, New Hampshire, 2016.

Ali, Abdul-Mehdi S., Avasarala, Sumant, Cerrato, José M., and Blake, Johanna M. Chemical and mineralogical characterization of abandoned mine waste in northeastern Arizona. Geochemical Society of America Annual Meeting, Vancouver BC, Canada, 2014.

Cerrato, José M., Giammar, Daniel E., Lezama-Pacheco, Juan S., Bargar, John R., Alessi, Daniel S., Bernier-Latmani, Rizlan, Long, Phillip E., Williams, Kenneth H., Avasarala, Sumant, Ali, Abdul-Mehdi S., Artyushkova, Kateryna, Brearley Adrian, Shuey, Christopher, Robinson, Paul, and Bill Sadie, Reactivity U in Surface/Subsurface Environments: Insights from Laboratory and Field Experiments. Gordon Research Conference - Environmental Sciences: Water, Holderness, New Hampshire, 2014.

Cerrato, José M., Giammar, Daniel E., Ashner, Matthew N., Wang, Zimeng, Wang, Yin, Mehta, Vrajesh, Lezama-Pacheco, Juan S., Bargar, John R., Alessi, Daniel S., Bernier-Latmani, Rizlan, Long, Phillip E., and Williams, Kenneth H.,, Stability of U(IV) Products of Uranium Bioremediation in Groundwater. Gordon Research Conference - Environmental Sciences: Water, Holderness, New Hampshire, 2012.

Giammar, Daniel E., Cerrato, José M., Ashner, Matthew N., Wang, Zimeng, Mehta, Vrajesh, Lezama-Pacheco, Juan S., Bargar, John R., Alessi, Daniel S., Bernier-Latmani, Rizlan, Long, Phillip E., and Williams, Kenneth H., Biogeochemical Processes and Diffusive Transport Limitations Affecting the Stability of Biogenic U(IV). Subsurface Biogeochemistry Meeting of the U.S. Department of Energy, Washington, D.C., 2012.

Cerrato, José M., Giammar, Daniel E., Barrows, Charles, Lezama-Pacheco, Juan S., and Bargar, John R., Effect of cations on uranium mobilization from uraninite in groundwater. Conference of the Association of Environmental Engineering and Science Professors, Tampa, FL, 2011.

Giammar, Daniel E., Cerrato, José M., Barrows, Charles, Wang, Zimeng, Mehta, Vrajesh, Stubbs, Joanne E., Lezama-Pacheco, Juan S., Bargar, John R., Veeramani, Harish, Bernier-Latmani, Rizlan, Eng, Peter J,, Campbell, Kate M., and Yabusaki, Steven B., Subsurface Biogeochemistry of Nano-uraninite. Surface Biogeochemistry Meeting of the U.S. Department of Energy, Washington, D.C., 2011.

RESEARCH EXPERIENCE

The University of New Mexico — **Albuquerque, New Mexico**

Department of Civil Engineering — 07/13 – Present

Assistant Professor/Associate Professor

Principal Investigator of the E-H_2O Research Group.

Pursuing interdisciplinary research of biogeochemical processes occurring at the interface of water and energy that affect the cycle of metals and radionuclides in the environment.

Collaborating with researchers from Stanford University, Temple University, University of Alberta, University of Illinois-Chicago, Tufts University, and Sandia National Laboratories.

Washington University in Saint Louis — **Saint Louis, Missouri**

Department of Energy, Environmental, and Chemical Engineering — 06/10 – 07/13

Postdoctoral Research Associate

Studied the biogeochemical processes influencing the stability of different uranium(IV) species in groundwater and subsurface environments.

Collaborated with the Science Focus Area (SFA) interdisciplinary research group sponsored by the U.S. Department of Energy (DOE) comprised of researchers from Stanford University, Oregon Health and Science University (OHSU), École Polytechnique Fédérale de Lausanne (EPFL in Switzerland), and Washington University in St. Louis.

Assisted with laboratory management and coordination of a research group composed of graduate and undergraduate students.

Participated in extracurricular STEM faculty workshops organized by *The Teaching Center* focused on Mentoring, Problem-Based Learning, and other Active Learning Strategies.

Virginia Tech — **Blacksburg, Virginia**

Department of Civil and Environmental Engineering — 01/04 – 05/10

Graduate Research Assistant

Participated as an Associate Fellow in the core courses and extracurricular activities of the EIGER-IGERT support and training program for interdisciplinary research funded by the US National Science Foundation (NSF).

Participated in curricular and extracurricular activities of the Graduate Education Development Institute (GEDI) focused on teaching and learning issues in partnership with the Graduate School at Virginia Tech.

Studied the mechanism and effect of manganese removal and deposition in drinking water systems through interdisciplinary research in microbiology, surface science, applied physics, chemistry, and engineering.

Analyzed the impact of PVC and iron pipes on water quality within the context of the urban distribution system of Tegucigalpa, Honduras. Measured different water quality parameters and analyzed the data obtained using SAS and R statistical software.

Sampled in different locations of the distribution system of the reservoir “La Concepción”, Tegucigalpa, Honduras with the collaboration of the National Autonomous Service of Aqueducts and Sewages of Honduras (SANAA) and the Pan-American Health Organization (PAHO).

Member of the interdisciplinary “NSF-Material Use: Science, Engineering, and Society (MUSES)” team for sustainable drinking water infrastructure.

TEACHING EXPERIENCE

The University of New Mexico — **Albuquerque, New Mexico**
Environmental Eng. Chemistry — Fall 2014, 2016, 2018

The University of New Mexico — **Albuquerque, New Mexico**
Environmental and Water Resources Eng. — Spring 2014, 2015, 2017

The University of New Mexico — **Albuquerque, New Mexico**
Statics — Fall 2013, Spring 2016, 2018

Virginia Tech — **Blacksburg, Virginia**
Environmental Chemistry — Fall Semester 2009
Invited Lecturer

Lectured three classes covering the topics “precipitation, complexation, and redox” chemistry.
Organized and directed lectures; applied active learning techniques for in-class problem solving.

Virginia Tech — **Blacksburg, Virginia**
Techniques for Environmental and Analysis — Semesters: Fall 2009 and Spring 2006
Invited Lecturer

Lectured three classes covering the topics “applied statistical methods” and “environmental sampling”.
Organized and directed lectures; applied active learning techniques for in-class problem solving.

Virginia Tech — **Blacksburg, Virginia**
Environmental and Water Resources Graduate Seminar Teaching Assistant — Fall Semester 2005

Assisted in coordinating logistics and guest speakers for weekly seminar sessions.
Organized and directed graduate students enrolled in seminar.

Universidad Nacional Autónoma de Honduras — **Tegucigalpa, Honduras**
Spring Semester 1999
Mathematics Teaching Assistant

Taught basic Mathematics 112 course: proctored and corrected tests, projects, and assignments and worked directly with the professor to review and organize class materials.

TEACHING INTERESTS

Environmental Engineering

Aquatic Chemistry in Environmental Engineering

Physico-Chemical Principles of Environmental Engineering

Water and Sanitation in Developing Countries

Develop New Courses About Metal Biogeochemistry in Natural and Engineered Environments

OTHER WORK EXPERIENCE

PRIESS (Program for Reorganization and Extension of Public Health Services) – IADB (Inter-American Development Bank) — **Tegucigalpa, Honduras** 05/02 – 07/03

National Consultant - Healthy Municipalities

PRIESS was a program funded by the Honduran Ministry of Health and the Inter-American Development Bank and Administered by the United Nations Development Program.

Elaborated a detailed study showing the exact location and altitude of each home in the community, and a diagnostic study used by the nongovernmental and governmental organizations installing potable water systems in the area.

Facilitated meetings between community organizations, local government officials, and governmental and non-governmental organizations.

INSTRUMENTATION, ANALYTICAL, AND TECHNICAL SKILLS

Surface and solid characterization techniques: X-Ray Absorption Spectroscopy (XAS - XANES/EXAFS), X-Ray Photoelectron Spectroscopy (XPS), Scanning Electron Microscopy (SEM), and X-Ray Diffraction (XRD).

Aquatic Chemistry: Inductively Coupled Plasma - Mass Spectrometry (ICP-MS), Atomic Absorption (AA), Ion chromatography (IC), Total Organic Carbon (TOC), spectrophotometry, pH probes, and portable kits to perform in-situ measurements.

Microbiological methods: culturing methods (i.e., media specific for Mn and Fe oxidizers and reducers, total coliforms, heterotrophic plate counts, etc.) and 16S-rRNA gene sequencing.

Data processing, analysis and modeling software. Specifically interested in chemical speciation (i.e., MINEQL), reaction kinetics, and performing statistical analyses (i.e., SAS and R).

LANGUAGES

Bilingual (English and Spanish)

PROFESSIONAL SERVICE

Co-organizer (together with Drs. Huichun Zhang from Temple University and Haizhou Liu from the University of California-Riverside) of the symposium "*Surface Physicochemical Processes in Engineered and Natural Systems*" for the American Chemical Society Meeting" in Denver, CO, March 2015.

Reviewer for the Journals: *Environmental Science & Technology, Water Research*, *Chemical Geology*, *American Mineralogist, Mineralogy Magazine*, *Journal of Applied Microbiology*, *Journal of Electron Spectroscopy and Related Phenomena, Water Environment Research,* and *Science of the Total Environment*.

Proposal Reviewer for NSF Geobiology and Low Temperature Geochemistry Program and DOE Experimental Program to Stimulate Competitive Research (DOE EPSCoR) Implementation Grants.

Reviewer, Association of Environmental Engineering and Science Professors (AEESP) Student Service Committee (SSC) Academic Job Application Review, 2013 and 2014.

Mentor for the University of New Mexico Alliance for Minority Participation (AMP) Program.

Research mentor for 2 high school (summer interns), 10 undergraduate and 5 graduate students.

AFFILIATIONS

American Society of Civil Engineers, since 2014.

American Chemical Society, since 2011.
Association of Environmental Engineering and Science Professors, since 2011.
Golden Key Honor Society, since 2009.
American Water Works Association, since 2005.
College of Civil Engineers of Honduras, since 2002; Licensed Engineer in Honduras.

COMMUNITY OUTREACH AND HOBBIES

Collaborator for several non-governmental development organizations from Honduras.

President of the Latin American and Iberian Graduate Student Association (LAIGSA) of Virginia Tech, 2004-2005.

Professional Guitarist; member of the independent record label Costa Norte Records, Honduras.