Felipe Gutierrez, Ph.D., P.E.

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Professional Licenses

- Professional Engineer License 134837
  Texas Board of Professional Engineers and Land Surveyors

Education

08/2012 – 05/2016	**Ph.D., Department of Civil, Architectural and Environmental Engineering**, The University of Texas at Austin, U.S. **Dissertation Title**: Phosphorus Speciation in Municipal Biosolids for Efficient Phosphorus Recovery
09/2010 - 08/2012	**M.S., Department of Civil, Architectural and Environmental Engineering,** The University of Texas at Austin, U.S. **Report Title:** Anaerobic Co-Digestion of Microalgae and Municipal Sludge for Methane Production and Phosphorus Recovery
01/2007 - 08/2010	**B.S., Department of Civil, Architectural and Environmental Engineering**, The University of Texas at Austin, U.S.

Teaching & Leadership Experiences

2022-Present **Assistant Professor of Practice,** Civil Engineering, College of Science and Engineering, Texas State University – San Marcos, Tx Instructor of Record:

- Civil Engineering Design I
- Civil Engineering Design II
- Hydraulics
- Environmental Engineering
- Biological Wastewater Management

2020-2022 **Adjunct Professor,** Advanced Manufacturing, Technology, Engineering, and Logistics Department, Palo Alto College – San Antonio, Tx
Instructor of Record:

- Introduction to Engineering

2011 – 2016 **Teaching assistant (Fall 2011-Spring 2016)**, Department of Civil, Architectural and Environmental Engineering, The University of Texas at Austin Courses:

- Introduction to Civil Engineering Systems
- Water and Wastewater Treatment Facilities
- Elements of Hydraulic Engineering
- General Engineering Supplemental Instruction for Engineering Chemistry

2015 **Lead teaching assistant (Spring 15)**, Department of Civil, Architectural and Environmental Engineering, The University of Texas at Austin

Course:

- Introduction to Civil Engineering Systems

2012 – 2015 **Graduate Mentor for Graduates Linked with Undergraduates in Engineering (GLUE)**, Department of Civil, Architectural and Environmental Engineering, The University of Texas at Austin.

- Mentored and supervised sophomore environmental and chemical engineering students while they designed and conducted research for a full semester. Guided the students in preparing a scientific poster to present their results. This program as aimed to encourage students to consider graduate school and a career in research. Another objective of the program was to retain and increase graduation rates of women in the engineering program.

2009 **Student Engineering Tutor,** Equal Opportunity in Engineering Office, The University of Texas at Austin

- Tutor engineering sophomore students on various engineering topics including engineering statistics, chemistry, mechanic of solids, statics and dynamics.

Course Development Experience

2025 **Biological Wastewater Management,** Civil Engineering, Ingram School of Engineering, Texas State University, San Marcos, Tx

- Developed the elective course for wastewater treatment. This course examines biological treatment processes for domestic and industrial wastewater. The use of sensor technologies to monitor the effectiveness of a treatment option is also addressed.

2020 **Engineering Mechanics: Statics & Dynamics,** Advanced Manufacturing, Technology, Engineering, and Logistics Department, Palo Alto College – San Antonio, Tx

- Developed Online Master Courses for Statics and Dynamics. This included setting up the Canvas modules and topics for other faculty to pick up and use in future semesters. These master courses were set up to be readily used for distance learning synchronously or asynchronously due to the COVID-19 emergency.

2012 **Introduction to Civil Engineering Systems,** Department of Civil, Architectural and Environmental Engineering, The University of Texas at Austin

- Assisted faculty in updating course topics.
- Improved the course's laboratory component by adding design problems to the assignments.

  Designed, constructed and implemented a new environmental engineering laboratory experiment focused on measuring oxygen transfer in a stream. The laboratory included: 1) an experiment measuring dissolved oxygen changes in a de-aerated water source through a series of channels and drops in a model stream analysis of the re-aeration and 2) analysis of the oxygen mass transfer (re-aeration) coefficient for the model stream, and 3) a design application utilizing the concepts of mass transfer.

Professional Experience

07/2018-Present **Process Engineer,** CP&Y, Water Business Group, San Antonio, Tx

- Evaluate potable water quality and recommend treatment for corrosion control and water blending. Develop hydraulic models for wastewater treatment plants.
- Develop biological models for wastewater treatment plants.

07/2016-07/2018 **Process Engineer II,** CH2M, Water Business Group, Herndon, Va, & San Antonio, TX

- Design water and wastewater treatment processes.
- Write specifications for equipment and appurtenances used at various water and wastewater projects.
- Perform engineering calculations to ensure the specified equipment performs efficiently.
- Engage with suppliers and vendors to warrant the suitability of the desired equipment and correctness of the project specifications.

05/2009 - 08/2009 **Engineering Technician Intern**, Texas Department of Transportation, Pavements Section, Austin, Tx, U.S.

Publications

2025 Gutierrez, C. F., Borkowski, V., Subramanian, B., Amha, Y., Cleary, J., Larson, E., … Charthal, J. (2025). Chapter 3 - Feedstock Evaluation and Selection. In *Anaerobic Co-digestion: Principles and Guidelines Towards More Efficient Systems* (1st ed., Vol. 1, pp. 39–76). Alexandria, VA, USA: Water Environment Federation.

2022 Berg, M., Martinez, M., Martinez, B., van der Wege, S., Khajuria, B., **Gutierrez, F.**, … Gautam, T. T*o Test or Not to Test: The PFAS Dilemma*. 2022. *TexasWET*, (4), 65–70.

2022 **Gutierrez, F.,** Jebur, M., & Eaton, T. *Full-scale pilot test of a Hydrogen Peroxide Treatment for Dewatering Improvement.* 2022. Proceedings of the Residuals and Biosolids Conference 2022. https://doi.org/10.2175/193864718825158400

2020 **Gutierrez, F.,** Katz, L., Kinney, K. *Phosphorus speciation in municipal wastewater solids and implications for phosphorus recovery*. 2020. Environmental Engineering Science, Vol 37, Issue 5, pp. 316-327

2019 Malinaro, A.; Rhoades, J.; Pennock, W.; **Gutierrez, F.** *Take a Mixed Approach to Mixing.*2019. Journal AWWA, Vol 111, Issue 5.

2015 **Gutierrez, C. Felipe**; Kinney, Kerry; Katz, Lynn**.** *Phosphorus speciation in municipal biosolids for efficient phosphorus recovery.*2015. Proceedings of the Water Environment Federation, WEFTEC 2015: Session 203 through Session 209, pp. 2178-2188(11)

Academic Presentations

2023 **Gutierrez, F.,** Recomendaciones para el manejo de lodos provenientes de la eliminacion biologica de fosforo. Oral Presentation. TICOSAN 2023, San Jose, Costa Rica, April 2023.

2022	**Gutierrez, F.,** Best Practices for Solids Management in BNR Design. Oral Presentation. Eckenfelder Lecture Series, Austin, Tx. November 7th, 2022
2022	**Gutierrez, F.,** Jebur, M., & Eaton, T. Full-scale pilot test of a Hydrogen Peroxide Treatment for Dewatering Improvement. Oral Presentation. Residuals and Biosolids Conference, Columbus, OH. May 27th, 2022
2021	**Gutierrez, F.,** Vergara, M., Zhu, G. Long-Distance Relationship – How Water Quality Impacts the Commissioning of a 140-mile Water Transmission Pipeline. Oral Presentation. WQTC, Tacoma, Wa. November 10th, 2021
2016	**Gutierrez, C.F.,** Kinney, K., Katz, L. Phosphorus Speciation of municipal biosolids for efficient phosphorus recovery. Oral Presentation. Sixth Annual Eckenfelder Lecture Series, Arlington, Tx. June 24th, 2016
2015	**Gutierrez, C.F.,** Kinney, K., Katz, L. Understanding Phosphorus Speciation of Municipal Biosolids. Oral Presentation. WEFTEC, Chicago, Il. September 28th, 2015
2015	**Gutierrez, C.F.,** Kinney, K., Katz, L. Understanding Phosphorus Speciation of Municipal Biosolids. Oral Presentation. ACS Fall Conference, Boston, Ma. August 20th, 2015
2015	**Gutierrez, C.F.**., Kinney, K., Katz, L. Phosphorus Speciation of Municipal Biosolids Undergoing Anaerobic Digestion. Poster Presentation. 2015 WEF/IWA Residuals & Biosolids Conference. Washington D.C. June 9th, 2015
2015	**Gutierrez, C.F.**., Kinney, K., Katz, L. Understanding Phosphorus Speciation of Municipal Biosolids Undergoing Anaerobic Digestion. ACS Spring Conference. Denver, Co. March 26th, 2015
2014	**Gutierrez, C.F.**., Kinney, K., Katz, L. Anaerobic Digestion for Phosphorus Recovery. Poster Presentation at 2014 WEF Residuals & Biosolids Conference, Austin, Tx. May 20th, 2014.

Consulting Experience

Wastewater Pumping Station Upgrades, Brownsville Public Utilities Board, Texas
Project Engineer. Project includes the preliminary design, final design, bidding and construction for rehabilitation of 8 wastewater pump stations. Evaluation of improvements included the use of SewerGEMS computer model to evaluate hydraulics of the force main modifications.

Lower Bird Creek Wastewater Treatment Plant Excess Flow Storage Alternative Evaluation, Oklahoma
Project Engineer. Project includes the master planning, preliminary design, final design, bidding and construction of an excess flow storage system to handle wet weather peak flows. Currently in the master planning phase 4 alternatives are being evaluated which include, flow equalization basins, force main expansions, pump station design, headworks improvements and hydraulic model development.

Acres Homes Pump Station Chlorination Improvements, City of Houston, Texas
Project Engineer. The project included temporary chlorination alternatives to meet peak demand at the Acre Homes Pump Station. Felipe was responsible for the design of selected alternative to improve chlorination capacity. Major equipment specified included chlorinators, chlorine injectors, chlorine solution diffusers, chlorine system regulators, make-up water booster pumps. Additionally, Felipe's responsibilities included performing a hydraulic analysis for the make-up water booster pump system to develop system curves. The system was designed to be installed in a way that minimizes disruptions to operations, ultimately limiting the total shut-down time to 8 hours maximum. The design also allowed for some equipment, instruments, and pipes to be reused and/or relocated which provided additional cost savings to the City of Houston.

East Water Purification Plant Concentration Time (CT) Study, City of Houston, Texas
Project Engineer. Project include an update to the CT study of Plants #1 and #3 at the East Water Purification Plant. Work included incorporating the Coastal Water Authority raw water pipelines B and C into the disinfection credit for both

plants. This work also required an understanding of the operation of the raw water pipelines, the disinfection strategy in both plants and the monitoring locations for chlorine residual.

Wastewater Treatment Plant (WWTP) Facility Master Plan, San Antonio River Authority, San Antonio, Texas
Modeling Engineer. This project included a facility improvement master plan for the Salitrillo and Martinez II wastewater treatment plants to identify existing treatment capacity, improvements necessary for treating current wastewater flows, and necessary treatment capacity to handle future flows. Responsibilities included the modification and verification of the existing Hydromantis GPS-X process model for the SARA treatment plants. The model for each plant was able to identify the current maximum capacity of the plant and future restrictions as flows increased due to growth.

Phase 1B Program Management/Owner's Representative Services, Alliance Regional Water Authority, Texas Water Quality Engineer. CP&Y's responsibilities include management and design standards for the water treatment facility, two of five pipeline segments, the well collection pipelines and the groundwater wells. CP&Y is also managing the program environmental studies and funding requirements/release through the Texas Water Development Board SWIFT funding program and permit coordination. Responsibilities included authoring the preliminary engineering report that provided a conceptual design for the treatment of groundwater, evaluation of water quality for the customers' existing potable water system, and preliminary costing of the treatment facilities.

Vista Ridge Regional Water Supply Project, Garney Construction, Texas
Water Quality Engineer. This design-build project consists of a well field, several miles of well collection line, over 100 miles of large diameter treated transmission main, multiple pump stations, water treatment facilities and a metering station/customer delivery point through primarily rural areas. Responsibilities include evaluation of raw water quality from each of the opened groundwater wells to determine appropriate dosage of chemicals for treatment.

Vista Ridge Vulnerability Assessment, Garney Construction, Central Texas
Project Engineer. Completed a vulnerability assessment for the system following the AWWA RAMCAP methodology for the risk assessment. The resiliency assessment was not in the scope because the scope predated the AWIA. Resiliency will be added to the assessment following a project amendment. An ERP was also completed.

Vista Ridge Regional Supply Project: Bulk Sodium Hypochlorite Chemical Feed System, Central Texas Regional Water Supply Corporation (CTRWSC), Central Texas
Process Engineer. This project consisted of a well field, and a long distance large diameter treated transmission main, multiple pump stations, water treatment facilities and a metering station/customer delivery point for the San Antonio Water System. The 45 MGD supply included a bulk sodium hypochlorite chemical feed system for the disinfection and residual maintenance of the treated water. The bulk storage tanks were placed under a protective canopy to aid in reducing the degradation of the bulk sodium hypochlorite caused by heat and sunlight. Felipe's responsibilities included the evaluation of raw water quality, blending analysis and chemical system design.

Project 130 Water Supply Project, Epcor Water, Burleson and Travis Counties, Texas
Hydraulics Engineer. The Project 130, also known as the Cross County Water Supply Corporation project consisted of a well field, and a long distance diameter treated transmission main, a water treatment facility and multiple metering station/customer delivery points for municipalities in eastern Travis County. The 18 MGD project included a bulk sodium hypochlorite chemical feed system for the disinfection and residual maintenance of the treated water. The bulk storage tanks were placed under a protective canopy to aid in reducing the degradation of the bulk sodium hypochlorite caused by heat and sunlight. Felipe's responsibilities included hydraulic and water quality analysis for the phased expansion of the water supply.

Salitrillo Wastewater Treatment Plant Owner's Representative Services, San Antonio River Authority, Texas
Project Engineer. CP&Y's responsibilities included the management and design standards for the expansion of the Salitrillo Wastewater Treatment Plant. The expansion includes new secondary clarifiers, a new combined reaeration basin, a new combined UV disinfection system, a new intermittent effluent pump station, a new flow meter Parshall flume, major equipment replacement of several pumps and mechanical aerators and the protocol and support for two pilot tests. The first pilot test consisted in a capacity evaluation of the carousel oxidation ditches. The second pilot test consisted in evaluation of high-rate clarification to treat peak in-flows. Responsibilities included the authoring of protocols for the two pilot tests.

Silver Mountain Pump Station Tank Replacement, San Antonio Water Systems, Texas
Project Engineer. CP&Y's responsibilities included evaluating alternatives for replacement of the existing ground storage tank at Silver Mountain Pump Station and recommend any other improvements necessary to maintain compliance with 30 TAC 290. Responsibilities included a hydraulic evaluation of the Silver Mountain service area. Developed costs for moving existing ground storage tanks from the Culebra Pump Station, installation of new ground storage tanks, and procurement of new pumps and controls.

Water Distribution Model and Master Plan, City of Woodway, Texas
Modeling Engineer. Responsibilities included exporting pipe alignment data from the network map in ArcGIS and build a distribution hydraulic model in WaterCAD. Calibrate the developed model and propose capital improvement projects up to the 2040 planning horizon.

Water Resource Recovery Facility Conceptual Design Study, North Texas Municipal Water District, North Texas
Modeling, Solids Process, and Cost Estimate EIT. Provided recommendations to manage future wastewater treatment requirements. The project included the conceptual design of a new 144 MGD treatment facility.

Update to the Regional Wastewater System Biosolids Master Plan, North Texas Municipal Water District, North Texas
Solids Process and Cost Estimate EIT. Provided assistance to update the biosolids master plan originally developed in 2013 to account for regional decisions made after 2013.

Update to the Village Creek WRF Process Model, City of Fort Worth, Texas
Treatment Modeling EIT. Updated the existing GPS-X wastewater treatment model to account for changes in plant operation after 2014. Determined biosolids projections using the new calibrated model.

Phosphorus Removal Alternatives, Montgomery Water Works, Montgomery, Alabama
Treatment Modeling and Cost Estimate EIT. Provided a cost estimate for upgrade of four plants to remove phosphorus and meet a limit of 1 mg/L. One plant was expected to upgrade to BNR and three to chemical P removal.

Mary's Creek Water Recycling Facility (MCWRF) Permit Application, City of Fort Worth, Texas
Solids Process and Cost Estimate EIT. Provided a conceptual level design for the solids treatment facilities of the future MCWRF. Provide a cost estimate for construction and operation.

Honors and Awards

2014 – 2015	**John and Mary Booker Endowed Graduate Fellowship**, The University of Texas at Austin, U.S.
2013 – 2014	**Earnest and Agnes Gloyna Endowed Presidential Scholarship in Environmental Engineering and Water Resources**, The University of Texas at Austin, U.S.
2013	**Sandia Research Award**, GAIN 2013 poster competition, The University of Texas at Austin, U.S.
2011-2012	**William H. Luedecke Endowed Presidential Fellowship in mechanical and Civil Engineering**, The University of Texas at Austin, U.S.
2010-2011	**UT Graduate School Fellowship**, The University of Texas at Austin, U.S.
2009-2010	**Maxine and Jack Zarrow Family Endowed Scholarship in Engineering**, The University of Texas at Austin, U.S.
2006	**Mr. President Scholarship for the Valedictorian of the Republic (Beca Señor Presidente para el Primer Bachiller de la Republica)**, Fondo Especial de los Recursos Provenientes de la Privatización de ANTEL (FANTEL), El Salvador
2005	**Valedictorian of the Republic graduating class of 2005 (Primer Bachiller de la Republica de la promoción 2005)**, Gobierno de la Republica de El Salvador en la América Central, El Salvador

Professional Association Memberships

- Water Environment Association of Texas
    - Residuals and Biosolids Committee Member
- Water Environment Federation
    - Residuals and Biosolids Community Member
- American Water Works Association

Languages

- English – Speak fluently and read/write with proficiency
- Spanish – Native Language, read/write with proficiency

U.S. CITIZEN – Eligible for work in the US