

Zhenwei Zhu

6349 N. Kenmore Ave, IES Room 317 Chicago, IL 60660

E-mail: zzhu6@luc.edu

Tel.: 773-508-2056

Loyola University Chicago • Institute of Environmental Sustainability

SUMMARY

Laboratory manager in a university playing many roles when operating a small commercial laboratory, such as analytical chemist, QA/QC officer, business manager and technical consultant, etc.

Analytical chemist having six years' experience in both higher education and agricultural testing industry, excelling at operational knowledge of analytical instrumentation like GC, ICP-MS, TOC, IC, FIA, C/N analyzer, UV-VIS equipment, possessing solid analytical laboratory skills and extensive knowledge of and experience in wastewater treatment and anaerobic digestion.

PROFESSIONAL EXPERIENCE

LOYOLA UNIVERSITY CHICAGO – Chicago, IL

February 2016 – Present

Laboratory Manager /Analytical Chemist at **Institute of Environmental Sustainability**

Started a university-based commercial laboratory, called Loyola Environmental Testing Laboratory, by leveraging university laboratory resources to offer analytical testing service.

- Analyze water, soil, compost, plant tissue samples for IES faculty, researchers, NGOs, residents, local businesses and IES community social justice projects in the Chicago area.
- Manage laboratory operations, such as chemical purchase and inventory, reagent preparation, sample analysis, waste management, etc.
- Lead laboratory Quality Assurance and Quality Control program.
- Prepare Standard Operating Procedures and perform instrument preventative maintenance and troubleshooting.
- Supervise laboratory accreditation programs in both soil (NAPT) and water (IEPA) analyses.
- Train undergraduate students for instrument operation and assist faculty research on analytical testing.
- Coordinate research projects with local businesses and apply both internal and external research grants.
- Attend local conferences and exhibitions to promote analytical testing business.

KUO TESTING LABS, INC. – Othello, WA

September 2011 – February 2016

Senior Chemist/Assistant Soil Lab Manager

Led laboratory team in processing more than 10,000 soil and plant tissue samples combined yearly in Columbia Basin area of Washington State.

- Analyzed macro and micronutrients, trace elements in soil and other soil properties following recommended chemical soil test procedure.
- Performed water, plant tissue and fertilizer sample analysis according to US EPA

Methods and Standard Method for the Examination of Water and Wastewater.

- Measured Coliform and E.Coli in drinking water.
- Processed laboratory data and finalized analysis reports.
- Executed routine and preventive instrument maintenance and troubleshooting.
- Wrote laboratory Standard Operating Procedures and trained laboratory technicians.

UNIVERSITY OF TENNESSEE – Knoxville, TN

August 2007 – August 2011

Graduate Research Assistant at Department of Civil & Environmental Engineering

Being a graduate research assistant, performed independent research, mentored undergraduate students and published research papers.

- Developed and executed independent doctoral research on coal fly ash characterization and environmental assessment for constituents in batch, column and river system via modeling.
- Executed daily operations of bench-scale anaerobic manure digester in more than three years and prepared anaerobic digester operation procedures and documented performance analysis.
- Trained and supervised five high school students in executing research projects on anaerobic co-digestion in three consecutive years.
- Coordinated and managed EPA P3 project on "An Innovative Design for Anaerobic Co-Digestion of Animal Wastes for Sustainable Development in Rural Communities".

ENVIRONMENTAL MONITORING CENTER in Anshan City, China September 2000 – June 2004

Laboratory Chemist

- Performed environmental monitoring work related to water quality in rivers and lakes.
- Produced environmental assessment reports, tabulating data and preparing charts, graphs and sketches.
- Performed laboratory work such as elemental analysis and other water quality parameters, prepared and packaged samples, recorded test results, and performed photo documentation.
- Conducted pollution surveys, collecting and analyzing air and ground water samples.
- Participated in a nationwide project study on the determination of surface water environmental capacity in Anshan City.

EDUCATION

Doctor of Philosophy (Ph.D.) in Environmental Engineering, UNIVERSITY OF TENNESSEE, KNOXVILLE, TN August 2007 – August 2011

Dissertation: “Characterization and modeling of toxic fly ash constituents in the environment”.

Other research projects: anaerobic co-digestion and biomethane production from animal waste.

Master of Science (M.S.) in Environmental Engineering, **TECHNICAL UNIVERSITY OF DENMARK, LYNGBY, DENMARK** **September 2004 – September 2006**

Thesis: “Innovative and sustainable ways to treat digested manure in a biogas plant”.

Bachelor of Science (B.S.) in Analytical Chemistry, **LIAONING UNIVERSITY, SHENYANG, LIAONING, CHINA** **September 1996- July 2000**

PUBLICATIONS

- **Zhu, Z.**, M. K. Hsueh, Q. He. (2011). "Enhancing biomethanation of municipal waste sludge with grease trap waste as a co-substrate." *Renewable Energy* 36(6): 1802-1807.
- **Zhenwei Zhu**, Xiqing Wang, Sheng Dai, Baoshan Huang and Qiang He. (2013) “Fractional Characteristics of Coal Fly Ash for Beneficial Use.” *Journal of Materials In Civil Engineering/Journal*: 63-69.
- Chen, S., **Z. Zhu**, J. Park, Z. Zhang, Q. He.(2014) “Development of Methanoculleus – Specific Real-Time Quantitative PCR Assay for Assessing Methanogen Communities in Anaerobic Digestion”. *Journal of Applied Microbiology Jun*;116(6):1474-81.
- S. Chen, E.M.Zamudio Canas, Y. Zhang, **Z. Zhu** and Q. He. (2012) “Impact of substrate overloading on archaeal populations in anaerobic digestion of animal waste”. *Journal of Applied Microbiology* 113: 1371-1379.
- Zhang, Y., E. M. Zamudio, **Z. Zhu**, et al. (2011). "Robustness of archaeal populations in anaerobic co-digestion of dairy and poultry wastes." *Bioresource Technology* 102(2): 779-785.
- Stone, J. J., S. A. Clay, **Z. Zhu**, et al. (2009). "Effect of antimicrobial compounds tylosin and chlortetracycline during batch anaerobic swine manure digestion." *Water Research* 43(18): 4740-4750.
- **Zhu, Zhenwei**. (2011). “Characterization and modeling of toxic fly ash constituents in the environment.” Doctoral Dissertation, University of Tennessee.
- **Zhu, Zhenwei**, Qiang He. (2014). “Characterization of Elemental Transport from Fly Ash: A Column Study.” *Pavement Materials, Structure and Performance*, 131-139.
- Linwei Wu, Yunfeng Yang, Si Chen, Mengxin Zhao, **Zhenwei Zhu**, Sihang Yang, Yuanyuan Qu, Qiao Ma, Zhili He, Jizhong Zhou, Qiang He. (2016) “Long-term successional dynamics of microbial association networks in anaerobic digestion processes”. *Water Research* 104, 1-10.

TECHNICAL SKILLS

- Proficient in Microsoft Word, Excel and PowerPoint and familiar with Microsoft Access.
- Expertise in analytical chemistry with proficiency in Gas Chromatography, Ion Chromatography, ICP-MS, ICP-AES/OES, C/N analyzer, TOC analyzer, Flow Injection Analyzer.

MENTORSHIPS

1. Student project – Nutrient content measurement in soils from Winthrop Garden – Lucy Anderson and Olivia Helms. Project period: January 16 to April 18, 2017.
2. Student project - Soil characterization around Loyola Lakeshore campus – Sonia Ohashi, Rosemary Stresino. Project period: January 16 to April 18, 2017.
3. Student project - Loyola Environmental Testing Laboratory Communications Plan – Gary Porter, Mariah Sampsel, Viviana Gonzalez. Project period: January 16 to May 13, 2017.
4. Student Project - Preliminary investigation of growing mushroom from Tofu byproduct (Okara) - Ellie Eccles. Project period: June 5 to August 11, 2017.
5. Student Project Automation of Water quality monitoring in Aquaponics at Loyola University Chicago EcoDome - Julio Pérez Flores, Kevin Erickson. Project period: September 19 to December 15, 2017.
6. LUROP- Nutrients leaching investigation from campus landscaping practice – Kaylene Hung. Project period: August 27, 2017 to May 10, 2018.
7. LUROP – Oyster Mushroom Cultivation in Okara Meal – Ethan Holleman. Project period: May 7 to August 25, 2018.
8. LUROP – Lead leaching rate evaluation among three different types of water supply pipe material - Madeline Demo. Project period: August 27, 2018 to May 10, 2019.

PROJECT INVOLVEMENT

1. Lead mitigation project evaluation at Orr High school collaborated with Chicago Public School District – Rob Christlieb and Michael Zanco. Chicago Public School
2. Evaluation of Lead bioremediation with sunflowers - Robert McHugh. Chicago Biofuels
3. Substrate evaluation for anaerobic digester at Plant Chicago - Alex Enarson. Bubbly Dynamics
4. Compost material evaluation for Nature’s Little Recyclers (NLR) – Dale Hubbard. Nature’s Little Recyclers
5. Anaerobic digestion for a zero waste urban campus – EPA P3 project. Project period: August 15, 2017 to August 14, 2018.

MEMBERSHIPS

1. Association of Environmental Engineering & Science Professors.