

Lucina Márcia Kuusisto, PhD, MS, LCI

## CURRICULUM VITAE

### Formal Education

#### **PhD, Earth & Environmental Sciences**

*University of Texas at Arlington*

May 2013

#### **MS, Interdisciplinary Studies, Water Resources Engineering Coursework**

*Texas Tech University, Lubbock, Texas*

#### **B.Sc., Chemical Engineering**

*Universidade Federal de Pernambuco; Recife, Brazil*

### Relevant Professional Experience

Texas A & M University-Commerce, College of Science & Engineering

8/2018-Present

#### **Assistant Professor: Intro Environmental Toxicology ENVS 312**

**Assistant Professor: Natural Disasters ENVS 103**, In-person and Online

**Assistant Professor: Water Quality ENVS 307**

#### **Assistant Professor: Environmental Remediation ENVS 497 01E**

Plan syllabus, lessons, and course schedule; Guide lectures; Plan, implement, coordinate and manage students' academic projects; Enforce established DBU Rules and Regulations; Explain concepts and application of numerical methods to solve engineering and scientific problems; Promote students' participation; Facilitate laboratory experiments and other learning activities; Prepare exams, review sheets, worksheets, and other objective learning and evaluation aids; Calculate overall grades; Report grades in computer system.

Dallas Baptist University, *Environmental Science Department*

1/2014-05/2018

**Adjunct Professor:** Chemistry of Hazardous Materials ENSC 3306; Water Quality ENSC 3301

H. Grady Spruce High School, *Career & Technical Education Department*

8/17-6/18

**High School Teacher:** "Principles of Engineering", *Project Lead the Way [PLTW]*

Cedar Hill High School, *Career & Technology Education Department*

8/15-6/16

**High School Teacher:** Engineering, Bio-Technology, Robotics

Tarrant County College (TCC), *Chemistry Department*

8/1998-2014

**Adjunct Professor:** Chemistry CHEM 1406 Lab & Lecture; Lab: I CHEM 1411; II CHEM 1412

University of Texas at Arlington (UTA), *Civil Engineering Department*

8/07-5/2008

**Lecturer:** Groundwater Hydrology CE 5348, Lecture

**Graduate Teaching Assistant:** Fluid Mechanics CE 3142, Lab

#### **Independent Inventor**

5-09/2008

**Inventor** (Self-employed, volunteered, temporary)

**Kuusisto, LM;** Duarte-Coêlho, AC; Barreto, TV. "The DCM Process".

Filed for a patent (09/24/2008), USPTO application number 61/099,608, and in Brazil, with the "Diretoria de Patentes" (DIRPA). A 'Treatment-to-useable-co-products' Engineering Process: Treatment optimization of vinasse (wastewater from distilleries of sugarcane ethanol) aiming at the production of a valuable fertilizer, while capturing the biogas, and generating methane to be used as biofuel.

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Texas Commission for Environmental Quality (former TDH)

**Environmental Engineer-in-Training (EIT), Full-time**

I worked as an EIT (Engineer-in-Training) for the former Texas Department of Health (current Texas Commission for Environmental Quality). When I worked as an EIT, I reviewed plans of construction for optimization of Public Water Systems. Furthermore, surveyed, inspected, and evaluated over 800 Water Treatment Plants and other public facilities, such as public and private schools, day-care centers, restaurants, summer camps, and on-site sewer systems, in Ellis, Johnson and Navarro Counties. Responsible for the Public Water Systems serving an estimated total of 170,000 people; Conducted hundreds of field lab experiments; Investigated numerous complaints; Inquired support workers about processes; Evaluated each step of integrated systems; Ran calculations to check plants design, production capacity and system performance; Evaluated monitoring techniques, their results and maintenance requirements; Advised cities officials on water systems operations and environmental pollution control; Assessed public facilities and their sanitation conditions; Determined and applied several environmental regulations to issues and conditions related to specific environmental programs; Appraised results of surveys and inspections; Evaluated surveyed or inspected facilities; Made recommendations as to corrections to be made for obtaining compliance with recognized environmental health standards; Prepared scientific reports presenting findings; Performed complex technical environmental protection tasks in the fields of water pollution control, hazardous waste control, storage and disposal, and related environmental concerns; Performed complex tasks related to environmental management programs and services, including enforcement of actions.

Publications, Meeting Abstracts, Scientific Presentations

- Kuusisto, Lucina Márcia;** Sattler, Melanie; Chen, Victoria. "Predicting bioenergy potential from vinasse digestion: The VUMP Model (Vinasse Utilization for Methane Production)". Biomass and Bioenergy (2018).
- Kuusisto, Lucina Márcia;** Sattler, Melanie; Rahman, Shammi; Rodrigues, Jorge; Sabnis, Madhu. "Anaerobic digestion of vinasse from ethanol production: Impact of waste composition and treatment temperature on microbial community". Applied Microbiology and Biotechnology (2018).
- Kuusisto, Lucina Márcia;** Sattler, Melanie; Rahman, Shammi; Sabnis, Madhu; Chen, Victoria. "Models for organics removal from vinasse from ethanol production". Clean Technologies & Environmental Policy (2018), 20:803-812, DOI 10.1007/s10098-018-1496-4, ISSN 1618-954X Volume 20 Number 4, [file:///C:/Users/Family/Downloads/10.1007\\_s10098-018-1496-4.pdf](file:///C:/Users/Family/Downloads/10.1007_s10098-018-1496-4.pdf)
- Kuusisto, LM;** Sattler, ML. "Development of a Mathematical Model, VUMP (Vinasse Utilization for Methane Production)". Approved Abstract, but did not attend, AWMA [Air & Waste Management] Annual Conference, California, June 2014
- Kuusisto, LM;** Sattler, ML. "Development of a Mathematical Model, VUMP (Vinasse Utilization for Methane Production)". Presented the PhD research results at the University of Texas at Arlington, March 2013
- Kuusisto, LM;** Sattler, ML. "Bio-fuel Production from Ethanol Distillery Wastewater". Presented at the ACES [Annual Celebration of Excellence by Students] competition, University of Texas at Arlington, March 2012
- Kuusisto, LM;** Duarte-Coelho, AC. "Optimization of Fertilizer Production from the Chemical and Biochemical Treatment of Vinasse". Presented during the Chemists & Chemical Engineers' scientific meeting at the Federal University of Pernambuco, Brazil, December 2008

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Research Concentration and Interests

- ❖ Invention and optimization of drinking water purification products and processes;
- ❖ Discovery and testing of novel membranes for drinking water purification;
- ❖ Innovative processes for runoff water capturing and treatment, before disposal;
- ❖ Effects of conventional water treatment on human and environmental health;
- ❖ Epidemiology and innovative mosquito control processes in ponds;
- ❖ Bioremediation and innovative water treatment processes;
- ❖ Planning and environmental sustainability;
- ❖ Optimization of methane generation from vinasse;
- ❖ Valorization of biomass, effluent, emissions, and waste;
- ❖ Energy-efficient refuse treatment;
- ❖ Mathematical modeling;
- ❖ Rainwater harvesting and water reclamation technologies

Volunteer Activities

- Supervised senior project research on comparison of water treatment alternatives by Environmental Science undergraduate student, Katherine Mark, at the Dallas Baptist University, 2014
- **Mentor:** Guided two graduate students from the University of Texas at Arlington, Shammi Rahman and Madhu Sabnis, during their engineering/scientific PhD research and calculations of different aspects of the anaerobic decomposition of sugarcane vinasse, 05/2011-12/2012
- **Mentor:** Planned and hosted '**SIM City**' Engineering Project Competition, presented during the 'Engineering Week' at UTA for a team of Junior High students, 2002
- **President** of MITA (Metroplex Interpreters & Translators Association): Planned, and hosted professional association activities and fund-raising events, 2004
- Volunteered as member of the Advisory Committee for the Construction Technology Program, Tarrant County College, Arlington, Texas, 2000-2002

**American Citizen, Community Volunteer**