

DHAN LORD B. FORTELA, Ph.D.

Instructor

Department of Chemical Engineering, College of Engineering

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APPOINTMENTS

Instructor

8/2019 – Present

Department of Chemical Engineering

College of Engineering, University of Louisiana at Lafayette, Louisiana 70504, United States

Research Scientist

8/2016 – 7/2019

The Energy Institute of Louisiana, and Department of Chemical Engineering

College of Engineering, University of Louisiana at Lafayette, Louisiana 70504, United States

Instructor

1/2011 – 7/2012

Department of Chemical Engineering

University of the Philippines at Los Banos, Laguna, Philippines

PROFESSIONAL PREPARATION

Doctor of Philosophy, Chemical Engineering

8/2013 – 8/2016

University of Louisiana at Lafayette, Lafayette, Louisiana, United States (GPA: 4.00/4.00)

Dissertation Advisor: Dr. Rafael Hernandez, Professor, UL Lafayette

MicroMasters Degree in Statistics and Data Science

8/2021 – Present

MITx (Verified-online by Massachusetts Institute of Technology), Boston, MA, United States

Anticipated Completion: Summer 2023

Bachelor of Science, Chemical Engineering

6/2005 – 4/2010

University of the Philippines, Los Baños, Laguna, Philippines (magna cum laude)

REFEREED PUBLICATIONS

1. **DLB Fortela**, A Travis, AP Mikolajczyk, W Sharp, ED Revellame, W Holmes, R Hernandez, M Zappi. Quantitating Wastewater Characteristic Parameters Using Neural Network Regression Modeling on Spectral Reflectance. *Preprints.org* 2023, 2023071405. <https://doi.org/10.20944/preprints202307.1405.v1> (Under review by Clean Technologies MDPI).
2. **DLB Fortela**, AP Mikolajczyk. Detecting Plant-Wide Oscillation Propagation Effects of Disturbances and Faults in a Chemical Process Plant Using Network Topology of Variance Decompositions. *Processes* 2023, 11, 1747. <https://doi.org/10.3390/pr11061747>

3. **DLB Fortela**, AC Fremin, W Sharp, AP Mikolajczyk, E Revellame, W Holmes, R Hernandez, M Zappi. Unsupervised Machine Learning to Detect Impending Anomalies in Testing of Fuel Economy and Emissions of Light-Duty Vehicles. *Clean Technologies*. 2023; 5(1):418-435. <https://doi.org/10.3390/cleantechnol5010021>
4. **DLB Fortela**, AM DeLattre, WW Sharp, ED Revellame, ME Zappi. Using Self-Organizing Map Algorithm to Reveal Stabilities of Parameter Sensitivity Rankings in Microbial Kinetic Models: A Case for Microalgae. *Clean Technologies*, 5 (2023), 38-50. DOI: <https://doi.org/10.3390/cleantechnol5010003>
5. D Blue, **DL Fortela**, W Holmes, S LeBoeuf, R Subramaniam, R Hernandez, ME Zappi, ED Revellame Alkali pretreatment of industrial mixed vegetable waste for fermentable sugar production. *Biomass Conversion and Biorefinery* (2021). DOI: <https://doi.org/10.1007/s13399-021-01608-5>
6. ED Revellame, R Aguda, A Chistoserdov, **DL Fortela**, RA Hernandez, ME Zappi. Microalgae cultivation for space exploration: Assessing the potential for a new generation of waste to human life-support system for long duration space travel and planetary human habitation. *Algal Research*, 55(2021): 102258. DOI: <https://doi.org/10.1016/j.algal.2021.102258>.
7. **DL Fortela**, M Crawford, A DeLattre, S Kowalski, M Lissard, A Fremin, W Sharp, E Revellame, R Hernandez, M Zappi. Using Self-Organizing Maps to Elucidate Patterns among Variables in Simulated Syngas Combustion. *Clean Technologies*, 2 (2020), 156-169. DOI: <https://doi.org/10.3390/cleantechnol2020011>.
8. Q Lian, ZU Ahmad, DD Gang, ME Zappi, **DLB Fortela**, R Hernandez. The effects of carbon disulfide driven functionalization on graphene oxide for enhanced Pb (II) adsorption: Investigation of adsorption mechanism. *Chemosphere* 248 (2020) 126078. DOI: <https://doi.org/10.1016/j.chemosphere.2020.126078>.
9. ED Revellame, **DL Fortela**, W Sharp, R Hernandez, M Zappi. Adsorption kinetic modeling using pseudo-first order and pseudo-second order rate laws: A review. *Cleaner Engineering and Technology*, 1 (2020) 100032. DOI: <https://doi.org/10.1016/j.clet.2020.100032>
10. B Shrestha, R Hernandez, **DLB Fortela**, W Sharp, A Chistoserdov, D Gang, E Revellame, W Holmes, ME Zappi. A Review of Pretreatment Methods to Enhance Solids Reduction during Anaerobic Digestion of Municipal Wastewater Sludges and the Resulting Digester Performance: Implications to Future Urban Biorefineries. *Applied Sciences*, 10 (2020) 9141. DOI: <https://doi.org/10.3390/app10249141>.
11. **DL Fortela**, W Sharp, E Revellame, W Holmes, R Hernandez, M Zappi. Lipid Accumulation Capability of Typical Non-Acclimated Activated Sludge Microbial Consortia Using Methane Gas as Secondary Carbon Source. *Engineering Reports*, 2 (2020), e12148. DOI: <https://doi.org/10.1002/eng2.12148>

12. ME Zappi, A Zappi, E Revellame, W Sharp, **DL Fortela**, R Hernandez, T Chambers, Kary Ritter, D Gang. An Assessment of the Potential to Produce Commercially Valuable Plant-based Lipids for Production of Biofuels and Other Sustainable Chemicals on Highway Right-of-Way Land Areas Located within the Southeastern United States. *Sustainability*, 12 (2020), 5225. DOI: <https://doi.org/10.3390/su12135225>.
13. **DL Fortela**, K Farmer, A Zappi, W Sharp, E Revellame, D Gang, M Zappi. A Methodology for Global Sensitivity Analysis of Activated Sludge Models: Case Study with Activated Sludge Model No. 3 (ASM3). *Water Environment Research* (2019). DOI: <https://doi.org/10.1002/wer.1127>
14. LC Go, **DLB Fortela**, E Revellame, M Zappi, W Chirdon, W Holmes, R Hernandez. Biobased Chemical and Energy Recovered from Waste Microbial Matrices. *Current Opinion in Chemical Engineering*, 26 (2019), 65-71. DOI: <https://doi.org/10.1016/j.coche.2019.08.005>.
15. ME Zappi, R Bajpai, R Hernandez, A Mikolajczyk, **DL Fortela**, W Sharp, W Chirdon, K Zappi, D Gang, KDP Nigam, ED Revellame. Microalgae Culturing To Produce Biobased Diesel Fuels: An Overview of the Basics, Challenges, and a Look toward a True Biorefinery Future. *Industrial & Engineering Chemistry Research*, 58 (2019), 15724-15746. DOI: <https://doi.org/10.1021/acs.iecr.9b01555>
16. **DL Fortela**, R Hernandez, E Revellame, W Holmes, W Sharp, M Zappi. Lipids from Wastewater-Activated Sludge Cultivated on Acetic Acid as Potential Alternatives to High-value Oils and Fats. *Journal of the American Oil Chemists' Society* (2019). DOI: <https://doi.org/10.1002/aocs.12225>
17. ME Zappi, E Revellame, **DL Fortela**, R Hernandez, D Gang, W Holmes, W Sharp, A Mikolajczyk, KDP Nigam, R Bajpai. Evaluation of the Potential to Produce Biogas and Other Energetic Coproducts Using Anaerobic Digestion of Wastewater Generated at Shrimp Processing Operations. *Industrial & Engineering Chemistry Research*, 58 (2019), 15930-15944. DOI: <https://doi.org/10.1021/acs.iecr.9b01554>.
18. ME Zappi, **DL Fortela**, W Sharp, R Bajpai, D Gang, W Holmes, R Hernandez, ED Revellame. Evaluation of the Methane Production Potential of Catfish Processing Wastewater Using Various Anaerobic Digestion Strategies. *Processes*, 7 (2019) 368. DOI: <https://doi.org/10.3390/pr7060368>
19. D Blue, **DL Fortela**, W Holmes, D LaCour, S LeBoeuf, C Stelly, R Subramaniam, R Hernandez, ME Zappi, ED Revellame. Valorization of Industrial Vegetable Waste Using Dilute HCl Pretreatment. *Processes*, 7 (2019) 853. DOI: <https://doi.org/10.3390/pr7110853>
20. **DL Fortela**, W Sharp, E Revellame, R Hernandez, D Gang, M Zappi. Computational evaluation for effects of feedstock variations on the sensitivities of biochemical mechanism parameters in anaerobic digestion kinetic models. *Biochemical Engineering Journal*, 143 (2019) 212-223. DOI: <https://doi.org/10.1016/j.bej.2019.01.001>
21. **DL Fortela**, AP Mikolajczyk, R Hernandez, E Revellame, W Holmes, M Zappi. Techno-economic Potential of Integrated Anaerobic Digestion and Aerobic Lipid Accumulation for Fuels and Materials Recovery from Wastewater Treatment Plants. *Journal of Fundamentals of Renewable Energy and Applications*, 8 (2018). DOI: 10.4172/2090-4541.1000268

22. **DL Fortela**, R Hernandez, A Chistoserdov, M Zappi, R Bajpai, D Gang, E Revellame, W Holmes. Biodiesel Profile Stabilization and Microbial Community Selection of Activated Sludge Feeding on Acetic Acid as a Carbon Source. *ACS Sustainable Chemistry & Engineering*, 4 (2016) 6427-6434. DOI: 10.1021/acssuschemeng.6b01140
23. **DL Fortela**, R Hernandez, WT French, M Zappi, E Revellame, W Holmes, A Mondala. Extent of Inhibition and Utilization of Volatile Fatty Acids as Carbon Sources for Activated Sludge Microbial Consortia Dedicated for Biodiesel Production. *Renewable Energy*, 96 (2016) 11-19. DOI:10.1016/j.renene.2016.04.068
24. **DL Fortela**, R Hernandez, M Zappi, WT French, R Bajpai, A Chistoserdov, Emmanuel Revellame, W Holmes. Microbial Lipid Accumulation Capability of Activated Sludge Feeding on Short Chain Fatty Acids as Carbon Sources through Fed-batch Cultivation. *Journal of Bioprocessing & Biotechniques*, 6 (2016) 275. DOI: 10.4172/2155-9821.1000275

BOOK/BOOK CHAPTER

1. A Mondala, R Hernandez, T French, E Revellame, **DL Fortela**, M Amirsadeghi, B Hartenbower. Bioenergy from Activated Sludge and Wastewater. In *Green Chemistry for Sustainable Biofuel Production*, Ed. VG Gude, (2017) ISBN 9781771886390, Apple Academic Press.

SUBMITTED/IN PREPARATION PUBLICATIONS

1. **DLB Fortela**. Anomaly Early Detection in Chemical Processing Plant: A Machine Learning-based Approach Using the Tennessee-Eastman Chemical Process Alarm Management Benchmark (2023), *In Preparation (for Chemical Engineering journal Elsevier)*
2. **DL Fortela**, A DeLattre, S Kowalski, W Sharp, E Revellame, R Hernandez, D Gang, R Sharp, M Zappi. A Global Sensitivity Analysis Methodology for Anaerobic Digestion Models through Functional Principal Components Projection. *Authorea Preprints* (2020), DOI: <https://doi.org/10.22541/au.158221321.19687750>.

RESEARCH GRANTS

- Principal Investigator: “Application of Convolutional Neural Networks in Disentangling Exoplanet Atmospheric Chemical Composition Spectra Measured by the James Webb Space Telescope”, 2022-2023. Funding Agency: Louisiana Space Grant Consortium (LaSPACE).
- Co-Investigator: “Enhancing the Carbon Dioxide Sequestering Capacity of Louisiana Highway Right of Way Lands”, 2021-2022. Funding Agency: Louisiana Department of Transportation and Development. LTRC Project Number: 22-3TIRE.
- Principal Investigator: “Machine Learning Analysis of Gene Transcriptions of Cancer Cells in Spaceflight Microgravity”, 2021-2022. Funding Agency: Louisiana Space Grant Consortium (LaSPACE).

- Principal Investigator: “Applying Deep Learning for Prediction of Shoreline Dynamics in Coastal Louisiana”, 2021-2022. Funding Agency: Louisiana Space Grant Consortium (LaSPACE) and Louisiana Sea Grant.
- Principal Investigator: “Making NASA’s Open-Innovation Data More Machine-Learning Friendly: A Case for the MAVEN Dataset”, 2020-2021. Funding Agency: Louisiana Space Grant Consortium (LaSPACE).
- Principal Investigator: “Investigating the Effects of Various Feeds on Reproductive Performance of Captive Breeding Alligators”, Project Period: 1 August 2020 – 31 July 2021. Sponsor: Golden Ranch Farms LLC, Louisiana, USA.
- Principal Investigator. “Integrating mathematical Models of Bioprocesses for the NASA-BIOSYS Project”, 2019-2020. Funding Agency: Louisiana Space Grant Consortium (LaSPACE).
- Co-Investigator. “Microbial Conversion of Methane-Based Gases, Such as Natural Gas and Biogas, into Commercially Valuable Lipids”, 2018-2019. Funding Agency: Louisiana Board of Regents – ITRS Subprogram.
- Co-Science Investigator. “Production of Fuels and Other Life Support Products Using Wastewaters as a Feed into a Space-Based Biochemical Conversion System (BIOSYS)”, 2018-2022. Funding Agency: LaSPACE and Louisiana NASA-EPSCoR.

PATENT APPLICATIONS

- “Biorefinery Method and System for Isolated Environments”. Application Number: 15/828,809. US Patent Office Publication No. US10947144B2. Inventors: Mark E. Zappi, Daniel Gang, Emmanuel Revellame, Andrei Chistoserdov, Rafael Hernandez, Rakesh Bajpai, Wayne Sharp, **Dhan Lord B. Fortela**.
- “Infrared-based Gas Flowmeter”. Application Number: 16/168,059. US Patent Office Publication No. US20190128717A1. Inventors: **Dhan Lord B. Fortela**, Kyle S. Farmer, Nicholas S. Marcil, Wayne W. Sharp.

CONFERENCE PROCEEDINGS AND PRESENTATIONS

(*Presenting Author)

1. LS Dizon, RS Bertrand, M Zappi, R Hernandez, W Holmes, **DL Fortela**, & E Revellame. Effects of growth conditions on the bacterial conversion of methane to lipids. In: Journal of the American Oil Chemists Society (Vol. 99, pp. 52-52, Wiley USA). October 1, 2022.
2. JA Villa, **DLB Fortela**, W Sharp, M Zappi, S Holmes, R Willis, F Torres, K Despain, S Hetler. Enhancing the Carbon Dioxide Sequestering Capacity of Louisiana Highway Right of Way Lands. In: Transportation Research Board, National Academies of Sciences, Engineering, and Medicine: FHWA/LA. 17/22-3TIRE. June 30, 2022. URL: <https://www.ltrc.lsu.edu/pdf/2022/22-3TIRE.pdf>
3. E Revellame, M Zappi, **DL Fortela**, R Hernandez, A Chistoserdov, W Sharp. Microbial Conversion of Methane-Based Gases into Commercially Valuable Lipids. In: SBFC2020 Symposium on Biomaterials, Fuels and Chemicals. SIMB. April 28, 2020.

4. **DL Fortela***, K Farmer, N Marcil, J Trahan, W Sharp, A Mikolajczyk, M Zappi. Geospatial and Economic Analysis on the Potential of Urban Food Waste for Biogas Production. *Presented at the 2019 IEEE Green Technologies Conference. Lafayette, LA, USA.* April 3-6, 2019. [Oral]
5. **DL Fortela***, M Zappi, W Sharp, E Revellame, R Hernandez. Applications of Deep Learning Algorithms in Energy Bioprocess Models. *Presented at the 2019 IEEE Green Technologies Conference. Lafayette, LA, USA.* April 3-6, 2019. [Oral]
6. **DL Fortela**, E Revellame*, W Sharp, M Zappi. Insights into the Anaerobic Digestion of Catfish and Shrimp Processing Wastewaters. *Presented at the 2018 AIChE Annual Meeting. Pittsburg, PA, USA.* October 29, 2018. [Oral]
7. **DL Fortela***, R Hernandez, M Zappi, A Chistoserdov, R Bajpai, E Revellame, W Holmes. The Dynamics of Biodiesel Profile and Fungal Diversity of Activated Sludge during Lipid Accumulation on Acetic. *Presented at the 2016 AIChE Annual Meeting. San Francisco, CA, USA.* November 14, 2016. [Oral]
8. **DL Fortela***, R Hernandez, M Zappi, WT French, E Revellame, A Mondala, W Holmes. The Case of Making Fuel Oil from Sanitary Sewage. *Presented at the 2016 AIChE Annual Meeting. San Francisco, CA, USA.* November 16, 2016. [Oral]
9. **DL Fortela***, R Hernandez, M Zappi, WT French, R Bajpai, A Chistoserdov, W Holmes. Microbial Oil Accumulation Capability of Activated Sludge Microorganisms Feeding on Short Chain Fatty Acids. *Presented at the 2015 AIChE Annual Meeting. Salt Lake City, UT, USA.* November 8-13, 2015. [Oral]
10. **DL Fortela***, A Mikolajczyk, R Hernandez, M Zappi, W Holmes. Waste to Watts: Positioning Urban-Based Organic Wastes As Valuable Feedstocks to Fuel and Chemical Production. *Presented at the 2015 AIChE Annual Meeting. Salt Lake City, UT, USA.* November 8-13, 2015. [Poster]
11. **DL Fortela***, R Hernandez, M Zappi, W Holmes, E Revellame, S Dufreche, R Subramaniam, WT French. Discrete-Continuous Simulations for Performance Evaluation of Sequential Batch Reactor System for Lipid Accumulation from Volatile Fatty Acids by Activated Sludge Microorganisms Following Seasonal Stochastic Variations. *Presented at the 2014 AIChE Annual Meeting. Atlanta, GA, USA.* November 16-21, 2014. [Poster]
12. **DL Fortela***, R Hernandez, M Zappi, W Holmes, E Revellame, S Dufreche, R Subramaniam, WT French. Refining the Concept of Integrating Anaerobic-Aerobic Microbial Systems to Produce Chemicals and Lipids for Fuels. *Presented at the 2014 AIChE Annual Meeting. Atlanta, GA, USA.* November 16-21, 2014. [Oral]
13. **DL Fortela***, R Hernandez, WT French, A Mondala, W Holmes, E Revellame, E Egede. Integration of Anaerobic Digestion of Cellulose into Lipid Accumulation by a Mixed Microbial Consortium. *Presented at the 2013 AIChE Annual Meeting. San Francisco, CA, USA.* November 3-8, 2013. [Oral]

AWARDS/HONORS

- Winner: 2016 Vertech City – An International Student Competition of Technological Innovation and Green Chemistry for the project *Sewage-to-Wattage*.

(Organization: Vertech Colloquium, Namur, Belgium)

- Winner: 2016 Science, Technology, Engineering and Mathematics (STEM) Category Graduate Poster Competition for the poster *What If We Make Fuel Oil from Our Sanitary Sewage?*
(Organization: Graduate School, University of Louisiana at Lafayette)
- Third Place: 2014 Vertech City – An International Student Competition of Technological Innovation and Green Chemistry for the project *Waste-to-Watts: Positioning Urban-based Wastes as Valuable Feedstocks for Fuels and Chemicals Production.*
(Organization: Vertech Colloquium, Quebec, Canada)
- Third Place: 2013 Louisiana Gulf Coast Oil Expo (LAGCOE) Graduate Paper Competition for the paper *Integration of Anaerobic/Aerobic Microbial System to Produce Lipids for Fuels and Specialty Chemicals.*
(Organization: LAGCOE)
- Second Place: 2010 Chemical Engineering National Licensure Examination.

TEACHING EXPERIENCE

Instructor

Department of Chemical Engineering, University of Louisiana, Lafayette, LA, USA
Fall 2019, Fall 2020, Fall 2021, Fall 2022

- CHEE 420: Chemical Reaction Engineering
- CHEE 403: Chemical Engineering Laboratory I
- CHEE 401: Stage Operations Design
- CHEE 310: Chemical Engineering Thermodynamics
- CHEE 101: Introduction to Chemical Engineering

Spring 2020, Spring 2021, Spring 2022, Spring 2023

- CHEE 620: Advanced Reactor Design
- CHEE 404: Chemical Engineering Laboratory II
- CHEE 310: Chemical Engineering Thermodynamics
- CHEE 413: Process Control in Chemical Engineering

Teaching Assistant: Process Heat Transfer

Spring 2016

Department of Chemical Engineering, University of Louisiana, Lafayette, LA, USA

- Instructor: Dr. William Chirdon
- Tutored during consultation hours and graded homework assignments.
- Delivered class lectures on selected topics.

Teaching Assistant: Chemical Reactor Design

Fall 2015 & Fall 2014

Department of Chemical Engineering, University of Louisiana, Lafayette, LA, USA

- Instructor: Dr. Rafael Hernandez
- Graded tests and homework assignments.

Teaching Assistant: Chemical Engineering Thermodynamics

Spring 2015

Department of Chemical Engineering, University of Louisiana, Lafayette, LA, USA

- Instructor: Dr. Rakesh Bajpai
- Graded tests and homework assignments.

Teaching Assistant: Mass Transfer

Spring 2014

Department of Chemical Engineering, University of Louisiana, Lafayette, LA, USA

- Instructor: Dr. Stephen Dufreche
- Graded homework assignments.

Instructor: Department of Chemical Engineering,

University of the Philippines, Los Baños, Laguna, Philippines

2011 – 2012

- Developed syllabi and overall course structures and administered all grades.
- Courses Taught and Student Evaluation:

**Grading System: 1.00 & 1.25 – Excellent, 1.50 & 1.75 – Very Good,
2.00 & 2.25 – Good, 2.50 & 2.75 – Satisfactory, 3.00 – Pass, 4.00
– Conditional, 5.00 – Failure**

Second Semester 2010 – 2011

ChE 147 (Chemical Engineering Fluid Dynamics) – 1 Section

Overall Student Evaluation: 1.46

ChE 152 (Separation Processes) – 1 Section

Overall Student Evaluation: 1.38

ChE 156 (Unit Operations Laboratory II) – 2 Sections

Overall Student Evaluation: 1.36

First Semester 2011 – 2012

ChE 145 (Chemical Reaction Engineering) – 3 Sections

Overall Student Evaluation: 1.25

ChE 156 (Unit Operations Laboratory II) – 1 Section

Overall Student Evaluation: 1.46

Second Semester 2011 – 2012

ChE 172 (Biochemical Engineering) – 2 Sections

Overall Student Evaluation: 1.32

ChE 156 (Unit Operations Laboratory II) – 2 Sections

Overall Student Evaluation: 1.22

First Semester 2012 – 2013

ChE 156 (Unit Operations Laboratory II)* – 3 Sections

Overall Student Evaluation: 1.22

**June 2012 – July 2012*

Chemical Engineering Board Licensure Exam Reviewer

2011 – 2012

Philippine Institute of Chemical Engineers (PChE) – Laguna Chapter

- Developed board exam review materials for chemical reaction engineering, distillation, liquid-liquid extraction, gas-stripping, solids handling, and physical chemistry.
- Formulated questions and solutions for review sessions and for pre-board (simulated) examinations.

STUDENT MENTORING

- Department of Chemical Engineering, University of Louisiana, Lafayette, LA, USA

Undergraduate Student Mentoring

Miranda Carnes: Machine Learning with Python

Kevin Toups: GIS, Machine Learning with Python

Ashton Fremin: Analytical Techniques (Liquid Chromatography, Wastewater Analyses),
Bioreactor Setup & Runs, Gas Instrumentation, Machine Learning

Alyssa DeLattre: Analytical Techniques (Liquid Chromatography, Wastewater Analyses),
Bioreactor Setup & Runs, Gas Instrumentation, Computational Modelling

Kyle Farmer: Analytical Techniques (Liquid Chromatography, Wastewater Analyses),
Bioreactor Setup & Runs, Gas Instrumentation, GIS

Nicholas Marcil: Analytical Techniques (Liquid Chromatography, Wastewater Analyses),
Bioreactor Setup & Runs, Gas Instrumentation, GIS

Terrence Hicks: Analytical Techniques (Liquid Chromatography, Wastewater Analyses),
Bioreactor Setup & Runs

Bimi Shrestha: Analytical Techniques (Liquid Chromatography, Wastewater Analyses),
Bioreactor Setup & Runs, Catalyst Preparation, Corrosion Testing, Presentation
Techniques

Liew Go: Analytical Techniques (Liquid Chromatography, Wastewater Analyses), Corrosion
Testing

Arafat Noor: Analytical Techniques (Liquid Chromatography, Wastewater Analyses)

Graduate Student Mentoring

Gopi Chand Tripuraneni (MS Student): Analytical Techniques (Solvent Extraction, Wastewater
Analyses), Bioreactor Setup & Runs, Experimental Designs, Data Analyses

- Dave C. Swalm School of Chemical Engineering, Mississippi State, MS, USA

Undergraduate Student Mentoring

Efreme Egede: Solvent Extraction, Analytical Procedures

- Department of Chemical Engineering, University of the Philippines, Los Baños, Laguna, Philippines

Undergraduate Curriculum Mentoring**Undergraduate Thesis (as Major Advisor)**

- *Felix Rey C. Bueta* [Completed: April 2012] Design, fabrication and preliminary testing of a pilot-scale continuous dye adsorption column for color reduction of a simulated textile wastewater using granular activated carbon adsorbent from coconut shell.
- *Jonathan David M. Maligalig* [Completed: April 2012] Solidification and stabilization of waste copper slags from sandblasting procedures.

SERVICE

- Chapter Advisor 2022-Present: Tau Beta Pi, The Engineering Honor Society, Louisiana Delta Chapter, University of Louisiana at Lafayette.
- Department of Chemical Engineering, University of the Philippines, Los Baños
Member: Curriculum Committee

Member of Undergraduate Thesis Committees:

Biofuels Production:

- Jenefer S. Bernat [Completed: April 2012] Bioethanol production of sweet sorghum syrup in flask and bioreactor fermentations using high-ethanol producing BIOTECH yeast strains.
- Christian M. Gupit [Completed: April 2012] Application of repeated batch fermentation process with cell recycle for the molasses-based ethanol fermentation of a promising local BIOTECH yeast strain.
- Luis Felipe D. Lopez [Completed: April 2012] Optimization of steam explosion parameters in the pretreatment of sweet sorghum bagasse for bioethanol production.
- Clarice Meryl M. Ocampo [April 2012] Ethanol fermentation of cassava starch hydrolyzates using BIOTECH yeast strains in flask and bioreactor systems.

Bioprocessing:

- Mark Lester R. Ocampo [Completed: April 2012] Production of single-cell protein (SCP) from yeast *Candida sp.* grown in cassava starch hydrolyzates.

Wastewater Treatment:

- Christian Anne U. Enciso [Completed: May 2012] Application of coagulation-flocculation treatment on a local meat processing wastewater using tahong (*Perna viridis*) shells.
- Arvin L. Valderrama [Completed: April 2011] Combined sonolytic and TiO₂-based photocatalytic treatment of reactive Red 120 azo dye in simulated wastewater: An evaluation of decolorization performance and synergy.

- Civic Outreach: '*Ugnayan ng Pahinungod*' – *The Volunteer Service Program of the University of the Philippines*

Faculty Volunteer: 2011-2012 (2 semesters)

- Supervision and facilitation of field immersion classes of undergraduate students conducting literacy service and civic welfare service (2 Sections)
- Faculty-in-charge for training classes of undergraduate students taking preparatory modules for field immersions on literacy service and civic welfare service
- Preparation and implementation of college entrance exam review modules for underprivileged high school senior students

Student Volunteer: 2009-2010 (4 semesters)

- Student assistant facilitator for training classes of undergraduate students taking preparatory modules for field immersions on literacy service and civic welfare service (4 Sections)
- Facilitation of team building activities for undergraduate student organizations
- Implementation of literacy training modules for underprivileged primary school students

OTHER SYNERGISTIC ACTIVITIES

- Journal Reviewer:
 - Water Environment Research
 - Water Research journal

- Chemical Engineering & Processing – Process Intensification journal
 - Advances in Robotics and Automation journal
 - Journal of Remote Sensing and GIS
 - Journal of Bioprocessing and Biotechniques
 - Journal of Civil and Environmental Engineering
 - Mathematical and Computer Modelling of Dynamical Systems
 - Plants MPDI Journal
 - Fermentation MPDI Journal
 - Sustainability MPDI Journal
 - Environmental Science and Pollution Research (ESPR), Springer
- Topical Advisory Board Member (2021-Present): Clean Technologies MDPI journal (ISSN: 2571-8797)
- Professional Memberships: American Institute of Chemical Engineers (AIChE), American Oil Chemists' Society (AOCS), Philippine Institute of Chemical Engineers (PIChE)