Whitney Webre, Ph.D.

Email | Website | Linkedin | Researchgate

EDUCATION

University of North Texas (Denton, TX)

Ph.D., Analytical Chemistry GPA 3.92/4.00 Aug. 2014 – Aug. 2019

PI: Dr. Francis D'Souza

Dissertation: Spectral, Electrochemical, Electron Transfer, and Photoelectrochemical Studies of Tetrapyrrole Derived Supramolecular Systems

Spring Hill College (Mobile, AL)

B.S. Biochemistry Aug. 2009 – Dec. 2013

TEACHING EXPERIENCE

Lecturer, Laboratory Coordinator, Academic Advisor, REU Co-Coordinator Aug. 2019 - Present

Texas State University, Department of Chemistry and Biochemistry (San Marcos, TX)

- Advises chemistry and biochemistry majors and minors working towards their bachelor's degree on their degree plans and plans post-graduation.
- Coordinates the REU program in the chemistry and biochemistry department at Texas State University.
- Co-wrote the NSF-funded CheMIE REU grant that was approved for $350k (Proposal ID: 2150510).
- Manages housing, travel, scheduling, professional development, presentations, etc.
- Coordinates and Runs General Chemistry 2, Engineering Chemistry, and Quantitative Analysis Laboratories
- Established, taught, and monitored students' compliance with safety rules for handling chemicals, equipment, and other hazardous materials.
- Oversees and manages up to 30 teaching assistants per semester through weekly meetings and training. Ensures consistency between all labs to maintain student fairness and expectations.
- Developed new engineering chemistry curriculum and wrote new laboratory manual.

Adjunct Faculty Instructor Aug. 2021 - Present

St. Edward's University, Department of Chemistry (Austin, TX)

- Developed curriculum and training plans for a flipped classroom in general chemistry 1.
- Developed and delivered lectures in accordance with course objectives; prepared course syllabus and aligned learning objectives with course materials.
- Instructed and trained students in general chemistry 1 and 2 laboratory techniques and safety.
- Evaluated and graded student coursework, assignments, and laboratory notebooks per school policy; provided effective feedback to students.

Teaching Assistant Aug. 2014 –Aug. 2019

Department of Chemistry, University of North Texas (Denton, TX)

- Taught weekly labs for General, Organic, and Quantitative Analysis Chemistry
- Prepped weekly labs for General Chemistry and Quantitative Analysis
- General Chemistry Lecturer when professor was absent
- Taught weekly recitations for General Chemistry
- Tutored students for General, Organic, Inorganic, Quantitative Analysis and Physical Chemistry

RESEARCH AND INDUSTRY EXPERIENCE

Graduate Research Assistant Aug. 2014 –Aug. 2019

Department of Chemistry, University of North Texas (Denton, TX)

- Published 23 peer-reviewed articles in leading scientific journals related to advances in analytical instrumentation, methodology development, and chemical analysis.
- Utilized advanced techniques such as spectroscopy and electrochemistry to analyze and characterize chemical properties of collaborator samples.
- Developed the Standard Operating Procedure (SOP) for Dye-Sensitized Solar Cell (DSSC) fabrication and analysis
- Selected, ordered, and maintained materials and supplies for research, such as chemicals and laboratory equipment
- Mentored undergraduate and graduate students through the completion of their thesis work.
- Evaluated and graded students' class work, laboratory performance, assignments, and laboratory notebooks
- Prepared and delivered lectures to undergraduate students on general and analytical chemistry

NSF East Asian Pacific Summer Institutes Fellowship (EAPSI) June 2016 – Sept. 2016

National Institute for Materials Science, Supermolecules Group (Tsukuba, Japan)

- Wrote a NSF grant proposal for research conducted
- Worked under collaborators: Dr. Jonathan Hill and Dr. Karshuhiko Ariga
- Analyzed porphyrin dimers using UV-Vis and Circular Dichroism (CD) Spectrophotometry
- Took Japanese language and cultural immersion course during fellowship

Laboratory Analyst Feb. 2014 - Aug. 2014

Dow Chemical, STO Operations, Ethoxylates Park (Hahnville, LA)

- Followed EPA and OSHA mandates to ensure laboratory safety and safe disposal of hazardous waste
- Evaluated surfactants and polyethylene glycols created by the Ethoxylates Park Plant against FDA standards for moisture determination, pH, HPLC, GC, and other wet chemical assays
- Operated, maintained, and calibrated analytical equipment daily for quality control within FDA standards
- Analyzed special product samples for flush validation and stability studies
- Used LIMS to track and manage samples to boost efficiency and transparency
- Maintained 100% error-free documentation through utilizing FDA standard documentation system
- Performed internal audits of laboratory, including technical and quality systems audits
- Communicated regularly with the operators and production management team to keep them informed of chemical testing and quality results
- Assisted sample management office with labeling of samples, paperwork, and correct storage

Research Experience for Undergrads (REU) Internship May 2011 – Aug. 2011

Department of Engineering and Chemistry, Tulane University (New Orleans, LA)

- Assisted Dr. Bhanu Sunkara in analyzing remediation methods of chlorinated hydrocarbons in ground water using aerosol and high pressure techniques to create zero-valent iron infused nanocarbons
- PIs: Dr. Vijay John and Dr. Gary McPherson

SYNERGISTIC ACTIVITIES

Delta Gamma, Texas State University (San Marcos, TX)
Panhellenic Advisor Aug. 2020 – 2023

- Advised the VP: Panhellenic when questions arise
- Attended Zeta Eta chapter meetings and panhellenic meetings

Partners in Science Outreach Program, Spring Hill College (Mobile, AL)
Volunteer Aug. 2011 – May 2013

- Conducted chemistry and physics experiment monthly with 8th grade students at inner city public schools
- Evaluated the needs and strengths of individual students to improve teaching approaches between monthly visits

Spring Hill College, Foley Center (Mobile, AL)
Volunteer Program Tutor Aug. 2009 – May 2013

- Tutored under-privileged youth in various school subjects
- James T. Strickland Youth Center, Carmel Health Institute, Taylor Park After School Care Facility

PUBLICATIONS

1) Siddhartha Kumar, **Whitney A. Webre**, Jacob Schaffner, Sheikh M. Islam, Francis D'Souza, and Hong Wang. "A2 and A2B2 Benzoporphyrins as sensitizers for dye-sensitized solar cells." *Porphyrin Science by Women*, 2021, 1077 – 1088.

2) Mandeep K. Chahal, Nadiia Velychkivska, **Whitney A. Webre**, Jan Labuta, Shinsuke Ishihara, Katsuhiko Ariga, Francis D'Souza, and Jonathan P. Hill. "Increasing the complexity of oxoporphyrinogen colorimetric sensing chromophores: N-alkylation and β-substitution." *Porphyrin Science by Women*, 2021, 1031 – 1041.

3) Siddhartha Kumar, **Whitney A. Webre**, Courtney Stewart, Francis D'Souza, and Hong Wang. "A Synthetic Approach to β-Functionalized Naptho[2,3]porphyrins." *Org. Lett.*, 2020, **22**, 18, 7078- 7082.

4) Yi Hu, Michael B. Thomas, **Whitney A Webre**, Austen Moss, R. G. Warunda Jinadasa, Vladimir N. Nesterov, Francis D'Souza, and Hong Wang. "Nickel (II) Bisporphyrin-Fused Pentacenes Exhibiting Abnormal High Stability." *Angew. Chem. Int. Ed.*, 2020, **59**, 20075.

1. Mandeep K. Chahal, Habtom B. Gobeze, **Whitney A. Webre**, Paul A. Karr, Daniel T. Payne, Katsuhiko Ariga, Francis D'Souza, and Jonathan P. Hill. "Electron and energy transfer in a porphyrin-oxoporphyrinogen-fullerene triad, ZnP-OxP-C_{60}." *Phys. Chem. Chem. Phys.*, 2020, **22**, 14356-14363.

5) Daniel T. Payne, **Whitney A. Webre**, Habtom B. Gobeze, Sairaman Seetharaman, Yoshitaka Matushita, Paul A. Karr, Mandeep K. Chahal, Jan Labuta, Wipakorn Jevasuwan, Naoki Fukata, John S. Fossey, Katsuhiko Ariga, Francis D'Souza, and Johnathan P. Hill. "Nanomolecular singlet oxygen photosensitizers based on hemiquinonoid-resorcinarenes, the fuchsonarenes." *Chem. Sci.*, 2020, **10**,

2614-2620.

6) Sriparna Chatterjee, **Whitney A. Webre**, Shyamapada Patra, Bibhudutta Rout, Gary A. Glass, Francis D'Souza, and Shyamal Chatterjee. "Achievement of superior efficiency of TiO_2 nanorod-nanoparticle composite photoanode in dye sensitized solar cell." *J. Alloys Compd.*, 2020, **826**, 154188.

7) Daniel T. Payne, Mandeep K. Chahal, Vaclav Brezina, **Whitney A. Webre**, Katsuhiko Ariga, Francis D'Souza, Jan Labuta, and Jonathan P. Hill. "Diporphyrin Tweezer for Multichannel Spectroscopic Analysis of Enantiomeric Excess." *Frontiers of Chemical Science and Engineering*, 2020, **14**, 28-40.

8) Gary J. Richards, Ael Cador, Shinji Yamada, Anna Middleton, **Whitney A. Webre**, Jan Labuta, Paul A. Karr, Katsuhiko Ariga, Francis D'Souza, Samia Kahlal, Halet Jean-Francois, and Jonathan P. Hill. "Amphiprotism-Coupled Near-Infrared Emission in Extended Pyrazinacenes Containing Seven Linearly Fused Pyrazine Units." *J. Am. Chem. Soc.*, 2019, **141**, 50, 19570-19574.

9) Mandeep K. Chahal, Nadiia Velychkivska, **Whitney A. Webre**, Jan Labuta, Shinsuke Ishihara, Katsuhiko Ariga, Francis D'Souza, and Jonathan P. Hill. "Increasing the complexity of oxoporphyrinogen colorimetric sensing chromophores: N-alkylation and βsubstitution." *J. Porphyr. Phthalocyanines,* 2019, **23**, 1184-1194.

10) Mandeep K. Chahal, Jan Labuta, Vaclav Brezina, Paul A. Karr, Yoshitaka Matsushita, **Whitney A. Webre**, Daniel T. Payne, Katsuhio Ariga, Francis D'Souza, and Jonathan P. Hill. "Knock-on Synthesis of Triopic Calix[4]pyrrile Host for Enhanced Anion Interactions." *Dalton Transactions,* 2019, **48**, 15583-15596.

11) Yi Hu, **Whitney A. Webre**, Michael B. Thomas, Austen Moss, Sarah N. Hancock, Jacob Schaffner, Francis D'Souza and Hong Wang. "β-Functionalized push–pull opp-dibenzoporphyrins as sensitizers for dye-sensitized solar cells: the role of the phenylethynyl bridge." *Journal of Materials Chemistry A*, 2019, **7**, 10712-10722.

12) Daniel T. Payne, **Whitney A. Webre**, Yoshitaka Matsushita, Nianyong, Zhu, Zdenek Futera, Jan Labuta, Wipakorn Jevasuwan, Naoki Fukata, John S. Fossey, Francis D'Souza, Katsuhiko Ariga, Wolfgang Schmitt, and Jonathan P. Hill. "Multimodal Switching of a Redox Active Macrocycle." *Nature Communications*, 2019, **10**, 1007.

13) Siddhartha Kumar, **Whitney A. Webre**, Jacob Schaffner, Sheikh M. S. Islam, Francis D'Souza and Hong Wang. "A2 and A2B2 Benzoporphyrins as Sensitizers for Dye-Sensitized Solar Cells." *J. Porphyr. Phthalocyanines,* 2019, **23**, 599.

14) Pavel Svec, **Whitney A. Webre**, Gary J. Richards, David Miklik, Jan Labuta, Paul A. Karr, Katshujiko Ariga, Francis D'Souza, and Jonathan P. Hill. "Phenanthroline-Fused Pyrazinacenes: One-Pot Synthesis, Tautomerization and a Ru(II)(2,2'-bpy)2 Derivative". *Eur. J. Inorg. Chem.* 2018, **22**, 2541.

15) **Whitney A. Webre,** Habtom B. Gobeze, Shuai Shao, Paul A. Karr, Katsuhiko Ariga, Jonathan P. Hill, and Francis D'Souza. "Fluoride-ion-binding promoted photoinduced charge separation in a self-assembled C_{60} alkyl cation bound bis-crown ether-oxoporphyrinogen supramolecule." *Chem.*

Commun., 2018, **54**, 1351.

16) T. H. Ngo, J. Labuta, G. N. Lim, **W.A. Webre**, F. D'Souza, P. A Karr, J. E. M. Lewis, J.P Hill, K. Ariga, and S. M. Goldup. "Porphyrinoid rotaxanes: building a mechanical picket fence." *Chem. Sci.,* 2017, **8**, 6679.

17) Shivaraj Yellappa, **Whitney A. Webre**, Habtom B. Gobeze, Anna Middleton, Chandra B. KC, and Francis D'Souza. "Phenothiazine sensitized solar cells: Effect of number of cyanocinnamic acid anchoring groups on DSSC performance." *ChemPlusChem.*, 2017, **82**, 896-903.

18) **Whitney A. Webre**, Jonathan P. Hill, Yoshitaka Matsushita, Paul A. Karr, Katsuhiko Ariga, and Francus D'Souza. "Anion Binding, Electrochemistry and Solvatochromism of β-Brominated Oxoporphyrinogens." *Dalton Trans.,* 2016, **45**, 4006.

19) Thien H. Ngo, David Zieba, **Whitney A. Webre**, Gary N. Lim, Paul A. Karr, Scheghajegh Kord, Shangbin Jin, Katsuhiko Ariga, Marzia Galli, Steve Goldup, Jonathan P. Hill, and Francis D'Souza. "Engaging Copper(III) Corrole as an Electron Acceptor: Photoinduced Charge Separation in Zinc Porphyrin-Copper Corrole Donor-Acceptor Conjugates". *Chem. Eur. J.* 2016, **22**, 1301.

20) Patrick J. Commins, Jonathan P. Hill, Yoshitaka Matsushita, **Whitney A. Webre**, Francis D'Souza, Jan Labuta, and Katsuhiko Ariga. "Selective Octabromination of Tetraphenylporphyrins based on *Meso*-Substituent Identity: Structural and Electrochemical Studies". *J. Porphyr. Phthalocyanines,* 2016, **20**, 213.

21) Gary N Lim, **Whitney A. Webre,** and Francis D'Souza. "Charge separation in supramolecular ferrocene(s)-zinc-porphyrin-fullerene triads: A femtosecond transient absorption study." *J. Porphyr. Phthalocyanines,* 2015, **19**, 270.

AWARDS

- **Teaching**
- **3rd Place Talk**, ACS DFW Meeting in Miniature — April 2019
- **Women Chemists Committee/Eli Lilly Travel Award**, American Chemical Society — Dec. 2018
- **Chemistry Centennial Celebration Student Endowment**, University of North Texas — May 2018
- **First Place Seminar** at Graduate Student Seminar Day, University of North Texas — April 2017
- **NSF EAPSI Grant**, National Science Foundation — June 2016
- **CAS Graduate Student Support Grant**, University of North Texas — May 2016

CERTIFICATES

Google Data Analytics Certificate

UNT Responsible Conduct of Research

UNT Conflict of Interest Course for Public Health Service/NIH Funding IACUC

Chairs, Members and Coordinators: Lab Animal Research

CITI Health Information Privacy and Security (HIPS) for Students and

Instructors