# Jonathan D. Caranto

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## Education

**2013** Ph.D., Chemistry, University of Texas at San Antonio, San Antonio, TX
Dissertation: The nitric oxide reductase mechanism of flavo-diiron proteins (Advisor: Prof. Donald Kurtz)

**2003** B.S., Chemistry, Illinois Institute of Technology, Chicago, IL

**2003** B.S., Molecular Biochemistry and Biophysics, Illinois Institute of Technology, Chicago, IL

## Appointments

**2018–present** Assistant professor, Dept. of Chemistry, University of Central Florida, Orlando, FL

**2013–2017** Postdoctoral research associate, Dept. of Chemistry and Chemical Biology, Cornell University, Ithaca, NY (Advisor: Prof. Kyle Lancaster)

## Research Interests

- Mechanistic metalloenzymology of nitric oxide oxidations.
- Mechanistic metalloenzymology of biosynthesis and decomposition of nitrogenous functional groups in bacterial natural products.
- Protein engineering for use in synthetic and bioremediation applications.
- Physiological role of reactive nitrogen species.
- Biosynthesis and physiological roles of bacterial natural products.

## Awards and Fellowships

**2022** UCF Champion of Undergraduate Research Faculty Award
**2022** UCF Department of Chemistry Service Award (awarded for installing holistic Ph.D admissions process )
**2020** UCF nominee for ORAU Ralph E. Powe Award
**2019** NIH Early Career Reviewer Program (Study section: Macromolecular Structure and Function A)
**2019** UCF nominee for ORAU Ralph E. Powe Award
**2015** NextProf Science workshop at University of Michigan (Biophysics)

## Peer-reviewed journal articles

### *Independent Career (Corresponding authors in bold)*

*25.* Bryant, J.T,; Logan, M.W.; Chen, X.; Djokic, M.; Cairnie, D.R.; Vazquez-Molina, D.A.; Nijamudheen, A.; Langlois, K.R.; Markley, M.J.; Pombar, G.; Holland, A.A.; Caranto, J.D.; Harper, J.K; **Morris, A.J.**; **Mendoza-Cortes, J.L.**; **Jurca, T.**; **Chapman, K.**; **Uribe-Romo, F.J.** Synergistic Steric and Electronic Effects on the Photoredox Catalysis by a Multivariate Library of Titania Metal–Organic Frameworks. *J. Am. Chem. Soc.* **2023,** *ASAP.*

*24.* Nix, C.A.; Nottolini, I.; Caranto, J.D.; Gerasimova, Y.; Kolpashchikov, D.; **Saitta, E.K.H.** Championing the Involvement of Practitioners in the Biochemistry Educational Research Process: A Phenomenological View of the Early Stages of Collaborative Action Research. *Int. J. High. Educ.* **2022,** *11,* 114–139.

*23.* Strickland, K.A.; Holland, A.A.; Trudeau, A.; Szlamkowicz, I.; Beazley, M.J.; Anagnostopoulos, V.A.; Graham, D.A.; **Caranto. J.D.** Reduction of a Heme Cofactor Initiates N-Nitroglycine Degradation by NnlA. *Appl. Environ. Microbiol.* **2022,** *88,* e0102322.
- Spotlight selection in *Appl. Environ. Microbiol.* **2022,** *Vol. 88.,* Issue 16.

*22.* Ma, Z; Holland, A.A.; Szlamkowicz, I.; Anagnostopoulos, V.A.; Caldas Nogueira, M.L.; **Caranto, J.D.**; **Davidson, V.L.** The hemerythrin-like diiron protein from *Mycobacterium kansasii* is a nitric oxide peroxidase. *J. Biol. Chem.* **2022,** *298*, 101696.

*21.* Martin, C.P.; Chen, M.; Martinez, M.F.; **Ding, Y.**; **Caranto, J.D.** The ferric-superoxo intermediate of the TxtE nitration pathway resists reduction, facilitating its reaction with nitric oxide. *Biochemistry* **2021,** *60,* 2436–2446.

*20.* **Caranto, J.D.** The emergence of nitric oxide in the biosynthesis of bacterial natural products, *Curr. Opin. Chem. Biol.* **2019**, *49*, 130–138.

*Pre-Independent Career (Co-first authors underlined)*

*19.* Transue, W.J.; Snyder, R.A.; Caranto, J.D.; Kurtz, Jr., D.M.; Solomon, E.I. Particle Swarm Fitting of Spin Hamiltonians: Magnetic Circular Dichroism of Reduced and NO-Bound Flavodiiron Protein *Inorg. Chem.* **2022,** *61*, 16520–16527

*18.* Dong, M.; Kathiresan, V.; Fenwich, M.K.; Torelli, A.T.; Zhang, Y.; Caranto, J.D.; Dzikovski, B.; Lancaster, K.M.; Freed, J.H.; Ealick, S.E.; Hoffmann, B.M.; Lin, H. Organometallic and radical intermediates reveal the reaction mechanism for the diphthamide biosynthetic radical SAM enzyme, *Science* **2018**, *359*, 1247-1250.

*17.* Lancaster, K.M.; Caranto, J.D.; Majer, S.H.; Smith, M.A. Alternative bioenergy: Updates to and challenges in nitrification metalloenzymology, *Joule* **2018**, *2*, 421-441.

*16.* Vilbert, A.C.; Caranto, J.D.; Lancaster, K.M. The lysine cross-link to heme P460 obviates NO-dependent histidine-dissociation from *Nitrosomonas europaea* cytochrome P460 $\{FeNO\}^7$, *Chem. Sci.* **2018**, *9*, 368-379.

15. Weitz, A.C; Giri, N.; Caranto, J.D.; Kurtz, D.M., Jr.; Bominaar, E.L.; Hendrich, M.P. Spectroscopy and DFT calculations of a flavo-diiron enzyme implicate new diiron site structures, *J. Am. Chem. Soc.* **2017**, *139,* 12009–12019.

14. Caranto, J.D.; Lancaster, K.M. Nitric oxide is an obligate bacterial nitrification intermediate produced by hydroxylamine oxidoreductase, *Proc. Natl. Acad. Sci. U.S.A.* **2017**, *114*, 8217–8222.
**Research highlighted:**
- Chemical and Engineering News – Kemsley, J. Nitric oxide gets a new role. *Chem Eng. News* **2017** 95 (34), 10.
- Albany Times Union
- The American Agriculturist
- The Cornell Chronicle

13. Caranto, J.D.; Vilbert, A.C.; Lancaster, K.M. *Nitrosomonas europaea* cytochrome P460 is a direct link between nitrification and nitrous oxide emission, *Proc. Natl. Acad. Sci. U.S.A.* **2016**, *113*, 14704–14709.
    **Research highlighted:**
    - PNAS commentary – White, C.J.; Lehnert, N. *Proc. Natl. Acad. Sci. U.S.A.* **2016**, *113*, 14474–14476.
    - The Cornell Chronicle
12. Frederick, R.E.; Caranto, J.D.; Masitas, C.A.; Gebhardt, L.L.; MacGowan, C.E.; Limberger, R.J.; Kurtz, D.M., Jr. Dioxygen and nitric oxide scavenging by *Treponema denticola* flavo-diiron protein: A mechanistic paradigm for catalysis, *J. Biol. Inorg. Chem.* **2015**, *20*, 603–613.
11. Caranto, J.D.; Weitz, A.; Giri, N.; Hendrich, M.P.; Kurtz, D.M., Jr. A diferrous-dinitrosyl intermediate in the $N_2O$-generating pathway of a deflavinated flavo-diiron protein, *Biochemistry* **2014**, *53*, 5631–5637.
10. Caranto, J.D.; Weitz, A.; Hendrich, M.P.; Kurtz, D.M., Jr. The nitric oxide reductase mechanism of flavo-diiron protein: Identification of active-site intermediates and products, *J. Am. Chem. Soc.* **2014**, *136*, 7981–7992.
9. Meininger, D.J.; Caranto, J.D.; Arman, H.D.; Tonzetich, Z.J. Studies of Iron(III) Porphyrinates Containing Silanethiolate Ligands, *Inorg. Chem.* **2013**, *52*, 12468–12476.
8. Kurtz, D.M., Jr.; Boice, E.; Caranto, J.D.; Frederick, R.E.; Masitas, C.A.; Miner, K.D. Iron: Non-heme protein with diiron-carboxylate active sites. In *Encyclopedia of Inorganic and Bioinorganic Chemistry*, Scott, R.A., Ed.; Wiley: New York, 2013.
7. Fang, H.; Caranto, J.D.; Mendoza, R.; Taylor A.B.; Hart, P.J.; Kurtz, D.M., Jr. Histidine ligand variants of a flavo-diiron protein: effects on structure and activities, *J. Biol. Inorg. Chem.* **2012**, *17*, 1231–1239.
    - Selected as cover art for JBIC 2013 issues.
6. Caranto, J.D.; Gebhardt, L.L.; MacGowan, C.E.; Limberger, R.J.; Kurtz, D.M., Jr. *Treponema denticola* superoxide reductase: In vivo role, in vitro reactivities and a novel [Fe(Cys)$_4$] site, *Biochemistry* **2012**, *51*, 5601–5610.
5. Hayashi, T.; Caranto, J.D.; Matsumara, H.; Kurtz, D.M., Jr.; Moënne-Loccoz, P. Vibrational analysis of mononitrosyl complexes in hemerythrin and flavodiiron proteins: relevance to detoxifying NO reductase, *J. Am. Chem. Soc.* **2012**, *134*, 6878–6884.
4. Felhofer, J.L.; Caranto J.D.; Garcia C.D. Adsorption kinetics of catalase to thin-films of carbon nanotubes, *Langmuir* **2010**, *26,* 17178–17183.
3. Hayashi, T.; Caranto, J.D.; Wampler, D.A.; Kurtz, D.M., Jr.; Moënne-Loccoz, P. Insights into the nitric oxide reductase mechanism of flavo-diiron proteins from flavin-free enzyme, *Biochemistry* **2010**, *49*, 7040–7049.
2. Hillmann, F.; Riebe O.; Fischer R.; Mot A.; Caranto J.D.; Kurtz D.M., Jr.; Bahl, H. Reductive dioxygen scavenging by flavo-diiron proteins of *Clostridium acetobutylicum*, *FEBS Lett.* **2009**, *583*, 241–245.
1. Leone, A.K.; Chun, J.A.; Koehler, C.L.; Caranto, J.D.; King, J.K. Effect of proinflammatory cytokines tumor necrosis factor-α and interferon-γ on epithelial barrier function and matrix metalloproteinase-9 in Madin-Darby canine kidney cells, *Cell. Physiol. Biochem.* **2007**, *19*, 99–112.

## Oral Presentations

### *Invited presentations*

20. Caranto, J.D., Novel nitrogen chemistries in nitric oxide (NO) detoxification, biosynthesis, and biodegradation University of Texas at San Antonio, 30 to R1 Celebration, Apr. 4, 2023.
19. Caranto, J.D., My academic journey with nitric oxide and metalloenzymes. St. Edward's University, Nov. 4, 2022.
18. Caranto, J.D., Metalloenzyme-catalyzed oxidations of nitric oxide in biosynthesis and nitrosative stress protection. University of Georgia, Apr. 25, 2022.

17. Caranto, J.D., Metalloenzyme-catalyzed oxidations of nitric oxide in biosynthesis and nitrosative stress protection. Wake Forest University, Apr. 6, 2022.

16. Caranto, J.D., Christopher Martin, Manyun Chen, Maria Martinez, Zhongxin Ma, Victor L. Davidson, and Yousong Ding, Towards understanding why the TxtE $\{FeO_2\}^8$ intermediate resists reduction. Southeastern ACS Regional Meeting, Birmingham, AL, Nov. 10–13 2021.

15. Caranto, J.D. The enzymatic rise and fall of the nitramine N-nitroglycine. 2021 International Chemical Congress of Pacific Basin Societies, Honolulu, HI, Dec. 2021. (Cancelled due to Covid)

14. Caranto, J.D. The CYP homolog TxtE resists reduction of the $\{FeO_2\}^8$ intermediate, promoting efficient Trp nitration. ACS National Spring Meeting, San Antonio, TX Apr. 5–16, 2021. (2020 Fresenius Symposium; Virtual)

13. Caranto, J.D. A first look at the NO-dependent nitration mechanism of the CYP homolog TxtE. Joint Southwest/Southeastern ACS Regional Meeting, New Orleans, LA, Oct. 14–17, 2020. (Cancelled due to Covid)

12. Caranto, J.D. Towards elucidating N–N bond formation for N-nitroglycine biosynthesis. 94$^{th}$ Florida Annual Meeting and Exposition, Tampa, FL, May 9–11, 2019.

11. Caranto, J.D. Biological N–N bond formation: From the nitrogen cycle to microbial natural products. Southeastern University, Jan. 28, 2019.

10. Caranto, J.D. Biological N–N bond formation: From the nitrogen cycle to microbial natural products. University of Central Florida Department of Physics, Dec. 12, 2018.

9. Caranto, J.D. Biological N–N bond formation: From the nitrogen cycle to microbial natural products. University of Central Florida Burnett School of Biomedical Sciences, Sep. 14, 2018.

8. Caranto, J.D. Biological N–N bond formation: From the nitrogen cycle to microbial natural products. 94$^{th}$ ACS Florida Annual Meeting and Exposition, Tampa, FL, May 3–5, 2018.

7. Caranto, J.D.; Vilbert, A.C; Lancaster, K.M. Revision by enzymology of bacterial ammonia oxidation. 255$^{th}$ ACS National Meeting, New Orleans, LA Mar. 18–22, 2018.

6. Caranto, J.D.; Lancaster, K.M. Revision of metalloenzyme activities reveals potential agricultural sources of atmospheric pollutants. Invited talk at Chemistry and Chemical Biology Grad and Postdoc Seminar, Ithaca, NY, Feb 24, 2017.

5. Caranto, J.D.; Lancaster, K.M. Rapid-mixing techniques for elucidating reaction mechanisms. Invited talk at Advanced Spectroscopy and Theoretical Modeling of Bioinorganic Systems Workshop and Seminar, Copenhagen, Denmark, Jun 16–19, 2014.

### *Contributed presentations*

4. Caranto, J.D.; Lancaster, K.M. Revision of hydroxylamine oxidoreductase activities and bacterial ammonia oxidation pathways. Contributed talk at 254$^{th}$ ACS National Meeting, Washington D.C., Aug. 20-24, 2017. **Presentation highlighted in Chemical and Engineering News:** Kemsley, J. Nitric oxide gets a new role. *Chem Eng. News* **2017**, 95 (34), 10.

3. Caranto, J.D.; Hayashi, T.; Hirotoshi, M.; Moenne-Loccoz, P.; Kurtz, D.M., Jr. Characterization of the nitric oxide reductase mechanism of flavo-diiron proteins. 2$^{nd}$ Penn State Bioinorganic Workshop, State College, PA, May 31–Jun 9, 2012.

2. Caranto, J.D.; Hayashi, T.; Gupta, R.; Hendrich, M.; Moenne-Loccoz, P.; Kurtz, D.M., Jr. Characterization of the nitric oxide reductase mechanism of flavo-diiron proteins. 67th American Chemical Society Southwest Regional Meeting, Austin, TX, Nov 9–12, 2011.
1. Kurtz D.M., Jr.; Caranto, J.D.; Hayashi, T.; Moenne-Loccoz, P. Probing the mechanism of a non-heme diiron nitric oxide reductase. 66th American Chemical Society Southwest Regional Meeting, New Orleans, LA, Nov 30–Dec 4, 2010.

**Poster Presentations**

15. Caranto, J.D. Metalloenzyme-catalyzed oxidations of nitric oxide in biosynthesis and nitrosative stress protection. Metals in Biology GRC. Ventura, PA, Jan 22–Jun 27, 2023.
14. Caranto, J.D. Nitric oxide (NO), nitrite, and metalloenzymes in microbial natural product (NP) biosynthesis. Metals in Biology GRC. Ventura, PA, Jan 21–Jun 26, 2018.
13. Caranto, J.D. Nitric oxide (NO), nitrite, and metalloenzymes in microbial natural product (NP) biosynthesis. 2nd Penn State Bioinorganic Workshop, State College, PA, Jan 6–8, 2018.
12. Smith, M; Caranto, J.D.; Lancaster, K.M. Recombinant expression, mutagenesis, and spectroscopic characterization of archaeal ammonia monooxygenase. 252nd ACS National Meeting and Exposition, Philadelphia, PA, Aug 21–26, 2016.
11. Caranto, J.D.; Smith M.A.; Vilbert A.; Lancaster, K.M. Taming reactive nitrogen: Towards the enzyme mechanisms of biological nitrification. Georgian Bay International Conference on Bioinorganic Chemistry, Parry Sound, Ontario, Canada, May 19–22, 2015.
10. Caranto, J.D.; Smith M.A.; Vilbert A.; Lancaster, K.M. Preliminary characterization of the putative active subunit of an archaeal ammonia monooxygenase. Advanced Spectroscopy and Theoretical Modeling of Bioinorganic Systems Workshop and Seminar, Copenhagen, Denmark, Jun 16–19, 2014.
9. Caranto, J.D.; Smith M.A.; Vilbert A.; Lancaster, K.M. Preliminary characterization of the putative active subunit of an archaeal ammonia monooxygenase. 33rd Summer Symposium in Molecular Biology: Frontiers in Metallobiochemistry, University Park, PA, Jun 5–7, 2014.
8. Caranto, J.D.; Gupta, R.; Hayashi T.; Wampler D.A.; Moenne-Loccoz P.; Hendrich, M.P.; Kurtz D.M., Jr. Characterization of the nitric oxide reductase mechanism of flavo-diiron proteins. College of Science Research Conference/SACNAS Regional Conference, San Antonio, TX, Oct 5, 2012.
7. Caranto, J.D.; Hayashi T.; Wampler D.A.; Moenne-Loccoz P.; Kurtz D.M., Jr. Poster: Characterization of the nitric oxide reductase mechanism of flavo-diiron proteins. College of Science Research Conference/SACNAS Regional Conference, San Antonio, TX, Sep 30, 2011.
6. Caranto, J.D.; Hayashi T.; Wampler D.A.; Moenne-Loccoz P.; Kurtz D.M., Jr. Characterization of the nitric oxide reductase mechanism of flavo-diiron proteins. 15th International Conference for Bioinorganic Chemistry, Vancouver, Canada, Aug 7–12, 2011.
5. Caranto, J.D.; Hayashi T.; Wampler D.A.; Moenne-Loccoz P.; Kurtz D.M., Jr. Nitric oxide derived intermediates of *Thermotoga maritima* flavo-diiron protein. 29th Summer Symposium in Molecular Biology: Frontiers in Metallobiochemistry, University Park, PA, Jun 1–5, 2010.

4. Caranto, J.D.; Hayashi T.; Wampler D.A.; Moenne-Loccoz P.; Kurtz D.M., Jr. Nitric oxide derived intermediates of *Thermotoga maritima* flavo-diiron protein. College of Science Research Conference/SACNAS Regional Conference, San Antonio, TX, May 28, 2010.
3. Caranto, J.D.; Wampler D.A.; Kurtz D.M., Jr. Journey to the center of a protein: Removal of flavin from flavo-diiron protein to study nitric oxide-diiron adduct formation. College of Science Research Conference/SACNAS Regional Conference, San Antonio, TX, Aug 7, 2009.
2. Caranto, J.D.; Ramirez, G.; Wampler, D.A.; Hayashi, T.; Moenne-Loccoz, P.; Kurtz D.M., Jr. Flavo-diiron Proteins: $O_2$ or NO reductases? Gordon Graduate Research Seminar: Bioinorganic Chemistry, Valencia, CA, Jan 29–Feb 1, 2009.
1. Huang, V.W.; Caranto, J.D.; Kurtz, D.M., Jr. Kinetic investigation of the mechanism of superoxide reductase from *Desulfovibrio vulgaris*. American Chemical Society Southwestern Regional Meeting, Houston, TX, 2006.

**Grants and Contracts Awarded**

*Active*

1. Funding Agency: Department of Defense, Army Research Office
Role: PI
Co-PI/Co-I: None
Project Title: Mechanism of $O_2$-dependent nitramine degradation by a heme enzyme
Award Period: 07/31/2020 – 07/31/2024 (One-year NCE granted to 2024)
Award Amount: $585,369

*2.* Funding Agency: National Institutes of Health
Role: PI
Co-PI/Co-I: None
Project Title: Mechanisms of novel biological nitrogen chemistries
Award Period: 08/01/2022 – 07/31/2027
Award Amount: $1,823,190

*Completed*

3. Funding Agency: University of Central Florida Strategic Investment Program -Jump Start Fund
Role: Co-PI
Co-PI/Co-I: Andres Campiglia, Cherie Yestrebsky, Denisia Popolan-Vaida, Titel Jurca, Vasileios Anagnostopoulos, Melanie Beazley, Gang Chen, Karin Chumbimuni-Torres, Xiaohu Xia, Michael Hampton, Dmitry Kolpashchikov, Kangsang Lee.
Project Title: Liquid Chromatography Triple Quadrupole Mass Spectrometry (LC/MS-MS) Instrumentation Acquisition
Award Period: 11/01/2021 – 11/01/2022
Award Amount: $300,000

4. Funding Agency: Department of Defense, Army Research Office
Role: PI
Co-PI/Co-I: None
Project Title: Army Research Office (ARO) Undergraduate Research Apprenticeship Program (URAP): Activities of homologs of NnlA, a nitramine degradation protein

Award Period: 05/01/2022 – 08/31/2022
Award Amount: $9000

## Teaching and Mentoring

*Postdoctoral mentee (1)*

*Active*

**2023-present** Arun Kumar, PhD

*Completed (current known placement in parentheses)*

**2021-2023** Ashley Holland, PhD (Zoetis, Lincoln, NE).

*Graduate mentees (7)*

*Active*

**2018–present** Chris Martin (Chemistry; Ph.D. candidate)
**2018–present** Gabriel Padilla (Chemistry; Ph.D. candidate)
**2019-present** Kara Strickland (Chemistry; Ph.D. candidate)
**2022-present** Sarah Jennings (Chemistry)
**2022-present** Krystal Baez (Chemistry)

*Graduated (current known placement in parentheses)*

**2018–2022** Regina Strelecki (M.S. Chemistry)
**2019–2020** Charles St. James (*Graduated:* M.S. Biomedical Sciences; Client Engagement Manager at Center for Breakthrough Medicines, Ormond Beach, FL)

*Undergraduate mentees (23)*

*Active*

**2023-present** Gabriel Oliveira (Chemistry; Expected graduation in 2025)
**2023-present** Michael Fabrizio (Biomedical Sciences; Expected graduation in 2023)
**2023–present** Julie Dada (A.S. Biotechnology at Valencia College; Expected graduation in 2023)
**2019–present** Miranda Cassidy (Chemistry; Expected graduation in 2023)
**2021–present** Shelby Wagner (Chemistry; Expected graduation in 2023)
**2022–present** Brenda Martinez Rodriguez (Chemistry; Expected graduation in 2023)
**2022–present** Michelle Luna-Alva (Chemistry; Expected graduation in 2023)

*Graduated (current known placement in parentheses)*

**2018** Mueez Amoo (B.S. Biomedical Sciences, and B.A. History; U. South Florida M.S. Microbiology program)
**2018–2019** Ali Younis (B.S. Chemistry; U. California-Irvine Chemistry Ph.D program)
**2018–2019** Kara Strickland (B.S. Chemistry; U. Central Florida Chemistry Ph.D program)
**2018–2019** Julissa Burgos (B.S. Biomedical Sciences; Vanderbilt U. Microbiology Ph.D program)
**2018–2019** Dylan Thibaut (B.S. Biomedical Sciences and B.A. Education; Lake Erie College of Osteopathic Medicine)
**2018–2019** Charles St. James (*Graduated:* M.S. Biomedical Sciences; Client Engagement Manager at Center for Breakthrough Medicines, Ormond Beach, FL)
**2018–2020** Maria Martinez (B.S. Chemistry; Louisiana State U. Chemistry Ph.D program)
**2018–2021** Alan Trudeau (B.S. Chemistry; U. Colorado Biochemistry Ph.D program)
**2018–2021** Rahiim Lake (B.S. Chemistry; U. Rochester Biochemistry Ph.D Program)

**2019–2020** Jordan Ledgister (B.S. Biomedical Sciences; Lab Technician at Green Scientific Labs)
**2019–2020** Nicole Boyd (B.S. Chemistry; Lab Technician at ENCO laboratories)
**2020** Casey Dejournett (B.S. Chemistry; Forensic Biologist at U.S. Army Criminal Investigation Lab)
**2020–2022** Lannika Johnson (B.S. Chemistry; Gap year to prepare for medical school)
**2020–2022** Dominique Sims (B.S. Chemistry; Yale University Molecular Medicine, Pharmacology, and Physiology Ph.D Program)
**2021** Higor Silverio (B.S. Biology)
**2021–2022** Betsy Hinojosa (B.S. Chemistry)

### *Honors in the major mentees*

**2018–2019** Dylan Thibaut (Biomedical Sciences and Education): "Application and Comparison of Active Learning Implementation Methods in Biochemistry Education".

### *Honors Undergraduate Thesis mentees*

**2020–2022** Lannika Johnson (Chemistry; Expected graduation in 2022): "Investigation of Catalysis of Nitration by Cytochrome P450s".

### *Classes taught*

**Biochemistry I (BCH4053):** Fall 2018, Spring 2019, Fall 2020, Spring 2022, Fall 2022, Spring 2023
**Biochemistry I Honors (BCH4053H):** Fall 2019, Fall 2022
**Bioinorganic Chemistry (CHM4932 and CHM5937):** Spring 2021

## Service and Outreach

### *Professional service*

**2018–present** Refereed manuscripts for *Nat. Chem. Biol.*, *J. Am. Chem. Soc.*, *Chem. Sci.*, *Chem. Commun.*, *RSC Adv.*, *J. Phys. Chem.*, *Biochemistry, J. Inorg. Biochem.*, *Dalton Trans.*, *Biochimie*, *Biomolecules, and Chemosphere*, and *Bioprocess. Biosyst. Eng.*

**2021** Judge for #BlackInChem poster competition

**2021** Presider of symposium titled "Small molecule activation at biological or bio-inspired metal centers" at SERMACS 2021.

**2021** Organizer of 2020 ACS Fresenius Award Symposium in honor of Kyle Lancaster to held at the ACS National Spring Meeting in San Antonio, TX. (Virtual)

**2020** Co-organizer with Zach Tonzetich of symposium in honor of Donald Kurtz Retirement at the joint Southwest/Southeastern Regional ACS Meeting, in New Orleans, LA. (Cancelled due to Covid)

**2019** Session chair and organizer for "Recent Advances in Bioinorganic Chemistry" symposium at the 71st Southeastern Regional Meeting of the American Chemical Society (SERMACS) in Savannah, GA.

**2019** Served as reviewer on NIH Study section: Macromolecular Structure and Function A)

**2018** Session Chair in the symposium titled, "Nitrogen un-fixation: Mechanisms & Models of Nitrification/ Denitrification Reactions," at the 255th American Chemical Society National Meeting and Exposition in New Orleans, LA in March of 2018.

## *University and department service*

University Committees

**2020-2022** University Research Committee

Chemistry Department Committees

**2022** Lecturer search committee
**2021-present** Co-chair graduation admissions committee
**2018-present** Graduate admissions committee
**2020-present** Diversity, Equity, and Inclusion Committee

Dissertation Committees

*Active*
**2019-present** Lauren Bonefont (Biomedical sciences; Prof. Kyle Rohde)
**2019-present** Greg Miller (Chemistry; Prof. Andre Gesquiere)
**2020-present** Nick Young (Chemistry; Prof. Melanie Beazley)
**2021-present** Brittany Mueller (Chemistry; Prof. Dmitry Kolpashchikov)
**2021-present** Ilana Szlamkowicz (Chemistry; Prof. Vasileios Anagnostopoulos)
**2021-present** Haley Davenport (Biomedical Sciences; Prof. Kyle Rohde)
**2022-present** Kaitlyn Bonilla (Chemistry; Prof. Matthieu Baudelet)
**2022-present** Andrea Bardales (Chemistry; Prof. Dmitry Kolpashchikov)
**2022-present** Zach Murphy (Chemistry; Prof. Vasileios Anagnostopoulos)

*Complete*

**2021-2023** Diana Ordonez (CECE; Prof. Ni-bin Chang)
**2020-2022** Martin O'Steen (Chemistry; Prof. Dmitry Kolpashchikov)
**2020-2022** Tatiana Molden (Chemistry; Prof. Dmitry Kolpashchikov)
**2019-2022** Luz Kelley (Chemistry; Prof. Matthieu Baudelet)
**2019-2022** Ryan Connelly (Chemistry; Prof. Yulia Gerasimova)
**2019-2021** Nameer Ezzat (Chemistry; Prof. Yu Yuan)
**2018-2020** Eduardo Romero (Chemistry; Prof. Eloy Hernandez)

Honors Undergraduate Thesis Committee

**2023** Nidhi Patel
**2023** Pedro Madalozzo
**2022** Natali Barakat
**2021** Lannika Johnson (Committee Chair)
**2021** Stephanie Oliveira
**2019-2020** Rohit Karnati
**2018–2019** Dylan Thibaut (Committee Chair)

Other University Service

**2018–present** Faculty in Residence, UCF McNair Scholars Program.
**2022** Judge UCF Student Scholar Symposium

Other Chemistry Department Service

**2018–present** Reviewed ten (10) undergraduate research reports
**2021** Presented research for the UCF Graduate Program Virtual Open House
**2021** Reviewed applications for department awards.
**2020** Led department conversation on removing GRE as an admissions criterion.
**2020** Co-authored Department anti-racism statement with 6 other Chemistry faculty
**2018** Graduate student recruitment at 254$^{th}$ ACS National Meeting, Washington D.C., Aug. 20-24, 2017.
**2018** Presented poster to Industry Advisory Board.
**2018** Served on two (2) undergraduate seminar committees.
**2018** Hosted Prof. Jane Nkhenenyane (Central University of Technology, FS, South Africa) for lab tour.

### *Outreach*

**2022** Valencia UCF Lab Tours coordinated with Dr. Melonie Sexton (Valencia College)
**2020** Invited and participated in discussion panel on pursuing an academic career for students in MBRS-RISE program at UT-San Antonio
**2020** Judge for 2019 US Crystal Growing Competition held at UCF.
**2018** Presentation to the UCF student ACS chapter on career path and past and future research.
**2018** Presentation to Seminole State student for completion of research class.