

David Laws III, Ph.D.

Education

Coastal Carolina University, Conway, S.C.

B.S. Biochemistry 2018

GPA: 3.942

Emory University, Atlanta, GA

Ph.D. Chemistry 2023

GPA: 3.640

Teaching Experience

Emory University

Graduate Student Instructor – CHEM 157 (Fall 2022)

- I assisted Dr. Antonio Braithwaite in developing a more intensive General Chemistry course aimed at improving incoming first year undergraduate outcomes among students identified by admissions to be at risk. I prepared exams, led study sessions, and led class lectures and discussions as a part of my role.

Course Development/Co-Instructor – BPART (Fall 2021 – Spring 2022)

- As a part of “The Bilateral Path of Academic Research and Teaching” Course I completed a semester of course development, covering both teaching methods, course design and course webpage design. I then implemented these techniques alongside senior graduate student colleagues (as joint instructors of record) to teach a SIRE 299R class geared at preparing undergraduate first-years for academic research.

Graduate Student Instructor – CHEM 202: Principles of Reactivity (Spring 2020)

- As a GSI I assisted the Instructor of Record in teaching a semi-introductory chemistry class consisting of general and organic chemistry concepts in an active learning environment. When the class moved to online due to COVID-19 I offered significantly more office hours. I also assisted in limited capacity in assessment design.

Graduate Student Instructor – CHEM 204L: Macromolecules Lab (Spring 2019)

Graduate Student Instructor – CHEM 203L: Advanced Reactivity Lab (Fall 2018)

- As a GSI I instructed students in proper laboratory techniques. I utilized my years of laboratory experience to help students troubleshoot reaction set-up and analysis. I also helped cement the theory learned in the classroom and translate that into carrying out reactions and analyzing results.

Coastal Carolina University

Undergraduate Learning Assistant – CHEM 112: General Chemistry II (Spring 2018)

- I assisted the Instructor of Record in teaching general chemistry in an active learning environment. My weekly duties were to engage students in problem-solving, clarify concepts taught in class, and occasionally teach a concept to the class.

Undergraduate Learning Assistant – CHEM 111L: General Chemistry I Lab (Fall 2017, Spring 2016)

CHEM 112L: General Chemistry II Lab (Fall 2017)

- I assisted the Instructor of Record in guiding students through the weekly labs. This involved helping students set-up their lab, answering questions, and prompting students to think critically about what they were doing.

Research

2023– 2024, Emory University, Department of Chemistry

Development of Fluorinated FdUMP derivatives (Summer 2023 – Summer 2024)

- Utilized selective fluorinations to improve the PK of FdUMP therapeutics.

Development of THC and CBD Prodrugs (Fall 2023 – Summer 2024)

- Developed prodrugs of CBD and THC to overcome significant metabolism and distribution barriers.

2019 – 2023, Emory University, Department of Chemistry

Diversification of Rh (III) Indenyl Catalysts (Spring 2019 – Spring 2020)

- Developed new methods for the synthesis of Rh complexes with planar chirality.
- Explored electronic effects on the utility of Rh (III) catalysts in the context of C-H functionalization.

Progress Towards the Total Synthesis of Darobactin A (Summer 2020 – Spring 2023)

- Developed a route towards the total synthesis of darobactin A, a RiPP with novel anti-bacterial properties.
- Troubleshooting difficult RiPP side-chain cross coupling reactions.

2016 – 2018, Coastal Carolina University, Department of Chemistry

Synthesis of Phidianidine Analogs containing 1,2,3-triazoles (Summer 2016 – Summer 2017)

- Developed novel synthesis of the natural product phidianidine analogs containing 1,2,3-triazoles under the supervision of Dr. Bryan Wakefield.

Progress towards Phidianidine analogs (Fall 2017 – Spring 2018)

- Synthesized analogs of phidianidine containing a biaryl linker region to observe antioxidant properties under the supervision of Dr. Bryan Wakefield.

Publications

Gross, P.; Im, H.; Laws III, D.; Park, B.; Baik, M-H.; Blakey, S. “Enantioselective Aziridination of Unactivated Terminal Alkenes Using a Planar Chiral Rh(III) Indenyl Catalyst” *Journal of the American Chemical Society* **2024**, 146, 2, 1447 – 1454. <https://doi.org/10.1021/jacs.3c10637>

Laws III, D.; Poff, C.D.; Heyboer, E.M.; Blakey, S.B. “Synthesis, Stereochemical Assignment, and Enantioselective Catalytic Activity of Late Transition Metal Planar Chiral Complexes” *Chemical Society Review* **2023**, 52, 6003 – 6030.

Laws III, D.; Plouch, E.; Blakey, S.B. “Synthesis of Ribosomally Synthesized and Post-translationally Modified Peptides Containing C-C crosslinks” *Journal of Natural Products*. **2022**, 85, 10, 2519 – 2539. <https://doi.org/10.1021/acs.jnatprod.2c00508>.

Laws III, D.; King, D; Wakefield, B.H.; “Progress toward phidianidine analogues containing a 1,2,3-triazole ring” *Journal of the South Carolina Academy of Science*. **2017**, 15, 3.

Poster Presentations

Laws, D., King, D., Schroeder, I., Rohal, K., Williams, D., Wakefield, B. “Synthesis and Biological Evaluation of Phidianidine Analogues as Neuroprotective Agents” *National Meeting for the American Chemical Society*. New Orleans, LA. March 21, **2018**.

Laws, D., King, D., Wakefield, B. “Progress towards Phidianidine Analogs.” *Southeastern Regional Meeting for the American Chemical Society*. Charlotte, NC. November 8, **2017**.

Laws, D., Wakefield, B. “Synthesis of Phidianidine analogs containing 1,2,3-triazoles.” *South Carolina Academy of Science*. March 25, **2017**.

Laws, D., Wakefield, B. “Synthesis of Phidianidine analogs containing 1,2,3-triazoles.” *Southeastern Regional Meeting for the American Chemical Society*. Columbia, SC. October 25, **2016**.

Laws, D., Wakefield, B. “Synthesis of Phidianidine analogs containing 1,2,3-triazoles.” *CCU-INBRE Summer Research Poster Presentation*, Coastal Carolina University, Conway, SC. August 27, **2016**.

Honors and Awards

- *Quayle Teacher Scholar Award (2021 – 2022)*
 - Awarded to one scholar that exhibited a dedication to research, teaching and mentorship in the Emory Department of Chemistry or the University more broadly.
- *George W. Woodruff Fellowship (2018 – 2023)*
 - Awarded to 5% of the Laney Graduate School incoming class based on previous academic excellence and potential for intellectual leadership.
- *Centennial Scholar Fellowship (2018 – 2023)*
 - Awarded to incoming students that display significant academic achievement and contribute to the diverse Laney Graduate School student body.
- *Magna Cum Laude (CCU, 2018)*
 - Awarded for maintaining a 3.75 – 3.99 GPA over the entirety of the undergraduate degree.
- *CCU Outstanding Student Achievement Award in Biochemistry (2018)*
 - Awarded in 2018 for outstanding performance throughout an undergraduate career among graduating biochemistry majors.

- *Most Outstanding Poster Presentation in Chemistry/Biochemistry (2017)*
 - Awarded by the South Carolina Academy of Science at the 2017 annual meeting for the most outstanding poster presentation in the field of Chemistry and Biochemistry.
- *Most Outstanding Male Presenter (2017)*
 - Awarded by the South Carolina Academy of Science at the 2017 annual meeting for the most outstanding presentation.
- *Coastal Carolina University College of Science Research Fellow (2016 – 2018)*
 - Awarded to research focused students in the College of Science
- *CCU Chemistry Department Research Student of the Year (2017)*
 - Awarded in 2017 for outstanding research contributions.
- *SC Palmetto Fellows (2014 – 2018)*
 - Merit based award given to SC freshman students with high academic achievement and maintain a GPA of 3.0.
- *President's Scholar Award (2014 – 2018)*
 - Merit based award given to Coastal Carolina University students for maintaining a minimum GPA of 3.75.

Employment

2023 – Present, Post-Doctoral Fellow

Emory University, Department of Chemistry

2018 – 2023, Graduate Student

Emory University, Department of Chemistry

2015 – 2018, Learning Assistant

Coastal Carolina University, Department of Chemistry

- I assisted professors during general chemistry labs and lectures to ensure students understood the material and lab techniques, and I graded student work.

2015 – 2018, Laboratory Assistant

Coastal Carolina University, Department of Chemistry

- I assisted the Laboratory Manager in the preparation, setup and cleanup of general chemistry, organic chemistry, and physical chemistry labs.
- I prepared solutions, helped trouble shoot laboratory experiments and maintained safety equipment.

Services

June – July 2019, HealthPREP Shadowing

- Under-represented minority high school students shadowed me throughout lab over six weeks to get a better understanding of what graduate research entails.

May – June 2019, Volunteer Chemistry Tutor (Emory)

NOBCCChE

- Assisted a fellow graduate student in tutoring a summer general chemistry course over the summer semester.

March 2019, Chemistry Carnival

NOBCCChE

- Explained the importance of PPE via a PPE relay race to an audience of elementary students.

November 2018, Science Night at Marietta High School

NOBCCChE

- Performed demos and explained acid/base chemistry and reactivity to an audience of high school students.

August 2016 – 2018, Volunteer Chemistry Tutor

Coastal Carolina University, Department of Chemistry

- Worked 2 – 4 hours a week tutoring students in general chemistry and organic chemistry.

Memberships

NOBCCChE Emory Chapter

- Inaugural Member (2018 – 2023)
- Treasurer (2019 – 2021)

Coastal Carolina University Chemistry and Biochemistry Club

- Member (2014 – 2018)
- Vice President (2015 – 2016)
- President (2017 – 2018)

American Chemical Society Member (2016 – Current)