Theodore L. Jefferson **Curriculum Vitae**

CONTACT INFORMATION

Phone: +1-832-471-9610 Austin, TX 78705
E-mail: tjefferson@utexas.edu
Website: teddyjefferson.com

RESEARCH INTERESTS

Synthetic organic chemistry and pharmaceutical chemistry: the synthesis and discovery of pharmaceutical compounds. The design of drugs, and the design of organic syntheses and mechanisms that would yield them. Maximizing synthesis yield and efficiency through physical organic qualities. Broadly interested in the applications of organic chemistry in pharmacy and medicine.

PUBLICATIONS

Copper-Catalyzed Three-Component 1,5-Carboamination of Vinylcyclopropanes
Popov, A. G.; Viviani, V. R. E.*; Skumial, P.;* ***Jefferson, T. L.****; Hull, K. L.* (Third Author)
Manuscript Submitted.

Rhodium-Catalyzed Tandem Reaction for the Synthesis of α,β-Disubstituted Amides and Esters
Jefferson, T. L.*; Nguyen, T.*; Hull, K. L.* (First Author)
Manuscript in Preparation.

PROJECTS

Synthesis and Physical Organic Evaluation of Rivastigmine Derivatives as Dual Enzyme Inhibitors
Drafted for the NSF Graduate Research Fellowship Program (GRFP)
Detailed information can be found here.

Assessing the Purity of Over-the-Counter Benadryl Over Time Using HPLC Analysis
Report to be released soon.

PRESENTATIONS

Poster Presentation, Women in Catalysis and Synthetic Chemistry Symposium Nov 2023
Popov, A. G.; Jefferson, T. L.**

RESEARCH POSITION

Undergraduate Researcher, The Hull Group, UT Austin Sept 2022 to present

Collaborated with Andrei Popov, PhD Candidate under the guidance of Dr. Kami Hull, PhD to determine the nucleophilic scope of a 1,5-carboamination reaction of vinylcyclopropanes, and to assist in developing a tandem reaction of diallyl ethers to yield α,β-disubstituted amides and esters.

- Mastered essential experimental techniques such as extraction, distillation, and solvent recrystallization, as well as column, thin layer (TLC), and flash chromatography.
- Prepared metallic catalysts, gained substantial practice with Schlenk technique, screening and synthesis setups within a glove box, and learned standard safety procedure.
- Practiced characterization techniques learned previously in a graduate-level Organic Spectroscopy course. (^{1}H-NMR, ^{13}C-NMR, UV/Vis, GCMS, Mass Spectrometry)
- *Detailed information on laboratory skills can be found in the Skills section.*

EDUCATION AND CERTIFICATIONS

University of Texas at Austin, Austin, TX Aug 2020 to Dec 2023

B.S. Candidate, Chemistry: Synthesis and Chemical Biology GPA: 3.6/4.0

- Graduate Coursework:
  Advanced Organic Chemistry (Synthesis), Physical Organic Chemistry, Organic Spectroscopy, Advanced Organic Chemistry (Supramolecular)
- Relevant Undergraduate Coursework:
  Organic Chemistry I*, II*, Inorganic Chemistry*, Physical Chemistry*, Quantum Chemistry and Spectroscopy, Analytical Chemistry*, Advanced Analytical Chemistry*, Biochemistry, Cell Biology, Genetics, Engineering Physics I*, II*, Calculus I - III, Differential Equations.
  ** Course included an independent lab component.*
- Active member of the American Chemical Society, the Divisions of Organic and Medicinal Chemistry, and the Longhorn Pre-Pharmacy Association.

Pharmacy Technician Certifications, Austin, TX

Certified and Registered Pharmacy Technician

- Passed the Pharmacy Technician Certification Exam (PTCE) to become a Certified Pharmacy Technician. (CPhT) Certification #30188808
- Certified with the Texas State Board of Pharmacy to become a Registered Pharmacy Technician. (Ph. T.R.) Registration #336050

Sterile Compounding and Aseptic Technique Certified

- Completed 40 hours of work in an ACPE accredited Sterile Compounding course at Austin Community College to become IV certified. NABP ePID #1666702.
- 4.0 CEUs of coursework was comprised of 20 hours of didactic education, and 20 hours of experiential training in a sterilized setting.
- 100% compliance with USP Chapter 797 was demonstrated in order to earn certification.

Academic Appointments

Organic Chemistry Lab Teaching Assistant, UT CH 220C — Jan 2023 to May 2023

Under the guidance of Dr. Conrad Fjetland, PhD, independently instructed, managed, and graded a group of UT Austin Organic Chemistry Laboratory students.

- Taught and guided students through fourteen organic laboratory experiments through the Spring 2023 semester.
- Graded laboratory reports and provided feedback on how to perform and report experiments in an improved manner. Office hours were held, as well.

Organic Chemistry I Learning Assistant, UT CH 320M — Aug 2022 to Dec 2022

Worked with Dr. Andrei Straumanis, PhD to instruct a UT Austin Organic Chemistry I course through guided inquiry.

- Taught a cohort of Organic Chemistry I students twice per week for the Fall 2022 semester.
- Held weekly office-hour styled work sessions where students were taught in both one-on-one and group settings.
- Collaborated with other Learning Assistants and Teacher's Assistants in order to improve quality of course material.
- *Learning Assistants maintain the same responsibilities as Teacher's Assistants, but are unpaid.*

Organic Chemistry Tutor, UT Sanger Learning Center — Aug 2022 to Dec 2022

Held private, personalized tutoring with UT Austin undergraduate students at a variety of different difficulties.

- Specialized in Organic Chemistry I and II tutoring, but also instructed various other courses.
- General Chemistry I and II, Organic Chemistry I and II, Inorganic Chemistry, Physical Chemistry, College Algebra, and Calculus I - III were offered during the Fall 2022 semester.

Previous Experience

Certified Pharmacy Technician, CVS Pharmacy — Feb 2022 to May 2023

Received, interpreted, and filled written prescriptions and refill requests, and verified that information is complete and accurate.

- Consulted and comforted patients, and communicated basic pharmaceutical concepts when needed.
- Created and maintained patient profiles, including lists of medications and personal information.
- Maintained proper storage and security conditions for drugs, and manage inventory.

Chemistry Content Creator, StudySmarter — May 2022 to Oct 2022

Authored and prepared lessons for Organic Chemistry I and II, general chemistry, and AP Chemistry.

- Outlined and SEO optimized chemistry lessons in order to maximize outreach.
- Selected Example Lessons:
  - Physical Chemistry: Introduction to Entropy
  - Organic Chemistry: Introduction to Spectroscopy
  - AP Chemistry: Introduction to Acids and Bases
- A full list of lessons can be found on my website here.

Skills

Strong Analytical Skills: Proficient in interpreting spectroscopic data, analyzing reaction mechanisms, and solving intricate chemical problems. Strong physical organic understanding of fundamental reaction mechanisms, which is applicable to the probing of mechanistic features.

Organic Syntheses: Adept in planning and executing organic synthesis routes using various methodologies such as functional group transformations, protecting group strategies, and multi-step syntheses.

Proper Laboratory Technique: Proficient in handling laboratory equipment, such as glassware and rotary evaporators. Knowledgeable in executing specific techniques such as chromatography (e.g., column chromatography, flash, TLC), spectroscopy (e.g., NMR, IR, LC-MS, Mass), and purification methods (e.g., recrystallization, distillation) while using safe laboratory practices.

Communication and Collaboration: Apt at effectively collaborating with lab colleagues and communicating complex research findings. Able to present technical information to both technical and non-technical audiences, as well as students. Capable of composing research papers using software such as ChemDraw and LaTeX.