

James Alexander Law

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Professional Experience

2026 – current Assistant Professor of Organic Chemistry
University of West Florida

Education

2022 – 2026 Arnold O. Beckman Postdoctoral Fellow, Massachusetts Institute of Technology
Advisor: Stephen L. Buchwald

2016 – 2022 Ph.D. student in Chemistry, Florida State University
Advisor: James H. Frederich
Thesis: Synthetic Access to Complex 5-8-5 Diterpenes

2011 – 2016 B.S. in Biochemistry, Kennesaw State University
Advisor: John Haseltine and Christopher Alexander
Honors: cum laude (GPA 3.87/4.0)

Research Experience

Postdoctoral Fellow, Massachusetts Institute of Technology, Advisor: Stephen L. Buchwald

Key areas: asymmetric catalysis, ligand design

- Developed method to access enantioenriched hydroxylamines from styrenes and nitroalkanes
- Collaborated with machine learning experts to establish a new method for ligand design
- EHS representative and member of the EHS Safety Committee

Graduate student, Florida State University, Advisor: James H. Frederich

Key areas: complex molecule synthesis, photochemistry, method development

- Developed a modular synthetic strategy which facilitated access to fusicoccin diterpenes
- Designed an asymmetric photoinduced cycloaddition using a directing group strategy
- Established a general method for hydromethylation using titanacyclobutane intermediates
- Accelerated an alternative to polyene cyclization which provided access to complex terpenes

Summer undergraduate researcher, The University of Alabama, Advisor: Elizabeth T. Papish

Key areas: ligand synthesis, photochemistry

- Produced bipyridine and phenanthroline based ligands for use in metallo-prodrugs
- Synthesized organometallic complexes with light-sensitive, pH-dependent properties

Undergraduate researcher, Kennesaw State University, Advisors: C. Alexander and J. Haseltine

Key areas: methods development, peptide synthesis

- Developed a tactic to synthesize 1,3-S,O esters *via* hydrolysis of α -oxoketenedithioacetals
- Advanced the study of long-range electronic effects in enzymatic systems

Patents

1. Methods of Hydromethylation of Alkenes and Ketones
James H. Frederich and **James A. Law**

Publications

8. Enantioselective Copper-Catalyzed Synthesis of Hydroxylamines via Hydrofunctionalization of Alkenes using Nitroalkanes
James A. Law, Binh Khanh Mai, Hsuan-Min Hung, Tobianna Hendon, Yuyang Dong, Yu Zhang, Peng Liu, Stephen L. Buchwald.
J. Am. Chem. Soc. **2026**, *accepted*.
7. Enantioselective Total Synthesis of (+)-Fusicoccadiene via Photocatalytic Polyene Isomerization
Vitalii S. Basistyi, Tyler D. Weinhold, Jacqueline A. Pinkerton, **James A. Law**, James H. Frederich.
J. Am. Chem. Soc. **2026**, *148*, 124–129.
6. Access to 3-Azetidines *via* Halogenation of Titanocyclobutanes
Tyler D. Weinhold, **James A. Law**, James H. Frederich.
Adv. Synth. Catal. **2024**, *366*, 2214–2219.
5. A Stereoselective Photoinduced Cycloisomerization Inspired by Ophiobolin A
James A. Law, Daniel Callen, Elena Paola, Gabe Gomes, James H. Frederich.
Org. Lett. **2022**, *24*, 6499–6504.
4. Programmed Polyene Cyclization Enabled by Chromophore Disruption
Megan M. Solans, Vitalii Basistyi, **James A. Law**, Noah M. Bartfield, James H. Frederich.
J. Am. Chem. Soc. **2022**, *144*, 6193–6199.
3. Site-Specific Alkene Hydromethylation *via* Protonolysis of Titanacyclobutanes
James A. Law, Noah M. Bartfield, James H. Frederich.
Angew Chem., Int. Ed. **2021**, *60*, 14360–14364.
• Highlighted as a 'hot' article by reviewers and featured in FSU news.
2. Modular access to functionalized 5-8-5 fused ring systems via a photoinduced chromophore disruption.
Anna E. Salvati, **James A. Law**, Josue Liriano, James H. Frederich.
Chem. Sci. **2018**, *6*, 5389–5393.
• Highlighted in Chemistry World Magazine, DDNews and the Tallahassee Democrat.
1. Ruthenium Complexes are pH-Activated Metallo Prodrugs (pHAMPs) with Light-Triggered Selective Toxicity Towards Cancer Cells.
Fengrui Qu, Seungjo Park, Kristina Martinez, Jessica L. Gray, Fathima Shazna Thowfeik, John A. Lundeen, Ashley E. Kuhn, David J. Charboneau, Deidra L. Gerlach, Molly M. Lockart, **James A. Law**, Katherine L. Jernigan, Nicole Chambers, Matthias Zeller, Nicholas A. Piro, W. Scott Kassel, Russell H. Schmehl, Jared J. Paul, Edward J. Merino, Yonghyun Kim, Elizabeth Papish.
Inorg. Chem. **2017**, *56*, 7519–7532.

Awards and Recognition

2025	Nominated for Sigma Xi, Scientific Research Honors Society, MIT
2024	MIT Spot Award for Increasing Awareness Around DCM Safety, MIT
2023	Arnold O. Beckman Postdoctoral Fellowship, MIT
2021	Graduate Student Award for Excellence in Organic Chemistry, FSU
2016	Outstanding Student in Organic Chemistry, KSU
2015	Phi Lambda Upsilon (Sigma Xi Chapter) Inductee

2014	Birla Carbon Scholarship, KSU
2012	Best Poster in KSU Annual Fall Symposium of Undergraduate Research, KSU
2012	Golden Key Honor Society Inductee, KSU

Community Outreach Experience

- Greenhouse Scholars Review Program (2024)
Aided in the assessment of student applications for the Greenhouse Scholarship. Reviewed application materials and made recommendations based on scholarly achievements and life circumstances.
- MIT Outreach Program (2023)
Demonstrated chemical reactions and lectured about the wonders of chemistry at a local Catholic high school.
- MIT CAMP Program (2022)
Guided students from underrepresented backgrounds to prepare application materials for graduate school in chemistry.

Mentorship Experience

1. MIT mentorship

- Tobiana Hendon, undergraduate student (MIT)
Project: Functionalization of chiral hydroxylamines to form stereoenriched, tertiary amines.
Current Position: Undergraduate student at MIT
- Aniya Hayes, undergraduate student (MIT)
Project: Hydroarylation of cyclic alkenes using CuH catalysis.
Current Position: Undergraduate student at Norfolk State University
- Hsuan-min Hung, graduate student (MIT)
Project: Copper-hydride mediated cyclization reactions.
Current Position: PhD student in the Buchwald lab at MIT

2. FSU mentorship

- Noah Bartfield, undergraduate student (FSU)
Project: Site-specific hydromethylation via protonolysis of titanacyclobutanes.
Current Position: PhD candidate in the Herzon lab at Yale
- Elena Paola, undergraduate student (FSU)
Project: Progress towards the total synthesis of forskolin.
Current Position: Process Chemist at SK Pharmteco
- Kariza Hossain, undergraduate student (FSU)
Project: Progress towards the total synthesis of forskolin.
Current Position: CRA II at Precision Medicine
- Megan Solans, graduate student (FSU)
Project: Unified entry to abeitane natural product family via skeletal remodeling strategy.
Current Position: Merck Discovery and Process Chemistry
- Dan Callen, graduate student (FSU)
Project: Asymmetric entry into the 5-8-5 motif enabled by a directing group strategy.
Current Position: co-founder and CSO at LEVL, Inc.

- Tyler Weinhold, graduate student (FSU)
Project: Diverse functionalization of titanacyclobutanes as 1,3-dianion equivalents.
Current Position: PhD student in the Frederich lab at FSU

Teaching Experience

Graduate Teaching Assistant, 2016–2022

Department of Chemistry and Biochemistry, Florida State University

- Organic Chemistry I and II, Biochemistry Lab
- Key experience: lectured for courses of >350 students

Supplemental Instruction Leader, 2013–2016

Center for Teaching and Learning, Kennesaw State University

- Biology I, General Chemistry I, Organic Chemistry I and II
- Key experience: developed the SIL program for organic chemistry at KSU

Laboratory Teaching Assistant, 2014–2016

Department of Chemistry and Biochemistry, Kennesaw State University

- Organic Chemistry I and II, Advanced Organic Synthesis Lab
- Key experience: helped develop an undergraduate level 'aldol' experiment

Poster Presentations

9. An Active Learning Approach to Ligand Design
 - Beckman Symposium – Irvine, AA (August, 2025)
8. Enantioselective copper-catalyzed synthesis of hydroxylamines via hydrofunctionalization of alkenes using nitroalkanes
 - Beckman Symposium – Boston, MA (August, 2024)
7. Site-specific alkene hydromethylation *via* protonolysis of titanacyclobutanes
 - Flohet – Gainesville, FL (March, 2022)
6. Research in the Frederich Lab
 - ACS National Conference – Orlando, FL (March, 2019)
5. Synthesis of 1,3-S,O esters from α -oxoketene dithioacetals
 - SERMACS – Memphis, TN (November, 2015)
4. Synthesis of 1,3-S,O Esters
 - SERMACS – Nashville, TN (November, 2014)
3. Towards the synthesis of α -ketophosphono- α -oxoketene dithioacetals
 - Abitya Birla Carbon Scholars Symposium – Kennesaw, GA (August, 2014)
2. Synthesis of bimetallic gold nanoparticles for use as SERS substrates
 - SERMACS – Atlanta, GA (October, 2013)
1. Surface modified bimetallic magnetic nanoparticles for analyte detection

- CSM Fall Symposium – Kennesaw, GA (October, 2012)

References will be furnished upon request.