Stephanie Frost

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Education

University of South Florida August 2021-Present
Ph.D. Chemistry – Chemistry Education Research

University of Wisconsin-Madison 2017-2021
B.S. Chemistry, French

Research Experience

University of South Florida August 2021-Present
Advisor: Dr. Jeffrey R. Raker
Research Area: Understanding the relationship between electrophile and nucleophile understanding among introductory organic chemistry students and student affective experiences in organic chemistry

University of Wisconsin-Madison January 2019-September 2019
Advisor: Dr. James Ntambi
Research Area: Understanding the effect of diet and metabolism through gene expression in mice liver

University of Wisconsin-Madison January 2018-December 2018
Advisor: Dr. Silvia Cavagnero
Research Area: Exploring the rotational correlation time of apomyoglobin in physiologically relevant conditions

Publications

Frost, S. J. H., Pratt, J. M., Cruz-Ramírez de Arellano, D., Bliss-Roche, K., & Raker, J. R. (2024). Feelings of Shame in a First Semester Organic Chemistry Course: Associations between Shame and Examination Performance for Multiple Learner Groups. *Journal of Chemical Education*, 101(10), 4136–4148. https://doi.org/10.1021/acs.jchemed.4c00754

Frost, S. J. H., Rocabado, G. A., Pratt, J. M., Cruz-Ramírez de Arellano, D., Fields, K. B., & Raker, J. R. (2024). Motivation Differences in First-Semester Organic Chemistry: A Comparison Between First-Time-in-College Students and Transfer Students. *Journal of Chemical Education*, 101(2), 354–363. https://doi.org/10.1021/acs.jchemed.3c00579

Crowder, C. J., Yik, B. J., Frost, S. J. H., Cruz-Ramírez de Arellano, D., & Raker, J. R. (2024). Impact of Prompt Cueing on Level of Explanation Sophistication for Organic Reaction Mechanisms. *Journal of Chemical Education*, 101(2), 398–410. https://doi.org/10.1021/acs.jchemed.3c00710

Frost, S. J. H., Yik, B. J., Dood, A. J., Cruz-Ramírez de Arellano, D., Fields, K. B., & Raker, J. R. (2023). Evaluating electrophile and nucleophile understanding: A large-scale study of learners' explanations of reaction mechanisms. *Chemistry Education Research and Practice*, 24(2), 706–722. https://doi.org/10.1039/D2RP00327A

Yik, B. J., Dood, A. J., Frost, S. J. H., Cruz-Ramírez de Arellano, D., Fields, K. B., & Raker, J. R. (2023). Generalized rubric for level of explanation sophistication for nucleophiles in organic chemistry reaction mechanisms. *Chemistry Education Research and Practice*, 24(1), 263–282. https://doi.org/10.1039/D2RP00184E

Contributed Conference Presentations

**Presenter*

Using Social Network Analysis to Explore Co-authorship of Curricular Materials: Insight into the IONiC Community of Practice

Stephanie J. H. Frost*, Jeffrey R. Raker, Anne K. Bentley, Justin M. Pratt, Barbara A. Reisner, & Joanne L. Stewart. Presented at the 28th Biennial Conference on Chemical Education (University of Kentucky), Lexington, KY, July 31, 2024

Characterization of shame experiences in introductory organic chemistry courses using the AEQ-OCHEM instrument

Stephanie J. H. Frost*, Justin M. Pratt, & Jeffrey R. Raker. Presented at the 28th Biennial Conference on Chemical Education (University of Kentucky), Lexington, KY, July 30, 2024

Development of a machine learning model to understand conceptualizations of electrophiles

Stephanie J. H. Frost*, Brandon J. Yik, Amber J. Dood, Daniel Cruz-Ramírez de Arellano, Kimberly B. Fields, Frankie Costanza, & Jeffrey R. Raker. Presented at the 27th Biennial Conference on Chemical Education (Purdue University), West Lafayette, IN, August 3, 2022

Applications of computer-based scoring for the teaching and learning of reaction mechanisms in organic chemistry

Brandon J. Yik*, Stephanie J. H. Frost, Daniel Cruz-Ramírez de Arellano, Kimberly B. Fields, Frankie Costanza, & Jeffrey R. Raker. Presented at the 27th Biennial Conference on Chemical Education (Purdue University), West Lafayette, IN, August 3, 2022

Teaching Experience

Teaching Assistant – Organic Chemistry I & II August 2021-Present
University of South Florida
Organic Chemistry I – Fall 2022-Fall 2023, Fall 2024
Organic Chemistry II – Fall 2021-Spring 2022

Undergraduate Assistant – General Chemistry II (Teaching Assistant) January 2021-May 2021
University of Wisconsin – Madison

Laboratory Assistant – General Chemistry
University of Wisconsin – Madison August 2019-December 2020
Advanced General Chemistry – Fall 2020
General Chemistry II – Fall 2019-Spring 2020

Private General and Organic Chemistry Tutor June 2019-May 2021
University of Wisconsin – Madison

Service

Peer Review Activities
Reviewer, *Journal of Chemical Education*

Awards

University of South Florida Dissertation Completion Fellowship Spring 2024
Martin Travel Award Spring 2023 & Spring 2024

Community Involvement

Sigma Psi Zeta Sorority, Inc. August 2021-Present
Education Director, Assistant Vice President of New Member Education

Chemistry Council of Graduate Students at the University of South Florida August 2023-Present
Secretary