Jacob Jan Markut

Department of Chemistry
Whitman College
345 Boyer Avenue
markutj@whitman.edu
Walla Walla, Washington 99362

Education

Doctor of Philosophy, Chemistry Education 2024
University of Illinois Chicago, Chicago, Illinois

Master of Science, Chemistry 2019
Washington State University, Pullman, Washington

Bachelor of Arts, Chemistry 2017
University of South Florida, Tampa, Florida

Professional Experience

Visiting Assistant Professor 2021-2024
Department of Chemistry, Whitman College

Graduate Research Assistant 2021-2024
Department of Chemistry, University of Illinois Chicago
Collated and analyzed undergraduate course outcome data for curriculum reform and faculty development, NSF grant (DUE-2111446)

Graduate Teaching Assistant 2020-2023
Department of Chemistry, University of Illinois Chicago
Courses taught (# of semesters): Honors General Chem. (1, lab/lecture), Preparatory Chem. (1, lab/lecture), General Chem. 1 (1, lab/lecture), General Chem. 2 (1, lab/lecture), Inorganic Chem. (1, lab/lecture), Chem. and Bio. Systems (2, lab/lecture)

Substitute Paraeducator 2019-2020
Chief Leschi Schools, Puyallup, WA

Graduate Teaching Assistant 2017-2019
Department of Chemistry, Washington State University
Lead TA for Preparatory Chemistry (2 semesters, lecture only)
Courses taught (# of semesters): Life Sci. Chem. (1, lab/lecture), General Chem. 1 (1, lab/lecture), Preparatory Chem. (1, lab/lecture)

Publications

Peer-Reviewed Articles:

2. **Markut, J. J.**, & Wink, D. J. (2023). Symmetry Elements Embodied by Students' Hands: Systematically Characterizing and Analyzing Gestures in Inorganic Chemistry. *Journal of chemical Education, accepted with minor revisions*.
1. **Markut, J. J.**; Cabana, J.; Mankad, N. P.; Wink, D. J. (2023). A Collaborative Model-Based Symmetry Activity for the Inorganic Chemistry Laboratory. *Journal of Chemical Education, 100*(4), 1633-1640.

Presentations

8. **Markut, J. J.** (2023; poster) Symmetry Elements as Gestures: Towards Establishing Conventionalized Gestures in the Inorganic Chemistry Classroom. Gordon Research Conference: Chemistry Education Research and Practice, Bates College, Maine.
7. **Markut, J. J.** (2023) How the hands speak louder than words: Gestures embodying symmetry elements in inorganic chemistry. X-DBER 2023 Conference, Virtual (hosted by the University of Nebraska-Lincoln).
6. **Markut, J. J.** (2023) Gestures embodying symmetry elements: Interviews from undergraduates in the inorganic chemistry laboratory. Spring 2023 ACS National Meeting, Indianapolis, Indiana.
5. **Markut, J. J.** & Wink, D. J. (2022) Socially-Collaborative Model-Based Inorganic Symmetry Activity. Fall 2022 ACS National Meeting, Chicago, Illinois.
4. **Markut, J. J.** & Wink, D. J. (2022; poster) Unprompted Student Gestures in a Model-Based Symmetry Activity for Inorganic Chemistry. Fall 2022 ACS National Meeting, Chicago, Illinois.
3. **Markut, J. J.** & Wink, D. J. (2022; poster) A Socially-Collaborative Model-Based Symmetry Activity for Inorganic Chemistry. 27th Biennial Conference on Chemical Education, West Lafayette, Indiana.
2. **Markut, J. J.** & Wink, D. J. (2022) Unprompted Student Gestures in a Model-Based Inorganic Symmetry Activity. 27th Biennial Conference on Chemical Education, West Lafayette, Indiana.
1. **Markut, J. J.** (2022; poster) Unprompted Student Gestures in a Model-Based Inorganic Symmetry Activity: Initial Coding and Classification. The Chemistry Laboratory: Evaluation, Assessment & Research Conference, Virtual.

Service

3. Committee Member, Committee endowing the Leenil Noel Scholarship. 2023-Present.
2. Member, Nine-Month Appointment Taskforce in service of the Office of the Provost and Vice Chancellor for Academic Affairs. 2022-2023.
1. Steward, Graduate Employees Organization AFT Local 6297. 2020-2024.

Materials Developed

2. "Lab #3: Molecular Symmetry". Inorganic Chemistry (CHEM 314) at University of Illinois Chicago (Fall 2021-Fall 2023). Published in Markut et al., 2023.
1. Formative and summative assessments, instructional materials, and syllabus. Problem Solving in General Chemistry (CHEM 104) at Washington State University (Fall 2018-Spring 2019).