

# Jake Erbez

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Los Angeles, California

## Education

**BS in Chemical Engineering with Minor in Mathematics, University of California, Davis**

Graduated June 2024

3.72 Cumulative GPA

Favorite Coursework: Chemical Kinetics, Thermodynamics, Mass Transfer, Heat Transfer, Fluid Dynamics

Capstone Project: Distillation of Pyoil for the Circular Economy of Plastics

## Publications

### Published

- Erbez, J. P., Rangel, G. H., Davila, M., Englade, J. A., Erbez, A. D., Rattanpal, J., ... & Toney, M. D. (2024). Activation Heat Capacities in Pyridoxal Phosphate Enzymes. *ACS Catalysis*, 14(15), 11178-11195

## Work/Research Experience

### Enzyme Research, UC Davis:

**January 2021 – June 2024**

- Designed and conducted experiments using a UV-VIS spectrophotometer and a stopped-flow machine to characterize enzyme behavior and determine enzymatic kinetic properties
- Performed data analysis and curve fitting with various biochemical and graphing programs (COPASI, KaleidaGraph, Pro-K VI)
- Performed enzyme purification using a sonicator for cell disruption, centrifugation, and a nickel resin affinity column to extract desired enzymes from E. coli cultures
- Developed electrophoresis gels to determine enzyme concentrations and weight
- Developed independence and safety skills in the lab setting
- Put in charge of training fellow undergraduates on lab techniques and chemical kinetic theory
- Operation of circular dichroism spectroscopy

### Physics Tutor, UC Davis:

**September 2021 - February 2022**

- Tutored UC Davis undergrads the entire lower division physics series
- Covered mechanics, wave mechanics, thermodynamics, electromagnetism, and modern physics (special relativity and basic quantum mechanics)
- Constructed practice problems and designed lessons that were specific towards the needs of individual tutees

## Software Experience

MS Excel, MS Word, SPYDER, Pycharm, Jupyter Notebook, COPASI/Pro-K VI biochemistry kinetic analysis, Kaleida Graph, SX20 stopped-flow machine software, Aspen Plus