Luis Angel Ayala Ramirez

Dallas, TX — Durango, MX

luis_ayala1@berkeley.edu

(559) 396 5910

Education

University of California, Berkeley, Berkeley, CA — Aug 2023 - Aug 2025
Bachelor of Science in Chemistry — GPA: 2.52/4.00
Concentration: Computational Chemistry — Cumulative GPA (CC + UC Berkeley): 3.27/4.00
Advisors: Dr. Eric Neuscamman, Trine K. Quady

Community College Coursework, California — Summer 2023
American River College (Differential Equations) & Ventura College (Linear Algebra) — GPA: 4.00/4.00

Cuesta College, San Luis Obispo, CA — Aug 2020 - May 2023
Associate of Science in Chemistry
Associate of Arts in Liberal Arts: Arts & Humanities and Science - *honors* — Tranfer GPA: 3.57 of 4.00

Instituto Tecnológico de Durango (ITD), Durango, México — Aug 2018 - Jun 2019
Chemical Engineering. — GPA: 82.7/100 (˜3.31/4.00, U.S. equivalent)

Centro de Bachillerato Tecnológico Industrial y de Servicios (CBTIS) #130
Durango, México — Aug 2015 - Jun 2018
Certified Clinical Laboratory Technician, — GPA: 8.4/10.0 (˜3.36/4.00, U.S. equivalent)

Research Experience

Undergraduate Researcher, *University of California, Berkeley*, Berkeley, CA — Jan 2025 - Aug 2025
Advisor: Eric Neuscamman, College of Chemistry.
Project: Developed fragment-based initial guesses for Hartree–Fock in PySCF that converged in the same number of SCF iterations as canonical methods while preserving orbital locality, demonstrating a scalable pathway toward efficient correlated electron calculations.

Implemented Python workflows to construct reusable fragment libraries, apply geometric transformations, and benchmark localization schemes (Pipek–Mezey, Foster–Boys, Edmiston–Ruedenberg).

Presented findings at the SURD Symposium and the College of Chemistry Undergraduate Research Fair.

Undergraduate Researcher, *Cuesta College*, San Luis Obispo, CA — 2023 - 2023
Advisor: Prof. Kelli Gottlieb, Department of Physical Science
Project: Investigated the Suzuki–Miyaura cross-coupling reaction using banana peel water extracts (WEB) as a green catalytic medium. Demonstrated that naturally occurring components in banana peels could promote palladium-catalyzed coupling without additional bases or organic solvents, highlighting sustainable and cost-effective methodologies in organic synthesis.

Honors & Awards

College of Chemistry Summer Research Stipend	UC Berkeley	2025
College of Chemistry Departmental Award	UC Berkeley	2024
Berkeley Transfer Scholarship	2023–2025	
College Corps Fellowship, First Cohort	California Volunteers	2022–2023
Outstanding General Chemistry Student of the Year	Cuesta College, Dean of Physical Science	2022
Gil Peter "S.A.M." Scholarship	Cuesta College, 2021	2022
Clifford Engineering and Science Scholarship	Cuesta College	2022
Alpha Gamma Sigma Honor Society (Invited)	Cuesta College	2021
State Mathematics Olympiad	Represented Durango, Mexico	2015

Presentations

Poster, Summer Undergraduate Research Diversity (SURD) — Summer 2025
University of California, Berkeley, Berkeley, CA
Title: "Stitched Together: A Fragment-Based Approach to Build Localized Initial Guesses."

Poster, 17th Annual College of Chemistry Undergraduate Research Fair — Spring 2025
University of California, Berkeley, Berkeley, CA
Title: "A Localized Fragment-Based Approach to Build Molecular Orbitals."

Leadership & Service

- **Senior Transfer Student Mentor**, College of Chemistry, UC Berkeley 2024–2025
  Guided incoming transfer students through academic and community integration; organized peer mentoring sessions to support transition.
- **Panelist, Golden Bear Welcome College Breakout Session**, UC Berkeley Spring 2024
  Shared transfer student experience with newly admitted students; represented the College of Chemistry in a student-led Q&A panel.
- **Vice President of Programming**, Anchor House Hall Association, UC Berkeley 2024–2025
  Coordinated community events, outreach, and resource allocation for residents.
- **College Corps Fellow** 2021–2022
  Completed 300+ hours of community service as part of inaugural statewide cohort; advanced educational equity and civic engagement initiatives.

Technical Skills

Languages: Spanish (native), English (fluent/professional)

Programming & Data Analysis: Python (NumPy, data parsing, numerical methods), algorithm development, matrix algebra, process optimization, technical reporting, MATLAB

Scientific Software: PySCF, Molden, Gabedit, Avogadro 2, GreenBiz Tracker, Carbon Calculator

Laboratory Techniques: NMR, IR, UV-Vis, FT-IR, GC-MS, AAS, GF-AAS; clinical diagnostics (hematology, parasitology, bacteriology, chemical analysis); calibration, quantitative/qualitative analysis, sample preparation, lab safety

General Software: Linux OS, Microsoft Office (Excel, PowerPoint, Word), Google Workspace, LaTeX, Zotero, Canva, Adobe