
Angelica Alcazar

angelicaalcazar0@gmail.com

analcazar@csumb.edu

ePortfolio: <https://analcazar.wixsite.com/angelica-alcazar>

Education

California State University, Monterey Bay, Seaside, CA Anticipated graduation: Fall 2025
B.S. Biology with a Concentration in Molecular Biology
Minor in Chemistry
Cumulative GPA 3.8

Research Interest

- *Sustainable Agriculture*: Measuring nitrous oxide and carbon dioxide emissions in agricultural soil to demonstrate the benefits of reducing N fertilizers to prevent increased greenhouse gasses and nitrate leaching.
- *Nitrogen-fixing*: Possible solutions to decreasing nitrous oxide emissions in commercial agriculture operations.

Research Experience

- **Innovation Scholar** *January 2024-January 2025*
Undergraduate Research Opportunities Center (UROC) CSU Monterey Bay
Project Lead: Dr. Arlene Haffa and Stefanie Kortman
Description: This research measures nitrous oxide emissions, a potent greenhouse gas, using LI-COR equipment to compare various rates of nitrogen (N) fertilizer treatments. This study examines the effects of N fertilizer on greenhouse gas emissions, addressing the common practice of over-fertilizing, which leads to increased nitrous oxide emissions. The findings demonstrate the benefits of reducing N fertilizers to mitigate greenhouse gas emissions.
Relevant Skills: Able to use LI-COR devices (CO₂/H₂O analyzer, CH₄/CO₂/H₂O trace gas analyzer, N₂O/H₂O trace gas analyzer)
-

Leadership Roles

- **Resident Advisor (RA)** *August 2024-Current*
Description:

- Supported and mentored a total of 106 residents, fostering an inclusive and positive community.
 - Enforced university community standards and resolved conflicts to ensure a safe living environment.
 - Planned and led educational, and social programs.
 - Served on call to respond promptly to emergencies and resolve any situations that arose within the residence halls.
 - Completed extensive training in crisis response, conflict resolution, diversity and inclusion, Title IX, mental health support, and Family Educational Rights and Privacy Act (FERPA).
- **Peer Mentor for Innovation Scholars** *January 2025-Current*
Description:
 - Mentored undergraduate researchers in creating and refining professional ePortfolios to highlight their research and academic work.
 - Assessed ePortfolios using a structured rubric to provide constructive, development-focused feedback.
 - Hosted Folio Labs sessions and presented to researchers on how to curate and enhance their own ePortfolios.

Presentations

- Alcazar, Angelica (2024) Assessment of nitrous oxide emissions from different nitrogen fertilizer treatments in lettuce -*Undergraduate Research Opportunities Center (UROC) Summer Symposium*: California State University, Monterey Bay.
- Alcazar, Angelica (2024) Assessment of nitrous oxide emissions from different nitrogen fertilizer treatments in lettuce - *Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS) conference*: Phoenix, Arizona.
- Alcazar, Angelica (2025) UROC Innovation Scholar Mentor - Apple Community Education Initiative Leadership and Learning Academy Conference: Austin, Texas.

Conferences Attended

Crop Science Society of America (2024)

- Attended poster and oral presentation focused on Ag Order 4.0, a regulatory framework aimed at reducing pollution of surface and groundwater from agricultural operations.
- Gained insights into best practices for fertilizer management and irrigation efficiency.

Summer Symposium: California State University, Monterey Bay (2024)

- Presented research of agricultural practices of fertilizer and irrigation and its impact on greenhouse gas emissions.

Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS) conference (2024)

- Presented research of agricultural practices of fertilizer and irrigation and its impact on greenhouse gas emissions.
- Attend workshops that extended knowledge on diversity in STEM, research techniques, and career development.

Apple Community Education Leadership and Learning Academy Conference (2025)

- Presented on the Innovation Scholars Program—part of the Undergraduate Research Opportunity Center at CSU Monterey Bay—and shared research findings on greenhouse gas measurements in agricultural fields.

HSI Research Collaboration Conference (2025)

- Learned how HSI partnerships collectively serve students, faculty, communities, and the workforce through research.
 - Gained insight into funding opportunities from federal and private agencies and learned a great deal from conversations about different partnership projects.
 - Assisted a colleague in a presentation about how UROC serves the CSUMB community.
-

CUREs(Course-based undergraduate research experience)

- **Chemistry 211: Organic Chemistry I**
CSU, Monterey Bay *August 2022-January 2023*
 Project Lead/Instructor: Crystal Gonzalez
 Project description: *Creation of an Ester Project*: Synthesized an ester from an assigned acid and alcohol. We were given methanol and pentanoic acid, which resulted in the production of methyl pentanoate.
 Relevant skills: Recrystallization, Distillation, Filtration, Chromatography
- **Biology 211L: Ecology, Evolution, Biodiversity and Plants lab**
CSU, Monterey Bay *January 2023-May 2024*
 Project Lead/Instructor: Erin Stanfield
 Project description: *INaturalist biodiversity collection project*: Learning new taxonomy through taking pictures of animals and plants.
 Relevant skills: I gained new knowledge on genus and species taxonomy of various animals and plants.
- **Biology 211L: Ecology, Evolution, Biodiversity and Plants lab**
CSU, Monterey Bay *January 2023-May 2024*
 Project Lead/Instructor: Erin Stanfield
 Project description: *Dunes lab Project*: Comparing between *Artemisia pycnocephala* (Sagewort) and *Dudleya caespitosa* (Dudleya) abundance in the spring seasons of 2009,

2016, and 2024 in restored and unrestored areas of firing range 12 in Fort Ord. It was evident that *A. pycnocephala* and *D. caespitosa* exhibited a higher average percent cover compared to the unrestored transects. Proving that restoration after the Fort Ord firing range closure is successful.

- **Biology 320L: Microbiology and Biology 301: Research and Tech Writing in Bio CSU, Monterey Bay**

August 2024-December 2024

Project lead/instructor: Jenn Kato, Lou Zeidberg, Kelly Damschen

Project description: *Identifying an unknown bacteria*: Conducting characterization tests on an unknown bacteria taken from squirrel squat and writing a research paper about its harm on the CSU Monterey Bay community.

Title of paper: "A Dangerous Bacteria *Shigella dysenteriae* in the Gut Microbiome"

Relevant Skills: characteristic tests which included nitrate, Citrate, PCR, Catalase, Oxidase, MacConkey, Urea, Methyl Red and Voges Prokauer, gram stain, glucose fermentation, KIA

Honors and Awards

- Innovation Scholar, 3 terms of funding for undergraduate research
 - Applied and got accepted into the Innovation Scholar program where I am one of four mentees and funded for three terms to conduct undergraduate research.
 - Dean's list, Fall 24' and Spring 25' CSU Monterey Bay
 - Dean's list, Fall 23' and Spring 24', CSU Monterey Bay
 - Dean's list, Fall 22' and Spring 23', CSU Monterey Bay
-

Service learning: Volunteer experience

- **North County Recreation and Park District, Castroville CA** *June 2024-August 2024*
Objective: Lead transformative lessons that profoundly impacted children ages 5 to 12 through hands-on experimental science. By teaching the fundamentals of science, I inspired a new generation of curious and engaged young minds. I am considering a career in teaching to inspire the next generation and bridge the gap between education and STEM.
-

Professional Development

- **CITI responsible conduct in research training**

Date of Completion: February 2, 2024

Expiration Date: February 2, 2027

- Completed CITI Program training in Responsible Conduct of Research, demonstrating knowledge of ethical research practices, data management, authorship, and research integrity standards

- **SWIS(Summer Writing Intensive Seminar)**

June 2024- July2024

Description:

- Mastering the fundamentals of professional writing
- established a consistent writing routine
- making significant progress on CVs and ePortfolios through identifying and leveraging the four pillars: initiative, leadership, impact, and scholarship in my writing strengths.
- Provides framework to my future professional writing endeavors.

- **Developed Proficiency in Apple Pages:**

January 2024

Description:

- Mastered the basics of Apple Pages to create a research journal, which subsequently evolved into a comprehensive ePortfolio. This tool proved invaluable for efficiently organizing and presenting work in a structured format.

Relevant Coursework

Biology 320 – Microbiology (Lecture & Lab)

- Conducted PCR and bacterial characterization tests.
- Applied aseptic technique and microbial culture methods.
- Analyzed microbial growth and enzyme activity.

STAT 250 - Applied Stat:Sci Tech

- Learned models and methods applied in technology, engineering, and the natural and biological sciences.
- Created and analyzed tables and graphs using descriptive statistical techniques.
- Applied concepts of statistical inference, including parameter estimation and regression modeling.
- Developed computer-based skills for conducting statistical analyses and interpreting data results.

Organic Chemistry II – CHEM 312 (Lecture & Lab)

- Interpreted mass spectrometry, IR, and ¹H NMR spectra to identify organic compounds.
- Performed acid-base extractions, recrystallization, and rotary evaporation (RotaVap).
- Synthesized and purified phenacetin; isolated active ingredients from Excedrin.
- Investigated organic reaction mechanisms and developed advanced synthetic techniques.

Biology 211 – Ecology, Evolution, Biodiversity, and Plants

- Explored mechanisms of evolution (natural selection, mutation, genetic drift, gene flow).
- Analyzed biodiversity, phylogenetic trees, and plant ecology across taxa.

Organic Chemistry I – CHEM 211 (Lecture & Lab)

- Studied reaction mechanisms (SN1, SN2, E1, E2) and IUPAC nomenclature.
- Conducted esterification and other foundational organic synthesis reactions.

Skills & Training

- **Laboratory Techniques:**
Acid/base extraction • Esterification • Recrystallization • Thin Layer Chromatography (TLC) • Gel electrophoresis • PCR • Isolation and purification of compounds
 - **Analytical Instrumentation:**
Gas Chromatography (GC) • IR Spectroscopy • ^1H NMR Spectroscopy • UV-Vis Absorption Spectroscopy • $\text{CO}_2/\text{H}_2\text{O}$ Analyzer • $\text{CH}_4/\text{CO}_2/\text{H}_2\text{O}$ Trace Gas Analyzer • $\text{N}_2\text{O}/\text{H}_2\text{O}$ Trace Gas Analyzer
 - **Data & Analytical Skills:**
Spectral interpretation • Quantitative data analysis • Experimental design • Scientific documentation
-