

AMBER FLORES, MSc

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EDUCATION

Master of Business Administration	East Texas A&M University, MBA Marketing	<u>August 2026</u>
Master of Science	University of Texas A&M Commerce, Chemistry	<u>May 2022</u>
<i>Thesis:</i> "Ion Mobility Mass Spectrometry Analysis of Alternative Metal Binding Peptides for the Utilization of Cloning, Overexpression and Purification of Affinity Tagged Lactamase"		
<i>Advisor:</i> Laurence Angel, PhD		
Bachelor of Science	University of Texas A&M Commerce, Chemistry	<u>May 2019</u>

EXPERIENCE

East Texas A&M University-Graduate Assistant January 2024 - Present

- Scheduled and facilitated meetings between project stakeholders to discuss deliverables, schedules and conflicts
- Monitored and tracked project progress, identified risks and took corrective action as needed
- Created written materials, meeting summaries, and project updates for diverse audiences
- Managed multiple projects simultaneously while maintaining deadlines and organizational priorities

UTSW- Research Assistant II November 2022- December 2023

- Prepared samples for analysis by performing complex sample preparation tasks, including cryo-em grid preparation
- Constructs, assembles, and operates experimental or other special designed laboratory apparatus and equipment
- Prepared reagents, media, and solutions to use for laboratory testing and analysis
- Kept equipment maintained, laboratory clean and organized, and kept supplies well-stocked to save time, money, and promote laboratory efficiency
- Restocked supplies and placed purchase orders to maintain adequate stock levels

TAMUC- Graduate Research Assistant June 2019- May 2022

- Planned and conducted complex multidisciplinary research projects in biology and chemistry
- Co-Developed all program materials and methodologies in mass spectrometry and protein engineering to identify new metal affinity tag to lessen side effects in vivo
- Wrote and updated reports, posters, and delivered effective presentations at conferences outlining the material test data gleaned from experiments and shared results with fellow scientists
- Co-wrote and published technical and professional publications
- Oversaw and managed multiple projects from concept to completion for 5 team members
- Performed complex troubleshooting and assisted in leading initiatives to solve challenging scientific problems with assays or instrumentation
- Trained and supervised research assistants on laboratory protocols in areas of expertise and compliance issues relevant to lab setting

Retela LLC (now Novantiv LLC)- Consultant Biochemist at startup June 2021- October 2021

- Implemented a wide range of current biochemical techniques to conduct research and development studies related to an ELISA based medical device product development

- Evaluated and implemented new technologies and laboratory techniques to improve quality and robustness of sample analysis
- Provided supervision and scientific training of team members on areas of technical expertise and compliance issues relevant to lab setting
- Identified funding sources such as SBIR Grant and managed complete grant lifecycle preparation
- Offered expert advice and demonstrated creative innovation to redesigned and optimized specialty/custom biological agents, such as DNA oligos
- Streamlined research processes making a positive impact on laboratory operations and research success

TAMUC- Laboratory Graduate Teaching Assistant

August 2019- May 2021

- Prepared reagents for the experiments and ensured the instrumentation were working properly
- Set up and calibrated laboratory instruments and equipment to prepare for testing purposes
- Demonstrated and instructed how to use the instrumentation (GC-MS, HPLC-MS, IM-MS, AA, Fluorescence, Spec, etc.)
- Engaged in professional monitoring and instruction of the students
- Followed health and safety regulations while handling dangerous or toxic substances

RESEARCH AND DEVELOPMENT

Ion Mobility Mass Spectrometry Analysis of Alternative Metal Binding Peptides for the Utilization of Cloning, Overexpression and Purification of Affinity Tagged Lactamase -Under Dr. Cheriya and Dr. Angel*, TAMUC

Summer 2019- May 2022

- Utilized ESI-IM-MS by testing binding affinities of peptides to Co(II)-NTA, Ni(II)- NTA, and Zn(II)-NTA
- Determined which peptide had the highest binding affinity for Ni(II)-NTA with application of CCS, CID and computational techniques
- Performed gene cloning, protein expression and purification of lactamase recombinant enzyme tagged with a selected peptide

Bacteria growing environments that increase the lipid content for use in biofuel production- Under Dr. Jang, Dr. West, and Dr. Cheriya, TAMUC

Spring 2019

- Conducted literary research on different bacteria to determine which would be most suitable for project
- Coordinated with Head of IBC Dr. Cheriya at TAMUC
- Established logistics with Biochemist Dr. West for the growing conditions
- Wrote protocol and completed the IBC application

Synthesis of Bio-oil via catalytic hydrothermal liquefaction of sludge and algae- Under Dr. Jang*, TAMUC

Summer 2017- Summer 2019

- Manufactured bio-oil using chlorella (algae), water plant waste sludge, a cell fraction, and a catalyst
- Troubleshooted instrumentation such as a Parr Reactor
- Utilized vacuum filtration, bomb calorimetry, GC-MS, TGA, Centrifuge

PUBLICATIONS

- Corrales A., Arredondo A., **Flores A.**, Duvak C., Mitchell C., Spezia R., and Angel L. "Thermochemical Studies of Ni(II) and Zn(II) Ternary Complexes using Ion Mobility-Mass Spectrometry" JOVE, June 2022
- **Flores A.**, Arredondo A., Corrales A., Duvak C., Mitchell C., Falokun O., Aguilar C., Kim A., Daniel B., Karabulut H., Spezia R., and Angel L. "Thermochemical and conformational studies of Ni(II) and Zn(II) ternary complexes of alternative metal binding peptides with nitrilotriacetic acid" International Journal of Mass Spectrometry, Volume 473, March 2022.
- **Flores A.**, Falokun O., Ilesanmi A., Arredondo A., Truong L., Fuentes N., Spezia R., Angel L. "Formation of Co(II), Ni(II), Zn(II) complexes of alternative metal binding heptapeptides and nitrilotriacetic acid: Discovering new potential affinity tags" International Journal of Mass Spectrometry, Volume 463, May 2021.

PRESENTATIONS AND INVITED LECTURES

- **Flores A.**, Arredondo A., Corrales A., Duvak C., Mitchell., Spezia R., and Dr. Angel L. "Determining The Dissociation Enthalpies and Relative Stability of Alternative Metal Binding Peptides Ternary Complexes Using Ion Mobility Mass Spectrometry" ASMS National conference, Philadelphia, PA, November 1, 2021, Poster 95.
- **Flores A.**, Dr. Cheriya V., and Dr. Angel L. "Determining The Nickel-NTA And Cobalt-NTA Binding Affinity Of Analog Methanobactin Peptides As Potential Affinity Tags, Using Ion Mobility Mass Spectrometry" ACS Southwest Meeting Research Symposium, El Paso, TX, November 13, 2019, Poster 75.
- Pimento M., **Flores A.**, Humphries N., and Dr. Jang B. "Synthesis of bio-oil via catalytic hydrothermal liquefaction of sludge and algae" ACS Southwest Meeting Research Symposium, Lubbock, TX, October 29, 2017, Poster 102.

LABORATORY SKILLS

Instrumentation: ESI-IM-MS, HPLC, GC-MS, GC-FID, UV/VIS, TGA, Spectrometer, Parr Reactor, Autoclave, PCR Thermocycler, NanoDrop, Vitrobot

Bench/Wet techniques: Bacterial Gene Cloning and Expression, Affinity Protein Purification, Salt Fractionation, Tissue culture, ELISA, Bradford Assay, SDS-PAGE, Enzyme Digest, Gel Electrophoresis, PCR, Mass Spectrometry, Titration, TLC, Chromatography, Distillation, Crystallization, Cryo-em grid preparation, etc.

COMPUTER SKILLS

Programs: DriftScope, MassLynx, SigmaPlot, ChemDraw, Power BI, CHRUNCH, Gaussian, PeopleSoft, Alfresco