

Curriculum Vitae

# Joseph Garza

Department of Life Sciences  
Texas A&M University - Corpus Christi  
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GitHub: <https://github.com/JGarza189>

## EDUCATION

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- 2 Bachelor's in Science, Biology [Ecology]** May 2026  
*Texas A&M University - Corpus Christi*
- 1 Minor in Applied Mathematics** May 2026  
*Texas A&M University - Corpus Christi*

## EXPERIENCE

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- 10 Undergraduate Research Assistant** PI: Dr. Kam Tang July 2025 - Present  
*Texas A&M University - Corpus Christi*  
Cultivates zooplankton and microalgae in photobioreactors and controlled growth chambers for optimizing growth parameters in aquaculture studies. Performs fluorescence-microscopy, water quality assays, sterile media prep, and maintains detailed culture logs to support research projects.
- 9 Undergraduate Research Fellow** PI: Dr. Christopher Bird September 2023 - Present  
*Texas A&M University - Corpus Christi*  
Conducts phylogeographic research on Micronesian coral using bioinformatics, high-performance computing, DNA extraction, Sanger sequencing, and associated molecular techniques.
- 8 Undergraduate Researcher** PI: Dr. BV Shankara Narayana Rao January 2025 - May 2025  
*Texas A&M University - Corpus Christi*  
Co-developed a mathematical framework to model the immunotherapeutic dynamics of neuroblastoma, using a coupled system of first-order, ordinary, differential equations. Simulated the pharmacokinetic effects of various drugs across various patient populations using numerical methods (ode45).
- 7 General Chemistry Lab-Lead** Laboratory Manager: Huyen Bui June 2024 - May 2025  
*Texas A&M University - Corpus Christi*  
Managed a team of 22 graduate and undergraduate teaching assistants; lead weekly training sessions, managed laboratory operations, coordinated maintenance and chemical waste disposal, and handled associated administrative duties.
- 6 Chemical Stock Coordinator** Laboratory Manager: Huyen Bui January 2024 - May 2025  
*Texas A&M University - Corpus Christi*  
Solely managed organic and inorganic chemical preparation and inventory for 34 laboratory teaching sections serving 816 students; ensured availability of all required instructional materials and appropriate stock to be used throughout the semester.
- 5 General Chemistry Teaching Assistant** Laboratory Manager: Huyen Bui August 2023 - May 2025  
*Texas A&M University - Corpus Christi*  
Instructed the laboratory component of General Chemistry I. Responsible for grading, providing student support during office hours, and reinforcing core concepts through hands-on experimentation and mathematics.
- 4 Undergraduate Research Fellow** PI: Dr. Mehrube Mehrubeoglu January 2024 - October 2024  
*Texas A&M University - Corpus Christi*  
Conducted research on the morphology of hatchery-cultivated Eastern Oyster shells using 3D structured light scanning. Utilized biostatistical methods to analyze structural variations across various parent genotypes collected from different local along the Texas Gulf Coast.

- 3 Saltwater Aquarist** Facility Owner: Eli Alaniz  
*Salty Aquatics & Fish, Corpus Christi, TX*  
 Maintained 11 saltwater reef aquariums with diverse finfish and invertebrate species. Developed custom feeding protocols, fragmented coral, and applied biostatistical methods to support day-to-day on-site aquarium shop operations.

January 2023 - October 2023
- 2 Research Intern** PI: Dr. Simon Geist  
*Texas A&M University - Corpus Christi*  
 Utilized bright-field microscopy to identify Gulf of Mexico larval specimens down to genus and species level. Created and curated a lab-internal database as part of a project investigating the vertical larvae distribution within the Port Aransas Inlet system.

February 2022 - January 2023
- 1 Research Intern** PI: Dr. Christopher Bird  
*Texas A&M University - Corpus Christi*  
 Executed molecular biology protocols in the TAMUCC Core-Lab to support academic research projects and service orders. Techniques included Sanger sequencing, PCR, gel electrophoresis, fragment analysis, bead cleanups, and fluorescence-based DNA quantification.

February 2022 - September 2022

## PUBLICATIONS IN PROGRESS

- 1 Garza J, Bahr KD, Magnuson S, Bird CE** Sanger-based genetic profiling of  
 Pocilloporidae-Symbiodiniaceae symbiosis using bleach-treated Hawaiian corals

September 2023 - Present

## APPLIED MATHEMATICS CAPSTONE PROJECT

- 1 Brockman K, Colburn B, Garza J, Liao T, Rao B** Tumor Progression and  
 Pharmacological Intervention: Modeling Immunotherapeutic and Chemotherapy  
 Strategies in Neuroblastoma [[GitHub](#)]

January 2025 - May 2025

## GRANTS AWARDED

- 1 Garza J, Bird CE** DNA Profiling of 40-Year-Old South Pacific Coral  
 Skeletons  
*Texas A&M University - Corpus Christi, Research & Innovation*

November 2023 - August 2024  
**\$800**

## PRESENTATIONS

### ORGANIZED SYMPOSIA

- 7 Texas Seaweed Mariculture Symposium**  
*University of Texas Marine Science Institute - Port Aransas, TX*  
**Poster Presentation:** Unlocking Biodiversity in Coral Skeletons: DNA Profiling of  
*Symbiodiniaceae*

April 2025
- 6 Coastal Bend Mathematics and Statistics Conference**  
*Texas A&M International University - Laredo, TX*  
**Oral Presentation:** Tumor Progression and Pharmacological Intervention: Modeling  
 Immunotherapeutic and Chemotherapy Strategies in Neuroblastoma

April 2025
- 5 Research & Innovation Symposium**  
*Texas A&M University - Corpus Christi, TX*  
**Oral Presentation:** DNA Profiling of Preserved Coral Skeletons: A Novel Approach to  
 Biodiversity Assessment

April 2025
- 4 McNair Research Conference**  
*Baylor University - Waco, TX*  
**Poster Presentation:** DNA Profiling of Preserved Coral Skeletons: A Novel Approach to  
 Biodiversity Assessment

August 2024

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| <p><b>3 Research &amp; Innovation Symposium</b><br/> <i>Texas A&amp;M University - Corpus Christi, TX</i><br/> <b>Poster Presentation:</b> DNA Profiling of 40-Year-Old, South Pacific Coral Skeletons</p>   | <p>April 2024</p> <p><b>Best Poster</b></p> |
| <p><b>2 National Academies: Gulf Scholars Conference</b><br/> <i>Rice University - Houston, TX</i><br/> <b>Oral Presentation:</b> Three-Dimensional Shell Modeling of Hatchery Grown Eastern Oysters (<i>Crassostrea virginica</i>) Using Structured Light Scanning Techniques</p> | <p>April 2024</p>                           |
| <p><b>1 LSAMP Symposium</b><br/> <i>Texas A&amp;M University - Corpus Christi, TX</i><br/> <b>Poster Presentation:</b> Three-Dimensional Shell Modeling of Hatchery Grown Eastern Oysters (<i>Crassostrea virginica</i>) Using Structured Light Scanning Techniques</p>            | <p>April 2024</p>                           |

#### INVITED PRESENTATIONS

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| <p><b>2 Texas Aquaculture Association Annual Meeting</b><br/> <i>Bauer Center - Port Lavaca, TX</i><br/> <b>Poster Presentation:</b> DNA Profiling of Preserved Coral Skeletons: A Novel Approach to Biodiversity Assessment</p> | <p>January 2025</p> |
| <p><b>1 Audubon Outdoor Awards Ceremony</b><br/> <i>Harte Research Institute of Gulf of Mexico Studies - Corpus Christi, TX</i><br/> <b>Oral Presentation:</b> A Life Worth Living: Life in the Gulf</p>                         | <p>April 2024</p>   |

#### LAB PRESENTATIONS

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| <p><b>1 Molecular BEACon Lab Meeting</b><br/> <i>Texas A&amp;M University - Corpus Christi, TX</i><br/> <b>Oral Presentation:</b> LaTeX &amp; Overleaf: A Guide to “Good Enough” Biological Practices and Scientific Writing</p> | <p>January 2025</p> |
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#### WORKSHOPS

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| <p><b>4 Texas Seaweed Mariculture Symposium</b><br/> <i>University of Texas Marine Science Institute - Port Aransas, TX</i><br/>         Explored current seaweed farming operations in Texas, focusing on substantiable economic growth, networking, and advancement in the mariculture industry along the Gulf Coast (<b>1-Day</b>)</p>  | <p>April 2025</p>   |
| <p><b>3 Coastal Bend Mathematics and Statistics Conference</b><br/> <i>Texas A&amp;M International University - Laredo, TX</i><br/>         Engaged in discussions on advanced theoretical and applied research in mathematics, statistics, and related fields, contributing to the exchange of knowledge and ideas with professionals along the Coastal Bend (<b>1-Day</b>)</p> | <p>April 2025</p>   |
| <p><b>2 Texas Aquaculture Association Annual Meeting</b><br/> <i>Bauer Center - Port Lavaca, TX</i><br/>         Engaged in discussions on aquaculture research, industry advancement, sustainable practices, and networking with professionals in the field (<b>1-Day</b>)</p>  | <p>January 2025</p> |
| <p><b>1 Overcoming Barriers to Expanding Aquaculture in Texas</b><br/> <i>Texas A&amp;M University - Corpus Christi, TX</i><br/>         Addressed challenges and engaged in discussions on the advancement and expansion of aquaculture along the Texas Gulf Coast, with an emphasis on Eastern oysters (<b>3-Days</b>)</p>   | <p>January 2024</p> |

#### COMPUTER SOFTWARE & SCRIPTING

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##### Scripting

R. Shell. Markdown. LaTeX. MATLAB. Python (basic).

## Software

4Peaks. ArcGIS Online. EHS Waste Removal Online Interface. FigTree. GitHub.  
Google Earth Pro. High Performance Research Computing (HPRC). ImageJ. MATLAB.  
MS Office. MS Visual Studio Code. NCBI BLAST. NCBI GenBank. OnX Backcountry.  
Overleaf. pylon Viewer. ReefBeat. RStudio. Unipro UGENE. Zeiss ZEN Blue.

## TEACHING

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### LABORATORY TEACHING ASSISTANT

hr-credit hours, s-students, se-sections					
Undergraduate Courses	Code	hr	s	se	Semester
6 General Chemistry I	CHEM 1411	4	24	1	Spring 2025
5 General Chemistry I	CHEM 1411	4	22	1	Fall 2024
4 General Chemistry I	CHEM 1411	4	11	1	Summer II 2024
3 General Chemistry I	CHEM 1411	4	14	1	Summer I 2024
2 General Chemistry I	CHEM 1411	4	24	2	Spring 2024
1 General Chemistry I	CHEM 1411	4	24	2	Fall 2023

## ACADEMIC SERVICE

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- 4 Manuscript Reviewer (Invited Contribution)** July 2025  
*PeerJ Journal Publication*  
Invited by Dr. Gregory Buck (Texas A&M University - Corpus Christi) to review and provide critical feedback on the manuscript “Comparison of primers for the pathogenicity factors *vwhA* and *rpoS* in *Vibrio vulnificus* environmental isolates from the Texas Coastal Bend”. Contributed to revisions by identifying errors in a genetic-primer table involving the *vwhA* and *rpoS* genes in *Vibrio vulnificus*, which led to direct changes in the supplementary materials. Additionally, I provided detailed comments to improve the clarity and structure of the methods and results section.
- 3 Teaching Assistant Evaluation Developer** March 2025  
*Department of Physical & Environmental Sciences, Texas A&M University - Corpus Christi*  
Designed a standardized written and script-based (R) Teaching Assistant evaluation system for assessing General Chemistry Teaching Assistant (TA) performance for use across the entire PENS department (22 Teaching Assistants). The system enabled consistent, structured feedback on instructional effectiveness and preparedness which facilitated professional growth throughout academic terms.
- 2 S-Rise Grant Proposal Reviewer (Invited Contribution)** February 2025  
*Genomics Core-Lab, Texas A&M University - Corpus Christi*  
Reviewed and edited a colleague’s research proposal to the S-RISE program, which supports undergraduate involvement in research and scholarship. Provided detailed technical feedback on content, structure, and clarity, contributing to a more competitive and coherent grant application.
- 1 Corpus Christi Regional Science Olympiad Mathematics Judge** March 2024  
*College of Science, Texas A&M University - Corpus Christi*  
Served as the head Judge and moderator for the “We’ve Got Your Number” event, overseeing a 50 minute mathematics competition focused on whole-number operations, number sense, and problem solving for 42 students. Monitored adherence to event parameters, enforced rules on permitted operations and graded each submission by student teams for point-based scoring.

## COMMUNITY SERVICE

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- 2 Texas Adopt-A-Beach Cleanup – Coastwide** April 2025  
*Mustang Island State Park - Port Aransas, TX*  
Texas General Land Office

**1 Texas Adopt-A-Beach Winter Cleanup – Coastal Bend Area**

February 2025

*Packery Flats - Corpus Christi, TX*

Texas General Land Office

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**ORGANIZATIONS & AFFILIATIONS**

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**8 Coastal Bend Bays & Estuaries Program - Member**

July 2025

Enhanced regional conservation and estuarine management initiatives through CBBEP, with a Focus on habitat protection, ecological restoration, and outreach supporting sustainability of Texas coastal ecosystems.

**7 Texas Aquaculture Association (TAA) - Member**

January 2024

Engaged in annual meetings and aquaculture workshops through TAA, focusing on sustainable practices, industry development, and applied marine-source management in Texas.

**6 Louis Stokes Alliance for Minority Participation (LSAMP) - Research Fellow**

January 2024

Conducted interdisciplinary research by collaborating with engineering faculty and received structured mentorship to support academic and professional development.

**5 National Society of Leadership & Success (NSLS) - Member**

November 2023

Participated in leadership-building activities and workshops to develop personal and professional skills.

**4 National Academies: Gulf Scholars Program - Cohort Fellow**

August 2023

Participated in the Gulf Scholars Program, engaging in leadership and community-focused activities to address regional environmental and sustainability challenges in the Gulf of Mexico.

**3 McNair's Scholars Program - Research Fellow**

July 2023

Conducts research under faculty mentorship as part of the McNair Scholars Program, with a focus on preparing for graduate studies.

**2 Math Club - Former President - 15 months (TAMUCC Mathematics Club)**

April 2023

Led the TAMUCC Math Club, organizing activities and workshops to enhance student engagement with mathematics whilst facilitating academic growth.

**1 Boy Scouts of America - Member & Eagle Scout**

September 2015

Earned the highest rank in Scouting by demonstrating leadership, community service, and completion of a capstone Eagle Scout service project.

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**TRAINING**

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**14 Genomics Core-lab: Certificates of Mastery**

September 2025

In-person: Excel Level Data Entry - GitHub Level Data Entry - Pipetting - DNA Extraction - Gel Electrophoresis - Polymerase Chain Reaction (PCR)

**13 COMPLECS: Parallel Computing Concepts**

June 2025

**Online:** Introduced foundational concepts of parallel computing with emphasis on scalability. Reviewed process/thread models, hybrid MPI and OpenMP approaches, and limitations such as Amdahl's Law. Explored running parallel application, interpreting scaling results, and evaluating performance bottlenecks in high-performance research workflows.

**12 COMPLECS: HPC Hardware, Obtaining Hardware Information and Monitoring Performance**

June 2025

**Online:** Delved into key commands for retrieving and interpreting HPC system architecture. Covered tools for assessing CPU, GPU, memory, cache, and network status. Reviewed job and hardware monitoring using Linux-based utilities such as top, htop, nvidia-smi, free, sar, and seff to diagnose workload performance in research environments.

<b>11 COMPLECS: HPRC Batch Job Scheduling Using Slurm</b>	May 2025
Online: Introduced core concepts of the Slurm batch job scheduler. Covered job submission, resource requests, common commands and dependency management. Reviewed queue structures and tools for monitoring architectural workloads.	
<b>10 COMPLECS: HPC Data Storage and File Systems</b>	May 2025
Online: Explored architecture and performance tiers on HPC storage systems. Reviewed best practices for managing HPC file systems. Covered access patterns and tools for monitoring usage and optimizing input/output performance in computational research workflows.	
<b>9 ACCESS: Adapting Workflows for High-Throughput Bioinformatics</b>	May 2025
Online: Developed and scaled bioinformatic workflows using HTCondor on the OSPool. Covered software environment setup, workflow organization, and job submission strategies for high-throughput research computing.	
<b>8 NOAA Digital Coast: Coastal and Marine Science Training</b>	January 2025
Online: Coastal Zone Management Act 101 - Understanding Enforceable Policies - Introduction to Economics for Coastal Managers - Guide to Planning Living Shoreline Projects - Post-Disaster Coral Reef Assessment and Restoration for Coastal Communities	
<b>7 Illumina NGS: Sequencing and Data Analysis Training</b>	December 2024
Online: Illumina Technology - Illumina Experiment Manager - Sequencing Fundamentals - DNA Library Preparation - AmpliSeq - MiniSeq. NextSeq 550 NovaSeq 6000.	
<b>6 Environmental Health &amp; Safety (EHS) Autoclave Training</b>	November 2024
In-person: Autoclave operator certification (STERIS AMSCO MDL-110LS). Completed hands-on training in the safe and effective sterilization of laboratory equipment using high-pressure autoclave systems.	
<b>5 Harte Research Institute Oyster Aquaculture Course</b>	June 2024
Online: Gained expertise in sustainable aquaculture practices, hatchery management, and grow-out techniques for commercial oyster cultivation [Master-Level Certification].	
<b>4 Science Needs Story, Texas A&amp;M University - Corpus Christi, TX</b>	September 2022
In-person: Explored how to use narrative structure to strengthen science communication. Focused on translating complex scientific ideas into compelling narratives to engage both public and professional audiences.	
<b>3 R Boot Camp: Statistical Computing, Texas A&amp;M University - Corpus Christi, TX</b>	June 2022
In-Person: Introduction to statistical computations with R for data analysis and visualization. Covered essential R programming concepts including data wrangling and statistical testing for scientific research.	
<b>2 Texas Parks &amp; Wildlife Boaters Education Course</b>	February 2022
In-person: Trained in boating laws, safety protocols, navigation, and environmental stewardship relevant to Texas waterways.	
<b>1 CITI Research Training</b>	February 2022
Online: Biosafety Training - Emergency and Incident Response to Biohazard Spills and Releases - NIH Recombinant DNA Guidelines - Personal Protective Equipment - Students Working with Animals - Working with Fish in Research – Plagiarism	

## SCHOLARSHIP

<b>8 Student Endowment Internship Scholarship</b>	August 2025
<i>Texas A&amp;M University - Corpus Christi</i>	<b>\$1000</b>
<b>7 McNair Scholars Program Scholarship</b>	July 2025
<i>Texas A&amp;M University - Corpus Christi</i>	<b>\$4600</b>

6	<b>Marty R. Pritchett Memorial Endowment Scholarship</b> <i>Texas A&amp;M University - Corpus Christi</i>	January 2025 <b>\$500</b>
5	<b>Louis Stokes Alliance for Minority Participation (LSAMP) Scholarship</b> <i>Texas A&amp;M University - Corpus Christi</i>	February 2024 <b>\$1500</b>
4	<b>Texas Aquaculture Association Scholarship</b> <i>Texas Aquaculture Association</i>	December 2023 <b>\$750</b>
3	<b>Flavius and Kathy Killebrew Scholarship</b> <i>Texas A&amp;M University - Corpus Christi</i>	October 2023 <b>\$1000</b>
2	<b>Dr. Howard &amp; Beth Hoekje Conservation Scholarship</b> <i>Audubon Outdoor Club</i>	September 2023 <b>\$1000</b>
1	<b>National Academies: Gulf Scholars Scholarship</b> <i>Texas A&amp;M University - Corpus Christi</i>	August 2023 <b>\$3000</b>

## ACADEMIC ACHIEVEMENT

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4	<b>Best McNair Symposium Presentation</b> <i>Research &amp; Innovation Symposium</i> Texas A&M University - Corpus Christi, TX	April 2024 <b>\$250</b>
3	<b>Best Teaching Assistant of the Semester</b> <i>Department of Physical &amp; Environmental Sciences</i> Texas A&M University - Corpus Christi, TX	December 2023 <b>\$40</b>
2	<b>Student Research Competition Winner</b> <i>Division of Research &amp; Innovation</i> Texas A&M University - Corpus Christi, TX	October 2023 <b>\$800</b>
1	<b>Eagle Scout</b> <i>Boy Scouts of America</i> Troop 361 - Port Lavaca, TX	September 2015 <b>Certificate</b>

## PHYSICAL ACHIEVEMENT & ROCK CLIMBING

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### ENDURANCE EVENTS

#### **Ultra-Marathons**

Barrier Island Ultra 50K [Beach] - Port Aransas, TX	November 2025
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#### **Marathons**

Beach to Bay 42K [Road + Beach] - Corpus Christi, TX	May 2025
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#### **Other Races**

Harbor Half 21K [Road] - Corpus Christi, TX	November 2025
Harbor Half 21K [Road] - Corpus Christi, TX	November 2024
Barrier Island Ultra 21K [Beach] - Port Aransas, TX	November 2024
Trail Roots Texas Switchback 21K [Trail] - Johnson City, TX	May 2024
Trail Roots Maze 30K [Trail] - Johnson City, TX	March 2020

### MOUNTAINS SUMMITED

#### **Technical Routes Climbed (Lead w/ Rope)**

Grand Teton [Upper Exum Ridge] - Grand Teton National Park, Wyoming	August 2025
Grand Teton [Owen Spalding] - Grand Teton National Park, Wyoming	August 2024
Grand Teton [Owen Spalding] - Grand Teton National Park, Wyoming	August 2021
North Mountain [Cakewalk Direct] - Hueco Tanks State Park, Texas	January 2021

## Non-Technical Routes Climbed (Scramble w/ No Rope)

Disappointment Peak [Southeast Ridge] - Grand Teton National Park, Wyoming

August 2025

### TRAINING

Mapping the Fifty+: onX Backcountry Masterclass with Cody Townsend and Bjarne Salen

June 2025

American Mountain Guides Association (AMGA) Single Pitch Instructor Course

January 2023

American Heart Association (AHA) CPR & AED Course

January 2023

Texas Lady Crushers (TxLC) Rock Climbing Photography Course

July 2021

National Outdoor Leadership School (NOLS) Wilderness First Aid Course

May 2021

Austin Rock Gym (ARG) Self-Rescue Climbing Course

March 2021

Austin Rock Gym (ARG) Multi-Pitch Climbing Course

March 2021

Boy Scouts of America (BSA) Eagle Scout Program

September 2015

### ORGANIZATIONS & AFFILIATIONS

Access Fund - *Member & Patron*

July 2025

American Mountain Guides Association (AMGA) - *Member & Affiliated Rock-Climbing Instructor*

January 2023

American Alpine Club (AAC) - *Member & Patron*

August 2020