



Student Research Competition Cover Page

Please submit this form, along with your internal funding proposal as a **single PDF document** to researchdevelopment@tamucc.edu by **September 30, 2023**. If you do not receive an email confirmation of your submission within 3 business days, please reach out to the Student Research Competition Point of Contact (POC). The POC for the Student Research Competition is **Dr. Garth Clayton** (garth.clayton@tamucc.edu).

Date of Submission: 9/29/2023

Project Title: DNA Profiling of 40-Year-Old South Pacific Coral Skeletons		
Student Name	Department	Signature
Joseph Garza	Life Sciences	<i>Joseph Garza</i>

Faculty Mentor Name	Faculty Mentor Signature
Chris Bird, Ph.D.	<i>Chris Bird</i>

Does this project involve human subjects, animals, and/or biological agents/recombinant DNA?

- ☐ Yes
☒ No

DNA Profiling of 40-Year-Old South Pacific Coral Skeletons

Joseph Garza

Department of Life Sciences, Texas A&M University – Corpus Christi

Abstract

Coral reefs, which are built from accumulated layers of calcium carbonate (CaCO_3), are found in tropical and subtropical warm shallow sea water environments around the world. These reef ecosystems support an estimated 25 percent of all known marine species, and the variety of aquatic life living around coral reefs is greater than anywhere else on the planet. However, coral reefs are projected to be entirely under threat within the next 20 years and the need for standardized protocols to assess biodiversity at the gene level are essential. Corals, in particular, have highly variable phenotypes and DNA is necessary to determine taxonomic identity. This project explores the feasibility of extracting and sequencing DNA from 87 processed coral skeletons that were collected from the South Pacific Ocean before 1989. The bulk of the samples have not been identified down to the genus level effectively providing an opportunity to quantify genetic diversity and to optimize DNA extraction from coral skeletons. I plan on taking advantage of the experience in Dr. Bird's Lab and the Genomics Core-Lab by processing sensitive low biomass DNA specimens and employing these techniques to quantify DNA embedded in coral skeletons. Sequence data from the recovered DNA will be analyzed to gain a better understanding of the relationship between coral skeletons and genotype, which will address one of NSF's 10 Big Ideas: Understanding the Rules of Life. If we are successful, this will open up opportunities to sequence coral skeletons maintained in museum collections world-wide.

Project Description

Statement of Research

This project presents an exciting opportunity to advance our understanding of corals and genetic diversity. By successfully extracting DNA from both known and unknown coral samples, I aim to contribute valuable data to the field of coral research. Historically, extracting DNA has been of great difficulty because of the low yield, constrained genetic diversity, and community of microorganisms living in close association with coral (Thompson et al., 2015). However, I hypothesize that the established methods described in (Cartier et al., 2018) will yield sufficient amounts of DNA for downstream sequencing of our coral specimens. These 87 coral skeletons are significant because they were collected from islands spanning the South Pacific ranging from the Marshall Islands to Tutuila Island, American Samoa. The majority of the samples were collected from Kwajalein Atoll (Fig. 1), which serves as a unique and pristine environment in whereby research can be conducted on a habitat that has been minimally touched. This project seeks to test and develop laboratory techniques to isolate and sequence DNA from previously processed coral skeletons taken from the South Pacific.



Figure 1 | Kwajalein Atoll, Republic of the Marshall Islands.

Upon initial collection the corals were chemically bleached to better preserve and enhance skeletal features with the ultimate goal of taking these specimens on exhibition. Our approach to investigating these processed corals will build upon the DNA analysis method described by (Cartier et al., 2018), to distinguish species, assuming that coral DNA molecules have been trapped in the organic material or adhered to the (CaCO₃) crystals during the formation of the skeleton (Lendvay et al., 2019). The phases of the project will occur in the order described as follows.

DNA Extraction and Purification from Known Coral Samples: The initial phase of the project involves working with known coral samples to refine and optimize DNA extraction and purification techniques. These samples will serve as a benchmark for my methods and will allow for the validation and effectiveness of the chosen protocol.

DNA Extraction and Purification from Unknown Samples: Following successful DNA extraction from known coral samples, I will proceed to extract DNA from the 87 coral specimens collected prior to 1989. These specimens have not been identified to the species level, making this a critical aspect of the project.

PCR Amplification & Quantification: Amplification of purified DNA with two sets of primers for a large ribosomal RNA gene subunit (LR gene) and the putative mismatch repair protein (MSH gene) will be conducted. Quantification of DNA yield will be analyzed using qPCR techniques.

Bioinformatic Analysis: Upon successful DNA extraction, purification, and quantification of unknown coral samples; cross referencing of sequencing/barcoding data will be executed. The goal here is to identify the species and gather genetic information from these previously unidentified corals.

Optimization of Coral DNA Extraction Methods: The final stage of the project will encompass optimizing experimental design and protocols used for the extraction of coral DNA from coral skeletons. Optimization of materials and reagents, instrumentation, standard operating procedures, variables and controls, data collection, and methods of statistical analysis will be evaluated.

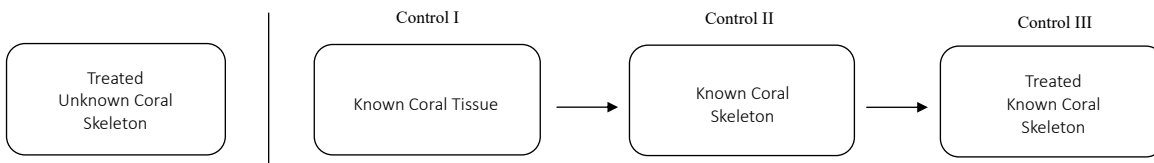


Figure 2 | Experimental Design

The illustrated workflow (Fig. 2) shows the different controls that will be used to validate the proposed extraction method used in this experiment. The initial phase of our approach will be to extract, amplify, and sequence known controls to determine the optimum set of procedures to be used for the treated unknown coral skeletons. After successful processing and sequencing of known coral skeletons and tissues, the same set of procedures will be used on the processed corals taken from the South Pacific.

Intellectual Merit or Significance

This significance of this project encompasses a wide range of aspects all that which gesture at the conservation and restoration of coral reefs. By building upon the limited collective knowledge of coral DNA extraction, my aim is to accelerate the rate at which genomic research of coral can take place (Solomon et al., 2019). In addition, this research will establish methods which seek to recover DNA from other organisms which excrete calcium carbonate including but not limited to oysters, clams, snails and even algae. By effectively establishing DNA extraction protocols for coral, this study inherently seeks to explore new methods for quantifying genetic diversity in various natural populations (Moll, 2008).

Broader or Societal Impacts

The broader and societal impacts regarding coral research gesture not just at the ecological aspect of saving coral reefs. Coral reefs in addition to being harbors of genetic diversity also play a direct role in socioeconomical phenomena. These ecosystems serve as habitats for numerous commercially valuable fish and shellfish species and are major attractors of tourism contributing significantly to coastal economies (Wilkinson, 1996). Lastly, the unfortunate situation that coral have been placed in is providing an ongoing case study as to measure the effects certain scientific approaches have at ecological restorative efforts. Coral reefs are important to maintaining the health of our coastal ecosystems but also play an important role in the collective effort to synthesize a sustainable approach to live in the world we all find ourselves in.

BIBLIOGRAPHY

- Cartier, L. E., Krzemnicki, M. S., Lendvay, B., & Meyer, J. B. (2018). DNA fingerprinting of pearls, corals and Ivory: A brief review of applications in Gemmology. *The Journal of Gemmology*, 36(2), 152–160.
- Lendvay, B., Cartier, L. E., Gysi, M., Meyer, J. B., Krzemnicki, M. S., Kratzer, A., & Morf, N. V. (2019). *DNA Fingerprinting: An Effective Tool for Taxonomic Identification of Processed Precious Corals*.
- Moll, R. (2008). Faculty opinions recommendation of coral reefs under rapid climate change and ocean acidification. *Faculty Opinions – Post-Publication Peer Review of the Biomedical Literature*.
- Solomon, E., Martin, D., & Berg, L. (2019). Ecology and the Geography of Life. In C. Martin (Ed.), *Biology* (10th ed., pp. 1224–1225). essay, CENGAGE Learning.
- Thompson, J. R., Rivera, H. E., Closek, C. J., & Medina, M. (2015). Microbes in the coral holobiont: Partners through evolution, development, and Ecological Interactions. *Frontiers in Cellular and Infection Microbiology*, 4.
- Wilkinson, C. R. (1996). Global change and coral reefs: Impacts on reefs, economies and human cultures. *Global Change Biology*, 2(6), 547–558.

BUDGET

The budget illustrated (Fig. 1) consists of all the supplies that will be needed for successful completion of this project.

Classification	Item	Description	Quantity	Unit Cost	Subtotal	Cost Share	Notes
Contamination Control	Bleach	4 Liters	1	\$5.00	\$ -	\$ 5.00	Provided by GCL
	Tyvek Bio-Suit	Suit	8	\$8.48	\$ -	\$ 67.84	Provided by GCL / Bahr Lab
	Nitrile Gloves	100 Gloves	2	\$15.22	\$ -	\$ 30.44	Provided by GCL
	N95 Respirator	15 Masks	2	\$30.00	\$ -	\$ 60.00	Provided by GCL
DNA Isolation	E.Z.N.A. Cycle Pure Kit	150rxns	1	\$62.10	\$ 62.10	\$ -	Requested from R&I
Library Preparation	PCR	1rxn	575	\$0.45	\$ 258.75	\$ -	Requested from R&I
	Bead Clean		100	\$1.25	\$ 125.00	\$ -	Requested from R&I
	Fluorescent Quant		100	\$0.42	\$ 41.67	\$ -	Requested from R&I
	Sequencing Prep	Library Comp.	1	\$33.00	\$ 33.00	\$ -	Requested from R&I
	Primer	Barcoded DNA Prim	28	\$12.00	\$ -	\$ 336.00	Provided by GCL / Bahr Lab
	Pippen Size Select		1	\$25.00	\$ 25.00	\$ -	Requested from R&I
	Fragment Analysis		1	\$6.25	\$ 6.25	\$ -	Requested from R&I
	qPCR Lib Quant		1	\$70.00	\$ 70.00	\$ -	Requested from R&I
	Sequencing	NovaSeq X Plus PE 150	1.25B read pairs	0.08	\$2,200.00	\$ 176.00	\$ -
Total Cost					\$ 797.77	\$ 499.28	

Figure 1 | Tabulated Supplies

BUDGET JUSTIFICATION

The total cost for this project is **(\$797.77)**. The line items and justifications are provided and summarized below.

Contamination Control: \$0.00

Our contamination control will consist of Personal Protective Equipment (PPE) designed specifically for the task of ensuring safety of laboratory personnel and to prevent cross contamination of coral samples. The types of PPE we will utilize in this experiment consist of protective barriers made for the respiratory tract and skin. Bleach will be needed to decontaminate our workstations and samples by destroying foreign DNA and to kill microbes. The coral skeletons are expected to have a very low amount of DNA, and as a consequence, we will employ ultra clean laboratory techniques to ensure the genetic purity of our samples.

DNA Isolation: \$62.10

DNA Isolation from coral specimens will be executed using an Omega Bio-Tek Cycle Pure Kit for PCR cleanup. We are requesting support for one purification kit (1 Kit at 150rxns = \$62.10). This kit is essential for the clean-up stage of our DNA extractions.

Library Preparation: \$559.67

The supplies needed for library preparation will encompass the use of PCR kits, bead cleanup kits, AccuClear quantification, sequencing prep, primers, fragment analysis and qPCR. We are requesting funding for 575 PCR reactions for two specific genes (150rxns per allele, 300rxns per gene at a total of 600rxns). Conducting 150rxns per allele will give us the opportunity to amplify a single gene twice. This is imperative because conducting more PCR reactions per locus will allow for increased replicates and controls; thereby improving the reliability and reproducibility of our experimental results. Lastly, because coral historically yield low amounts of DNA, this will ensure sufficient material for downstream analysis without depleting our original samples.

Sequencing: \$176.00

Our project will be utilizing a *NovaSeq X Plus* platform to profile the DNA from our coral extracts (\$176.00 at 100,000,000 read pairs). This project represents an opportunity to utilize industry-leading sequencing with unparalleled accuracy. Sequence preparation for all collected coral, lab space, instrumentation and upkeep associated with processing these samples is made possible by Dr. Bird's research lab and the Genomics Core-Lab, Texas A&M - Corpus Christi. The coral samples in our analysis will be provided by the Bahr Marine Ecology Lab, Texas A&M - Corpus Christi.

Joseph Garza

7037 Islander Way, Corpus Christi, TX | Cell: (361) 746-8793 | Email: jgarza189@islander.tamucc.edu

PROFESSIONAL SUMMARY

Passionate and experienced aquarist specializing in coral and anemone biology. Experienced in building prosperous relationships among graduate students and professors. Independent research interests' gesture at optimizing all aspects of coral aquaculture operations and deriving useful genomics-based techniques to develop resilient corals in an attempt to advance the field of assisted evolution.

EDUCATION

Texas A&M University - Corpus Christi	Bachelor's in Science, Biology (3.894 GPA)	May 2025
Texas A&M University - Corpus Christi	Minor in Applied Mathematics (4.0 GPA)	December 2024
Texas A&M University - Corpus Christi	Minor in Chemistry (4.0 GPA)	May 2024

SKILLS

Larval Fish Identification	Microscopy	Pipetting	Instructing & Leading
Saltwater Aquarium Systems	Lab Maintenance	Statistical Analysis in R	Literary Composition
Coral & Anemone Biology	Solution Preparation	Presentations	UHPLC - MS/MS

EXPERIENCE

Undergraduate Chemistry TA Texas A&M University - Corpus Christi	August 2023 – Present
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- Oversees and instructs the lab component in General Chemistry I (Chem1411)
- Emphasis is placed on developing fundamental laboratory skills in students with a particular focus on quantitative lab work
- Instruction encompasses teaching two lab sections a week with grading and regular office hours

Aquarist Salty Aquatics & Fish	January 2023 – Present
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- Oversees the health of all aquarium inhabitants including fish, sea anemones, coral, and other invertebrates
- Maintains saltwater parameters in all reef tanks
- Statistical analysis of reef systems data is performed in R
- Research efforts interrelate water parameter data with the overall health and growth of coral

Rock Climbing Guide/Instructor Islander Summit Project President & Founder	January 2023 – Present
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- Facilitates the instruction of rock-climbing skills both in an indoor and outdoor setting
- Organizes climbing trips and guides students into the wilderness to go on rock climbing, camping, and backpacking adventures

Research Intern Dr. Geist's Early Life History Lab	February 2022 – January 2023
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- Marine larval specimen sorting
- Taxonomic identification of fish, shrimp, and crab down to a genus
- Microscopic photography (Zen Blue)
- Research efforts assessed the vertical distribution of planktonic larvae during ingress through the Port Aransas Inlet System

- Gel electrophoresis, omega bead cleanups, polymerase chain reactions, fragment analysis, mass spectrometry, sanger sequencing and general lab maintenance
- The protocols executed fulfilled university research orders and orders from other academic institutions

TRAINING

American Heart Association CPR Training	January 25, 2023	
CITI Biosafety Training		October 28, 2022
CITI Researchers/Staff Training		March 10, 2022
CITI Students Working with Animals		March 10, 2022
Texas Parks & Wildlife Boaters Education Course		February 25, 2022
CITI Working with Fish in Research		February 11, 2022
CITI NIH Recombinant DNA Guidelines	February 10, 2022	
CITI Personal Protective Equipment		February 10, 2022
Backcountry First Aid AMGA Certification	March 6, 2021	
National Youth Leadership Training		December 10, 2014

ACHIEVEMENT

American Mountain Guide Association Certified Climbing Instructor	January 8, 2023
Summited the Grand Teton (12 Hours) Jackson, WY	July 30, 2021
Eagle Scout Awarded	May 5, 2014

ORGANIZATIONS

National Society of Leadership & Success	August 25, 2023
Gulf Scholars Program	August 16, 2023
McNair Scholars Program	July 18, 2023
Math Club President	April 28, 2023
Islander Green Team	January 18, 2023
Islander Summit Project President & Founder	November 20, 2022
SACNAS Chapter at Texas A&M University - Corpus Christi	September 15, 2022

REFERENCES

Available upon Request

Dr. Christopher E. Bird

Texas A&M University-Corpus Christi
Science & Engineering, Life Sciences

Office: Center for the Sciences 246, Office Phone: (361) 825-6024, Email: chris.bird@tamucc.edu

Education

I was enrolled in Chemical Engineering and changed to Biology. I transferred to UConn after 1 year., Georgia Institute of Technology.

PhD, University of Hawai'i at Manoa, 2006.

BS, University of Connecticut, 1997.

Licensures and Certifications

Open Water SCUBA, PDIC. (1995 - Present).

Small Craft Operator, United States Power Squadrons. (1990 - Present).

Professional Employment

Adjunct Faculty, Hawai'i Institute of Marine Biology, Kāne'ohe, HI. (2012 - Present).

Assistant Professor, Texas A & M University-Corpus Christi, TX. (2012 - Present).
Researcher and professor in marine molecular ecology, evolution and conservation

PostDoctoral Fellow, Hawaii Institute of Marine Biology. (January 2007 - August 2012).
PostDoctoral Training

Graduate Research Assistant, Botany Department, University of Hawai'i at Mānoa, Honolulu, HI.
(2001 - 2006).

Computer Instructor, Leeward Community College. (January 1999 - August 1999).
Taught courses on using Microsoft Windows computers and productivity software like
Microsoft Word and Excel.

Research Assistant, Brown University. (March 1998 - July 1998).
Salt marsh community ecology experimental set up with Dr Mark Bertness.

Research Assistant, Roger Williams Hospital. (June 1997 - July 1998).
Coordinate and conduct scientific experiment on human subjects in both laboratory and
naturalistic settings

Undergraduate Research Assistant, University of Connecticut, Storrs, CT. (1996 - 1997).
Larval Transport of Anchovies

Undergraduate Research Fellow, Maryland Sea Grant College, College Park, MD. (1996).
Planktonic Predation by Ctenophores

Undergraduate Research Assistant, University of Connecticut, Storrs, CT. (1995 - 1996).
Rainforest Ecology

Administrative Appointments

College

Director (2015 - Present)
Manage the Genomics Core Laboratory

Professional Memberships

Society for the Advancement of Chicano, Hispanic, and Native American Scientists
Society for Integrative and Comparative Biology
The Wildlife Society
International Biogeography Society
Society for the Study of Evolution
Western Society of Naturalists
Benthic Ecology Meeting Society

TEACHING

Teaching Experience

BIOL 2371, PRINCIPLES OF EVOLUTION
BIOL 2416, GENETICS
BIOL 4371, POPULATION GENETICS
BIOL 4396, DIS: Genetic Basis for Settlement Choice in Oysters?
BIOL 6371, EVOLUTIONARY GENETICS
CMSS 6996, RESEARCH
FAMA 5102, GRADUATE DEFENSE SEMINAR
FAMA 5393, THESIS RESEARCH
FAMA 5394, THESIS SUBMISSION
FAMA 5940, PROJECT RESEARCH
HONR 4195, PROJECT OF EXCELLENCE
MARB 5293, THESIS RESEARCH
MARB 5392, THESIS PROPOSAL
MARB 5393, THESIS RESEARCH
MARB 5394, THESIS SUBMISSION
MARB 5596, DIS: Population Biology
MARB 5940, THESIS PROJECT RESEARCH
MARB 6392, DISSERTATION PROPOSAL
MARB 6590, Special Topics: Evolutionary Genetics
MARB 6596, DIS: Population Genetic Modelling & Simulation
MARB 6940, DISSERTATION PROJECT RESEARCH

SCHOLARLY AND CREATIVE ACTIVITIES

Publications

Refereed

Journal Articles

Skillings, D., Bird, C., Toonen, R. J. (2014). Comparative population structure of two edible Indo-Pacific coral reef sea cucumbers (Echinodermata: Holothuroidea). *Bulletin of Marine Science*, 90(1), 359-378.



Christopher E. Bird
Department of Life Sciences - College of Science and Engineering
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Corpus Christi, Texas 78412-5800
P: 361-825-6024 - F 825-2742

September 29, 2023

Dear Dr. Garth Clayton & Student Research Competition Committee,

I am writing to wholeheartedly recommend Mr. Joseph Garza for the Student Research Competition. I have had the pleasure of knowing Mr. Garza as a dedicated student volunteer for the Genomics Core Laboratory and I have agreed to be his mentor for the McNair Scholars Program as of this semester. Joseph's research interests are particularly notable; they ambitiously aim at optimizing coral aquaculture operations and integrating genomics-based techniques for coral resilience.

Joseph possesses a passion for the sciences and his academic record is exemplary, as evidenced by his 3.9 GPA in Biology and minors in Applied Mathematics and Chemistry. Joseph's involvement in multiple organizations such as the National Society of Leadership & Success, McNair Scholars Program, and Math Club speaks volumes about his commitment to academic and extracurricular excellence. It is clear to me that Joseph is dedicated to growing both as a researcher and as a leader. But what sets Joseph apart is his desire to apply his theoretical learning into tangible change, particularly in the field of marine biology.

Joseph has already amassed considerable research experience. Joseph was a stand-out volunteer in the Genomics Core Lab, being rated in the top 2 (tied) of 20 volunteers. The Lab Coordinator, Mr. Pedro Gonzalez, reports that Mr. Garza was the most punctual, reliable, devoted, detail oriented, and trustworthy volunteer. We also agree that Joseph is an excellent multi-tasker and time manager. Joseph is very skilled in pipetting and gel electrophoresis and is already familiar with the laboratory which will enable him to hit the ground running on this project where the majority of lab work involves these skills.

Joseph also worked in Dr. Geist's Early Life History Lab has given him experience in marine larval specimen identification, while his time volunteering in Genomics Core Lab has armed him with essential lab techniques. Further, his experience as an Aquarist at Salty Aquatics & Fish involved hands-on work with marine life and statistical analysis, highlighting his multidisciplinary skill set.

Joseph has also been an Undergraduate Chemistry TA where he had to distill complex subjects into comprehensible parts for newcomers to the field, a skill that is crucial for effective research presentation. His capacity for leadership is also evident from his founding and presiding over the Islander Summit Project, where he educates others on rock climbing and organizes outdoor expeditions.

Significantly, Joseph's forthcoming research will benefit from a collaborative partnership with Dr. Keisha Bahr, our coral reef professor. Dr. Bahr will be providing the coral specimens and adding her expertise to the project. The specimens we are working on were collected by Dr.



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Bahr's Ph.D. advisor and eminent Pacific Coral Reef Biologist, Dr. Paul Jokiel. He considered these specimens to be noteworthy and represent the diversity of coral morphologies he observed in his immense experience. Connecting these skeletal morphologies with genetic identity will be very useful gaining a better understanding of coral reef diversity.

In summary, Mr. Joseph Garza is an extraordinary young man and a boon to any academic or research setting. His rich blend of skills, commitment, and practical experience make him an ideal candidate for the Student Research Competition. I recommend him without reservation.


Sincerely,

A handwritten signature in black ink that reads "Chr. Bird".

Christopher E. Bird, Ph.D.
Associate Professor
Director, Genomics Core Laboratory
Faculty Advisor, TAMU-CC SACNAS Chapter

Academic Transcript

A04270491 Joseph M. Garza
Sep 23, 2023 06:09 pm

 This is not an official transcript. Courses which are in progress may also be included on this transcript.

[Transfer Credit](#) [Institution Credit](#) [Transcript Totals](#) [Courses in Progress](#)

Transcript Data
STUDENT INFORMATION

Name : Joseph M. Garza

Curriculum Information

Current Program

College: Science
Major and Department: Biology, Dept of Life Sciences
Major Concentration: Marine
Minor: Applied Mathematics

***Transcript type:UNOF is NOT Official ***

DEGREES AWARDED

Sought: Bachelor of Science **Degree Date:**

Curriculum Information

Primary Degree

Major:	Biology					
	Attempt	Passed	Earned	GPA	Quality GPA	
	Hours	Hours	Hours	Hours	Points	
Institution:	38.000	38.000	38.000	38.000	148.000	3.894

Sought: Bachelor of Science **Degree Date:**

Curriculum Information

Primary Degree

Major:	Biology					
	Attempt	Passed	Earned	GPA	Quality GPA	
	Hours	Hours	Hours	Hours	Points	
Institution:	21.000	21.000	21.000	21.000	84.000	4.000

Subject Course		Title	Grade	Credit Hours	Quality Points	R
BIOL	1406	BIOLOGY I	TB	4.000	12.000	
MATH	1314	COLLEGE ALGEBRA	TW	3.000	0.000	
		Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality GPA Points
Current Term:		7.000	4.000	4.000	4.000	12.000
						3.000

Unofficial Transcript

Subject Course		Title	Grade	Credit Hours	Quality Points	R
BIOL	1407	BIOLOGY II	TC	4.000	8.000	
POLS	2305	U.S. GOVERNMENT AND POLITICS	TB	3.000	9.000	
		Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality GPA Points
Current Term:		7.000	7.000	7.000	7.000	17.000
						2.428

Unofficial Transcript

Subject Course		Title	Grade	Credit Hours	Quality Points	R
CHEM	1411	GENERAL CHEMISTRY I	TW	4.000	0.000	
MATH	1314	COLLEGE ALGEBRA	TA	3.000	12.000	
PSYC	2301	GENERAL PSYCHOLOGY	TB	3.000	9.000	
		Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality GPA Points
Current Term:		10.000	6.000	6.000	6.000	21.000
						3.500

Unofficial Transcript

Subject Course		Title	Grade	Credit Hours	Quality Points	R
CHEM	1411	GENERAL CHEMISTRY I	TB	4.000	0.000	E
COMM	1315	PUBLIC SPEAKING	TF	3.000	0.000	

MATH	1316	TRIGONOMETRY	TW	3.000	0.000	
		Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points
Current Term:		10.000	0.000	0.000	3.000	0.000

Unofficial Transcript

SPRING 2016: VICTORIA COLLEGE

Subject	Course	Title	Grade	Credit Hours	Quality Points	R
ENGL	1301	COMPOSITION I	TC	3.000	6.000	
HIST	1302	US HISTORY SINCE 1865	TF	3.000	0.000	E
MATH	1314	COLLEGE ALGEBRA	TW	3.000	0.000	
POLS	2306	STATE AND LOCAL GOVERNMENT	TD	3.000	3.000	
		Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points
Current Term:		12.000	6.000	6.000	6.000	9.000

Unofficial Transcript

SUM I 2016: VICTORIA COLLEGE

Subject	Course	Title	Grade	Credit Hours	Quality Points	R
ENGL	1302	COMPOSITION II	TC	3.000	6.000	
		Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points
Current Term:		3.000	3.000	3.000	3.000	6.000

Unofficial Transcript

SUM I 2019: VICTORIA COLLEGE

Subject	Course	Title	Grade	Credit Hours	Quality Points	R
HIST	1301	U.S.HISTORY TO 1865	TB	3.000	9.000	
		Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points
Current Term:		3.000	3.000	3.000	3.000	9.000

Unofficial Transcript

INSTITUTION CREDIT -Top-

Term: Spring Full Term 2022

College: Science and Engineering
Major: Biology
Student Type: Transfer
Academic Standing: Good Standing
Additional Standing: Dean's List

Subject Course Level Title				Grade	Credit Hours	Quality Points	Start and End Dates	R
ARTS	1301	U	ART AND SOCIETY	A	3.000	12.000		
CHEM	1411	U	GENERAL CHEMISTRY I	A	4.000	16.000		I
HIST	1302	U	U.S. HISTORY SINCE 1865	A	3.000	12.000		I
PHIL	1301	U	INTRODUCTION TO PHILOSOPHY	A	3.000	12.000		

				Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:				13.000	13.000	13.000	13.000	52.000	4.000
Cumulative:				13.000	13.000	13.000	13.000	52.000	4.000

Unofficial Transcript

Term: Summer I Full Term 2022

College: Science and Engineering
Major: Biology
Student Type: Continuing
Academic Standing: Good Standing

Subject Course Level Title				Grade	Credit Hours	Quality Points	Start and End Dates	R
BIOL	2416	U	GENETICS	B	4.000	12.000		

				Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:				4.000	4.000	4.000	4.000	12.000	3.000
Cumulative:				17.000	17.000	17.000	17.000	64.000	3.764

Unofficial Transcript

Term: Fall Full Term 2022

College: Science
Major: Biology
Student Type: Continuing
Academic Standing: Good Standing

Subject Course Level Title				Grade	Credit Hours	Quality Points	Start and End Dates	R
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BIOL	2371	U	PRINCIPLES OF EVOLUTION	A	3.000	12.000
CHEM	1412	U	GENERAL CHEMISTRY II	A	4.000	16.000
MATH	2312	U	PRECALCULUS	A	3.000	12.000

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	10.000	10.000	10.000	10.000	40.000	4.000
Cumulative:	27.000	27.000	27.000	27.000	104.000	3.851

Unofficial Transcript

Term: Spring Full Term 2023

College: Science
Major: Biology
Student Type: Continuing
Academic Standing: Good Standing

Subject	Course	Level	Title	Grade	Credit Hours	Quality Points	Start and End Dates	R
BIOL	4370	U	MARICULTURE	A	3.000	12.000		
CHEM	3411	U	ORGANIC CHEMISTRY I	A	4.000	16.000		
MATH	2413	U	CALCULUS I	A	4.000	16.000		

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	11.000	11.000	11.000	11.000	44.000	4.000
Cumulative:	38.000	38.000	38.000	38.000	148.000	3.894

Unofficial Transcript

TRANSCRIPT TOTALS (UNDERGRADUATE) -Top-

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Total Institution:	38.000	38.000	38.000	38.000	148.000	3.894
Total Transfer:	52.000	29.000	29.000	32.000	74.000	2.312
Overall:	90.000	67.000	67.000	70.000	222.000	3.171

Unofficial Transcript

COURSES IN PROGRESS -Top-

Term: Fall Full Term 2023

College:

Major:

Student Type:

Science

Biology

Continuing

Subject

Course

Level

Title

Credit Hours

Start and End Dates

BIOL	3413	U	Invertebrate Zoology	4.000	
CHEM	3412	U	Organic Chemistry II	4.000	
GULF	3101	U	Gulf of Mexico Studies I	1.000	
MATH	2414	U	Calculus II	4.000	

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RELEASE: 8.7.1

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