

Nicole Kumbula
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EDUCATION

Harte Research Institute for the Gulf of Mexico Studies- Texas A and M-Corpus Christi, TX **May 2023**
Master of Science in Chemistry (by research), GPA: 3.20
Master Thesis: "Total Alkalinity dynamics in the Northwestern Gulf of Mexico"

Bates College, Lewiston, ME **2021**
Bachelor of Science in Chemistry, GPA: 3.65
General Education Concentration (GEC): Field Studies: Natural Science and Globalization
Senior Thesis: "Characterization of Silicate melts by X-ray and Neutron Diffraction"

Junior Fall 2019 Semester Abroad: School of International Training (SIT) honors program

Multi country social justice and sustainability program - New York; Buenos Aires; Barcelona and Cape Town,
In person field case studies completed: Impacts of water pollution in Matanza Riachuelo River Basin, Buenos Aires, Argentina and The case of Air pollution in the Barcelona Metropolitan Area, Spain

Relevant Coursework: Advanced Instrumental Analysis, Analytical Spectroscopy and Electrochemistry, Chemical Oceanography, Design of Computational Systems, Earth Surfaces, Environment and Change, Environmental Geochemistry, Advanced Inorganic Chemistry, Organic Chemistry II, Quantum Chemistry, Hydrogeology, Research in Chemical Sciences, Statistical Methods in Research

SKILLS

- **Field and Lab Skills:** Qualitative water sampling-TSS, TDS, pH Spectroscopy- NMR, IR, GC-MS, and Ion Chromatography, Operating Apollo SciTech Dissolved Inorganic Carbon, and Total Alkalinity Analyzer, Potentiometric Calcium titration, 1600°C MHI furnace, Literature review for experiment design, synthesis and extraction
- **Technical skills:** Data analysis and presentation in Python and R, MATLAB, ArcGIS, Descriptive Statistics

HONORS AND AWARDS

Harte Research Institute Crutchfield masters fellowship (\$35 000/year)	2021-2023
Bates College scholarship (\$75 000/year)	2017-2021
Bobcat 10K award ventures competition 2 nd runner-up prize (\$2500)	2021
Bates Center of Purposeful Work Remote Summer 2020 Research funding (\$1700)	2020
Bates College 2021 graduation day senior student speaker	2021
Bates College Key alumni honor society	2021
Dean's list for Academic Excellence	2017,2018

RESEARCH EXPERIENCE

Harte Research Institute at Texas A and M-Corpus Christi, TX **July 2021-present**
Graduate Research Assistant and Crutchfield fellow
Professor Xiping Hu, Ecosystem Science and Modelling lab

- Assist with determination of seawater carbonate chemistry parameters through running Ca²⁺ titrations, dissolved inorganic oxygen and total alkalinity analyzer, salinity, and pH of sea water samples collected
- Field trips involve monthly sampling in local bays and estuaries for the Mission-Aransas National Estuarine Research Reserve at UT Austin Marine Science Institute (UTMSI)
- Participated in Gulf of Mexico August 2021 week-long sampling cruise onboard RV Pelican of the Louisiana and Texas coast lines. Co-lead PI, Professor Steve DiMarco (Texas A and M-College Station, Physical Oceanographer)
- Data processing techniques use R, MATLAB, and descriptive Statistics

SUNY, Cortland, NY (Remote)

Computational Chemistry Teaching Research Assistant

June-July 2020

Professor Karen Downey, Chemistry Department

- Designed virtual laboratories for physical chemistry instruction using the General Atomic and Molecular Electronic Structure System (GAMESS) to model and create learning objectives
- Collaborated on making chemistry labs accessible in a virtual teaching and learning environment

Bates College, Lewiston, ME

Petrology and Geochemistry Laboratory Research Assistant

June-August 2019

Professor Genevieve Robert laboratory, Earth, and Climate Sciences Department

- Synthesized silicate glass samples to identify physical and chemical processes of high temperature melts
- Responsibilities-Cut rocks, drilled, set temperature programs, analyzed viscosity data in Excel; Equipment Operated: 1600°C MHI High temperature oven furnace, Parallel plate viscometer, Concentric cylinder viscometer

Environmental Data Research Fellow at Morse Mountain Conservation Area

June-July 2018

Professor Matthew Jadud, Digital and Computational Studies Department

- Conducted data management and analysis with a team aimed to find effective ways for a newly formed consortium of coastal stations to collect, document and store its abiotic and biotic data on climate change in the Gulf of Maine coast
- Projects completed: Intertidal transect sample collection and data reporting at Schoodic Institute in Winter Harbor, ME, drafted a Data Management Plan for NeCSA, organized temperature data sets in Python and R, website building using WordPress and delivered a poster presentation at Bates 2018 Parents weekend

TEACHING EXPERIENCE

Bates College, Lewiston, ME

Teaching Assistant for Atomic and Molecular Structure Laboratory (CHEM 107,108)

2019-2020

- Assisted instructors in preparing and coordinating weekly three-hour labs for 24 introductory chemistry students
- Oriented students on proper use of glassware, instrumentation; cleaned after lab, evaluated laboratory assignments, offered feedback, and met with students outside of lab

PRESENTATION

Nicole Kumbula, ***“Carbonate Chemistry Trends in the Northwestern Gulf of Mexico”*** a preliminary master’s thesis talk -Texas A and M-Corpus Christi Research and Innovation week, Annual Spring Student Research Forum (In-person presentation), Corpus Christi, TX (April 2022)

Nicole Kumbula, ***“Characterization of Silicate melts by X-ray and Neutron Diffraction”***

-Bates College Annual Mount David Research Summit Forum (Thesis virtual presentation), -Lewiston, ME (May 2021)

Nicole Kumbula, Trisha Kibugi and Kattie Crossing ***“Environmental Data Management and Analysis for the Northeastern Coastal Stations Alliance”***

-Back to Bates Weekend Summer Research Poster Presentations -Lewiston, ME (October 2018)

ENTREPRENUERSHIP/ WORK EXPERIENCE

Ukama Igasva Social Venture, Chivhu, Zimbabwe

2021-Present

Founder

- A communal cattle breeding social venture aimed at addressing food insecurity through the provision of cattle for agricultural use in Serima village, Zimbabwe (currently have 9 cattle)
- Connect Zimbabwean students abroad with resources and networks to start and run family and community projects back home

Singmark Clothing Apparel, Harare, Zimbabwe (Family Business)

2005-Present

Assistant and Consultant

- Advise with running the school uniform apparel business and other small-scale business projects in real estate, cattle, and poultry farming

U.S. Embassy Education Advising Center, Harare, Zimbabwe

Education USA Intern

July 2016-July 2017

- Responded to emails, telephone calls and managed Facebook page; maintained membership database
- Provided information to inquiries on studying in the U.S, college applications and interacted with prospective students from diverse backgrounds, parents, diplomats, and college representatives

LEADERSHIP/VOLUNTEER EXPERIENCE

Texas A and M, Corpus Christi, TX

July 2021-present

Incoming Editor-in-Chief for the Third Coast Science Magazine, published by graduate students in the district

Member of Harte Research Institute student and staff book club Spring- Summer 2022 series (Facilitated two discussions)

Peer advisor for prospective graduate school applicants based in Zimbabwe through Elevate Trust and Education USA, Opportunity Fund, Harare, Zimbabwe

Bates College, Lewiston, ME

2018-2021

Residence Coordinator serving as primary resource guide in residence hall

Africana club Treasurer and Community Liaison

2019 Reunion Transportation Coordinator in charge of organizing shuttles for Alumni weekend

Homemade mask costume stitcher producing CDC recommended cloth masks for essential college campus workers

Trinity Jubilee Center job search assistant helping with resume and cover letter editing for newly settled immigrants in Lewiston

PERSONAL

Languages: Fluent English and Shona(native); beginner conversational Spanish and Swahili

Member: Yorktown Baptist church young professionals, Student volunteer club, TAMU-CC Women in Geosciences

Interests: Public Speaking, Event planning, Watching historical documentaries, Travel Journaling, and Multicultural cooking enthusiast

REFERENCES

- 1) Xinping Hu, PhD
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- 2) Genevieve Robert, PhD
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