

2023

TIERA Annual Report



Message from the Director



Dear Friends,

The heat and fires this past summer were a vivid reminder that today's youth will inherit a planet quite different from the one we grew up in. To be successful and have a positive impact, today's young people desperately need to understand and navigate complex feedbacks between societal and environmental conditions.

How can we help prepare them for this challenge? By teaching them to think and communicate across traditional disciplinary silos. By developing the ability to work effectively and respectfully with stakeholders from across the spectrum. By building appreciation for connections between local, regional and global scales. Today's students hunger for this training, but universities have been slow to meet this need. Demand is already high and continuing to grow.

TIERA is an out-of-the-box program that was designed specifically to meet this need. The program is still new - only in its third year - but the results are resounding. In 2023, we took more students, staff and faculty to Ecuador than ever, with strong representation from across the university and BIPOC students. We also witnessed an exceptional suite of student-led projects and built a strong cadre of faculty mentors and researchers. Importantly, all these gains have been co-designed and aligned with benefits to FCAT, our local partners in Ecuador.

We believe that this program is unique in today's higher educational landscape and are excited about where we are heading. As always, we welcome any feedback or ideas so please reach out!

Jordan Karubian

Professor, Tulane University



TIERA Program Overview



Students today are coming of age in an era defined by environmental crises that include climate change and biodiversity loss. Legitimate concerns about the future are exacerbated by a lack of agency and sense of powerlessness. While we are all affected by these environmental problems, BIPOC communities often bear the brunt of suffering while also lacking a 'seat at the table' when policies are developed, reflecting larger systems of oppression and marginalization. The TIERA (Tulane Interdisciplinary Environmental Research & Action) Program was created to address these inter-locking issues and break this downward cycle, by training a capable, diverse, and empowered cadre of future environmental leaders.

TIERA trains students to think, communicate, and conduct research across traditional disciplinary boundaries, and within a community-engaged framework. The core experience takes place in Ecuador, where we have led field courses for over one decade. Here, where an expanding agricultural frontier and biodiversity-rich forests exist side-by-side, students are immersed in the real-world, grassroots research and conservation program of FCAT, an award-winning NGO with over 20 years of experience. Students interact and work closely with local residents in FCAT's reserve and field station on projects that directly contribute to real-world gains in conservation, including restoring rainforest habitat, strengthening food and water security, protecting endangered species, and developing viable economic alternatives to deforestation. These linkages between scholarship and conservation outcomes make TIERA a unique experiential learning experience for students who are passionate about environmental justice.

Program Staff

*Megan Narasimhan, MS
Program Manager*



*Dr. Jordan Karubian
Professor*

*Liat Perlin, MA
Program Coordinator*



2023 At A Glance

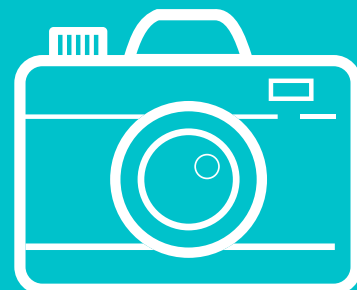


40 TIERA
undergraduates spent
644 days in Ecuador

\$34k
given in
tuition
scholarships

\$38k
received in
intramural
grants

53%
received
financial aid or
grants



73%
identified as
female

44 majors
and minors
represented

33%
identified
as BIPOC

Experiential, Community-Engaged Learning



The Two-Week Field Course

TIERA field courses provide a unique opportunity for students to earn course credit by linking experiential learning with hands-on research experiences while immersed in an award winning community driven conservation program. Students and faculty travel to Ecuador for a two-week intensive field course where they work closely with our local community partners at FCAT.

While on the course, students design, implement, and write up field based research projects and receive regular lectures on socio-ecological conservation from experts and practitioners.



The Scholars Track

Upon completing the 2-week field course, students can deepen their experience through intensive research, community projects, and professional skills development by continuing involvement through the Scholars Track.

Students work closely with TIERA staff and Faculty affiliates to develop research or community development projects that relate to the environmental justice and conservation work TIERA supports at the FCAT station. Some project examples include: research on water quality in Ecuadorian homes, implementation of a permaculture model farm at the FCAT station, analyzing optimal rainforest regeneration, and more!

Preparing Students for Diverse Careers



By: Sorrell Brown, TIERA Program, Class of 2021

The TIERA program gave me hands-on experience in community based research. I learned to gather data, collaborate with others, and most importantly: come up with context dependent solutions to social and environmental injustices.

After graduating from Tulane, I started my own construction company called Rellestate Renovations. I use this same community-based research method when engaging with clients and while problem solving with my team – resulting in 100% project execution and high client satisfaction. TIERA taught me to center my work on forming respectful and empowering relationships with others. This has made me a better leader and friend, and taught me how to incorporate transformational environmental advocacy into all aspects of my life. I never would have thought that I would utilize this way of thinking outside of scientific research, but this goes to show how applicable the things I learned in the TIERA program are to my professional life. Thank you TIERA!



Community-Engaged Research Across the Disciplines



My students and I are compiling a list of culturally relevant and useful plants present in and around the FCAT property, whether cultivated or wild. Through interviews and participant observation, students record plant uses for medicinal, culinary, architectural, and artistic purposes. We research how migratory processes result in unique food dishes and women's knowledge of plants as it relates to female medical concerns and raising and caring for children. As this research continues, we aim to widen our scope to consider human-animal connections and what motivates students and FCAT staff interests in working on certain research projects over others. We would also like to continue exploring ethnobotanical knowledge, using additional methods and participants.

Nicole Katin, Senior Professor of Practice, Department of Anthropology



A current goal for FCAT is to reconnect fragmented forest. Measuring the ideal environment for reforestation in the in-between-space is key. We are a team of undergraduate engineers creating a mesh sensor network to take measurements that are sent directly to a gateway data system. We have created a prototype sensor node to measure abiotic components of the environment such as soil moisture, humidity, temperature, and sunlight. Using radio, the data is sent and stored in a database managed by FCAT field biologists. This is a low-cost system that will help FCAT achieve efficient and effective reforestation and develop applied engineering and conservation skills in TIERA undergraduate students.

Maddie Winiski, Senior, Engineering & Physics Double Major

Community-Engaged Research Across the Disciplines



I am a 3rd year PhD student in the Hannah Frank lab. I am broadly interested in bat conservation biology and stress physiology; my research focuses on understanding the ways that landscape degradation, climate change, and pathogen presence influence bat communities and their health. Over the past 3 years, our lab has been working on capturing, identifying, and sampling the bats on the FCAT Reserve with the help of FCAT staff Dario Cantos and Luis Zambrano. To date, we have captured over 50 species! My upcoming projects will also explore passive monitoring techniques to further address these themes. I enjoy and value working at FCAT for the opportunity to better understand local landscapes via the knowledge and community of local experts and residents.

Phoebe Reuben, PhD Student, Department of Ecology and Evolutionary Biology



I am a Masters Student working with TIERA to develop an English as a Second Language (ESL) curriculum for employees at FCAT. I will be traveling to the FCAT research station to implement the ESL curriculum that I have developed together with Ecuadorian instructors. I am excited about this because FCAT employees are local experts but lack of English proficiency can limit their capacity to collaborate with international researchers and students. As such, the organization put out a call for English language training, and I am really grateful for this opportunity to meet this need while developing my pedagogical teaching skills.

Emily Houtz, Graduate Student, Department of Ecology and Evolutionary Biology

Impact



Students and affiliated faculty interact and work closely with local Ecuadorian residents on projects that directly contribute to real-world gains in conservation. This enables students to directly link their learning and research to positive societal change!



Developing viable economic alternatives to deforestation



Restoring rainforest habitat



Protecting endangered species



Strengthening food and water security

Fundación para la Conservación de los Andes Tropicales (FCAT)



TIERA's Partner Organization

Our counterpart at TIERA is FCAT, an award-winning Ecuadorian NGO. The FCAT team works together as a consolidated group to conserve biodiversity and ecosystem services by improving the well-being of local residents in the region surrounding the reserve. The TIERA program accelerates mission achievement while providing invaluable intercultural exchange that develops the personal and professional capacity of FCAT staff and students to be effective conservation practitioners.

Karla Zambrano is a local leader that serves as the Director of FCAT's Field Station. Karla explains that ***“Interaction with TIERA students has been interesting because every year different people visit the station bringing their unique cultures and personalities. This exchange has been personally enriching.”***

Knowledge exchange between students, faculty, and FCAT staff has contributed to various accomplishments for FCAT, benefiting local Ecuadorian communities, including women advocates for conservation and youth, while developing the capabilities of staff. Also, the fees TIERA affiliates pay for staying at the FCAT station help to support FCAT's initiatives and provide employment and training opportunities for local residents.

Engaging with the FCAT staff's deep knowledge of the environment, culture, and social dynamics has challenged my assumptions and expanded my perspective. This experience has humbled me, making me acutely aware of the limitations of my own background and biases. By embracing the expertise of local communities, I now hope to approach research with a commitment to collaboration, cultural sensitivity, and a genuine desire to amplify their voices.

—Megan, Summer '23 Participant



Student Testimonials

From Summer 2023 Participants



My experience in the Choco rainforest was life-changing. It not only deepened my understanding of biodiversity and the delicate ecological balance but also instilled in me a profound sense of responsibility towards the environment and the local communities. It reinforced the belief that conservation efforts must go hand in hand with social development, and education and empowerment are crucial components of creating sustainable change. I left the rainforest with a renewed commitment to advocate for the protection of fragile ecosystems and promoting equitable and sustainable practices for the benefit of both nature and humanity. -Ciel



[Before participating] I felt bleak about the future of the rainforest, and I know many other members of my generation feel similarly. So, if I discuss what I saw and learned, I believe I can spread that spark of hope I have and help ignite more optimism about conservation efforts. -Lydia



Being immersed in community-engaged research helped me to broaden my appreciation of cultural heritage. Through this kind of collaborative research, I discovered the depth of knowledge and wisdom held by these communities. I developed a profound appreciation for the unique contributions small communities bring to the research landscape. By working closely with community members, researchers can bridge the gap between academic and practical knowledge. Working with the FCAT staff was one of my favorite parts of the entire experience for this reason.

-Megan

Thank You!



We extend our gratitude to our Tulane funders for enabling our work. Our work would not be possible without the support of the President's Office, Newcomb Institute, the Stone Center for Latin American Studies, as well as donors. We are excited about what is in store for 2024 and to bring more students to Ecuador through this life-changing program.



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SCHOOL of SCIENCE
& ENGINEERING



TULANE UNIVERSITY
STONE CENTER for
LATIN AMERICAN STUDIES



Newcomb Institute
TULANE UNIVERSITY



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Office of the President