

Celebrate Earlham Excellence

# Epic Expo

October 18, 2024



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**Planning Team**

Kate Boggs, Mila P. Cooper, Brigitte Franklin, and Brian LaDuca

The Epic Expo planning team thanks our campus partners for their support for the Fall 2024 Epic Expo: Epic Centers & Programs, Knoll Bendsen, Cathryn Dickman, Jennifer Ferrell, Natalie Hart, Rachel Kelly, Julia Muse, José-Ignacio Pareja, Jeff Templeton, Facilities and Housekeeping, Information Technology, Institutional Research, Marketing & Communications, and the Jazz We extend a special thank you to all faculty who coach, mentor and advise our students.

## Welcome to the Epic Expo: Ignite Your Potential

Hey everyone,

I'm thrilled to welcome you to Epic Expo, the annual vibrant celebration of student success and the transformative power of experiential learning at Earlham. This year's Expo is innovative and more unique than ever while still showcasing the incredible work our students have done through the College's co-curricular programs, Epic Advantage, Summer Collaborative Research and so much more!

### Why is the Epic Expo Different?

We've revamped the Expo to better highlight the diverse and impactful experiences our students gain beyond the classroom. From immersive projects and global adventures to career-launching opportunities and personal growth, you'll see firsthand how Earlham is shaping the future. You can even experience alumni journeys in the brand new Storytelling Block featuring folks from the Class of '83, '94, and 2005.

### What to Expect:

- **Innovative Projects:** Discover groundbreaking student projects spanning entrepreneurship, healthcare, social justice, and sustainability.
- **Global Perspectives:** Explore how study abroad and cultural immersion experiences broaden horizons and create global citizens.
- **Career Success:** Learn how Epic Advantage empowers students with internships, networking skills, and career readiness.
- **Personal Growth:** Witness how dedicated students and alumni have discovered their passions, continue to foster leadership, and cultivate personal growth.
- **Collaboration and Innovation:** Celebrate faculty-student partnerships and groundbreaking research.

### This is a day of celebration, connection, and inspiration.

Meet the inspiring students, faculty, staff, and alumni who are committed to the success of Earlham College.

Discover how Earlham's experiential learning programs are shaping the future.

### Let's make this year's Epic Expo unforgettable!

Best regards,  
Brian LaDuca, Associate Vice President of Academic Affairs



## **Acknowledgments**

The experiences showcased at The Epic Expo are made possible through a variety of invaluable and generously donor-funded programs including:

### **Epic Advantage**

The Epic Advantage Program provides a funded career-discerning internship, research experience, faculty-led experience, or community-based project.

### **Summer Collaborative Research**

Summer student-faculty collaborative research experiences have been offered on and off campus since 1988 thanks to generous funding from alumni, faculty, and foundation donors.

### **Freeman Foundation**

The Freeman Foundation supports internship experiences in East and Southeast Asia.

### **Richmond Residency**

The Richmond Residency Program supports summer internships in Richmond and Wayne County, primarily with nonprofit organizations.

### **Center for Global Health Internship Program**

The Center for Global Health Internship Program supports health-focused internships and research experiences at major research institutions across the country.

### **Earlham Network Partners**

The Center for Career Education works to build strategic relationships with employers that offer robust internship experiences for Earlham students.

**Thank you to all of our generous donors. Your support is instrumental in empowering Earlham students to pursue their educational goals.**

**Alan and Peggy Scantland  
Earlham Internship Assistance Fund  
Faller Family Internship Assistance Fund  
Freeman Asia Foundation  
Landrum Bolling International Studies Endowed Internship  
Libby Yunger Academic Opportunity Endowed Fund  
Marcia Solomon Endowed Internship Fund for Health Sciences  
Margaret McCoy Health Sciences Internship**

## Schedule of Events

<b>11:00 AM</b>	<b>Pre-Epic Expo Event Metals &amp; Jewelry and Ceramics Student Art Sale</b>	<i>Runyan Center, 1<sup>st</sup> floor</i>
<b>1:00 PM</b>	<b>Welcome Kick-Off</b>  Opening Remarks Earlham Jazz Ensemble Light Refreshments	<i>Athletic &amp; Wellness Center (AWC)</i>
<b>1:45 PM</b>	<b>Poster Presentations</b>	<i>Trueblood Fieldhouse, AWC</i>
<b>1:45 PM</b>	<b>Storytelling Block</b>	<i>Blackbox Theatre Center for Visual &amp; Performing Arts 143</i>
<b>4:00 PM</b>	<b>Concurrent Sessions</b>	<i>AWC &amp; CVPA</i>

Gender Underground: DC to Stockholm Epic Advantage, *AWC 2240*

Davis Peace Prize- The Kama Campaign Project, *CVPA 150*

Hiking with Hadrian: Field reports from a trek across Roman Britain, *AWC 2225-B*

Interfaith Conflict Resolution and Peacebuilding: Case Studies in Bali and Aceh, *AWC 2225-A*

Perspectives of Granada: Presentation of Learning for Spain Off-Campus Program, *CVPA 216*



# POSTER PRESENTATIONS

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## **RICHMOND RESIDENCY INTERNSHIP PROGRAM**

### **Richmond Residency with Richmond Art Museum Dev Agrawal**

This summer, I had the opportunity to participate in the Richmond Residency program with the Richmond Art Museum, where I immersed myself in an environment dedicated to creative exploration and artistic growth. Through this residency, I engaged with the diverse community of Richmond. This presentation will cover my key experiences from the residency, and highlight the projects I worked on.

### **Richmond Residency: Teaching English as a Second Language Mariela Camacho**

In my presentation, I will share insights from my residency at the Amigos: Richmond Latino Center, where I taught English as a Second Language (ESL) to a group of Latina mothers. These women, who were often stay-at-home moms, faced significant adversity due to language barriers, which limited their access to opportunities. The classes were designed to fit into their busy schedules, taking place while their children participated in tennis lessons. The intimate class size (2-4 participants) allowed for personalized instruction, which helped the women improve their language skills in a supportive environment. This initiative not only provided them with the opportunity to learn English but also empowered them to navigate their daily challenges more confidently.

### **Interviewing Descendants of Freedom Seekers at the Levi & Catharine Coffin House Charlie Conrad**

I interned at the Levi and Catharine Coffin House, a historic site in Fountain City, Indiana, the preserved home of Levi and Catharine Coffin, who both served on the Underground Railroad. During my time there, my main work was on a history project involving two volunteers from the Coffin House. The project was based on interviewing two descendants of freedom seekers who were helped by the Coffins, one who lived in Fountain City and one who was descended from the triracial Longtown settlement, and transcribing the recordings of the interviews in order to offer an understanding of how the actions of their ancestors affect their lives in the present and how to handle the legacy that those ancestors left. I learned a lot during my internship, including the importance of oral history in better understanding a person or place as details are filled in.

## **Community Engagement Through the Boys and Girls Club of Wayne County** **Zain Kamal Hammad**

I had the privilege of working with the Boys and Girls Club of Wayne County in Richmond, Indiana. This experience transformed my perspective on community engagement and deepened my connection with Richmond. Through daily interactions with the members and staff, I not only built meaningful relationships but also made a tangible impact on the lives of the kids I mentored. The experience gave me a sense of belonging, allowing me to see myself as an integral part of the Richmond community. In this presentation, I will reflect on the ways this involvement shaped my interactions within the city, helped me forge new relationships, and allowed me to contribute positively to the lives of the young people I worked with.

## **Richmond Residency: Parks and Recreation** **Ayman Husain**

My summer internship through the Richmond Residency Program was with Richmond Parks and Recreation. My responsibilities ranged from organizing and planning events, to managing a summer camp and attending meetings with local Richmond business leaders and entrepreneurs. This experience gave me more insight into the Richmond community.

## **Creating, Connecting, and Contributing: My Internship at Townsend Community Center** **Christine John**

During my internship at the Townsend Community Center in Richmond, Indiana, I had the opportunity to contribute in several meaningful ways. One of the most exciting challenges was building a completely new website from scratch. It was rewarding to know that my work gave the center a modern, functional platform to better connect with the community. Additionally, I helped design signs for their events, which gave me a chance to tap into my creativity. As a counselor for their summer school, I loved interacting with the kids and supporting their learning journey—it was fulfilling to see the positive impact I had on their experience. I also helped organize and run events, which taught me a lot about teamwork and event coordination. Overall, the experience made me feel proud and more confident in my abilities, knowing I could contribute to such a longstanding community institution.

## **Enhancing Patient Experience: Behind the Scenes at Well Care Community Health** **Giselle Nishimwe**

This presentation highlights the key experiences from my summer internship at Well Care Community Health in Richmond, Indiana. This internship provided hands-on involvement in various administrative and patient support roles, including greeting and checking in patients, assisting with specialty care referrals, and handling clerical duties like scanning, filing, and sorting mail. Additionally, I helped facilitate pre-screening questionnaires for patient appointments. Through these tasks, I gained valuable insight into the essential role of administrative work in enhancing the efficiency of community health operations and improving patient experiences. This opportunity offered a deeper understanding of the patient journey and the vital behind-the-scenes work required to maintain effective healthcare services.



## **Richmond Residency Internship At The Wayne County Historical Museum Vela Mkhonta**

This summer, I had the privilege of interning at the Wayne County Historical Museum, where I worked closely with the Collections Manager and museum staff. My primary role involved a range of tasks, from managing collection storage and handling inventory backlog to conducting research and processing artifacts. These responsibilities not only sharpened my logistical skills but also provided me with an intriguing insight into a professional museum environment. One of my proudest achievements was curating my own exhibition that will be displayed at the museum, offering me skills and an understanding of the intricacies of exhibit design. Additionally, I assisted with the museum's week-long children's history camp, where I contributed to making history accessible and engaging for young learners. This internship deepened my appreciation for museum work and its role in preserving cultural heritage while allowing me to make a meaningful impact on the local community of Richmond by fostering historical awareness.

## **Richmond Residency Program - Wayne County Area Chamber of Commerce Nghị Le**

My internship was at the Chamber of Commerce which is a local business network for Wayne County. They serve as the unifying link to the WCA community. One of my goals was to develop competent professional interpersonal skills by working in a real-world business setting. I also aimed to gain insights from various business domains and understand their challenges to prepare for future endeavors in business intelligence and data analysis.





## **EPIC ADVANTAGE FACULTY-LED TRIPS**

### **Monitoring Ecosystem Health in Advance of Fish Farm Construction in Seyðisfjörður, East Iceland**

**Presenters: Rainie Berns, Edy Byrum, Gary Coker, Emma Cross, K Hughes, Ulrik Midthun, Trace Snider, Akiko Tajima, Emmett Smith**

Fish farms are an increasingly employed method to alleviate the pressures of fishing on wild populations. Iceland is no exception, with farmed fish production in 2017 close to 21,000 tons. A new operation will be built in Seyðisfjörður in Fall 2024. Many of the residents are opposed to the fish farm construction. In 2021, the Skálanes Nature and Heritage Center collaborated with researchers at Southern Connecticut State University and Earlham College to monitor the health of the ecosystem. We collect data from five stations. Using nutrient analysis, vertical plankton tows, observational recording and aquatic environmental DNA, we catalog the water quality and diversity of marine life in the fjord and compare that to after the fish farm is constructed. Our data will provide solid evidence of the effects fish farms have on their local environments and will aid Icelanders make sound decisions regarding the use of their natural resources.

### **Soil Microbiomes and Transcriptomes from East Iceland Microclimes**

**Presenters: Rainie Berns, Edy Byrum, K Hughes, Ulrik Midthun, Emmett Smith, Trace Snider, Akiko Tajima, Vassily Lombard**

The soil microbiome plays an important role in nutrient cycling and soil health. The microbiome's composition and activity is affected by soil conditions such as temperature and plant cover. Skálanes Nature and Heritage Center is located at the tip of Seyðisfjörður with dramatic elevation changes and limited vegetation, large swaths of which are dominated by *Lupinus nootkatensis*. In Summer 2024, we sampled 20 sites split between low, medium and high elevations with no lupine, some lupine or total lupine cover. We collected soil samples for environmental DNA and RNA and measured parameters of soil chemistry. We are currently performing DNA and RNA extractions from our samples. Next-generation sequencing will be used to identify microorganisms. We will compare biodiversity between microclimates. This data will provide a comprehensive overview of ecosystem health at Skálanes and allow us to develop conceptual models that can be extrapolated to other Arctic and subarctic systems.

### **Sólheimajökull: Measuring an Icelandic glacier in the Anthropocene**

**Presenters: Felix Childress, Porter Libby, Ella Linder, Vassily Lombard, Parsa Mallik, Charlie Peck**

Earlham's Iceland Field Studies group started working at the Sólheimajökull glacier on the South coast of Iceland in 2013 and has returned almost every year since. During that time we have learned how to measure and map the extent and volume of the receding glacier using inexpensive quadcopters to take high quality images and then assembling those with OpenDroneMap (ODM) into 2D and 3D assemblies. Those assemblies are imported into QGIS where spatial and volumetric analysis is performed and visualizations are built.

## **FREEMAN ASIA INTERNSHIP PROGRAM**

### **Freeman Asia Internship – Working at a Japanese Afterschool Program Logan Galliano**

With the support of the Freeman Asia Program, I was able to work in Japan at an After School Elementary School Program. Some parents are too busy working to be able to pick up their children after school so the school created a program that lets students interact with one another and play fun games or making crafts. I want to highlight what it was like working there and express what I learned about Japanese Education and Work Culture through my experiences.

### **Freeman Asia Internship - Working for Youth Development Diana Martinez**

During my internship abroad in Japan, I had the opportunity to work in an international school, engaging with children aged 8 months to 7 years. My role involved assisting in the creation and implementation of educational activities. I contributed to classroom management and facilitated interactive lessons with children with different cultural backgrounds. This experience allowed me to enhance my skills in early childhood education, broaden my cultural competence, and contribute to the holistic development of young learners in an international context.

## **EPIC ADVANTAGE and other funded INDEPENDENT EXPERIENCES**

### **Environmental Awareness and Connection to Land Through Wilderness Expeditions Aija Bowman**

Using my epic advantage funds, I was able to be an intern at a wilderness expedition company in the 4 corners region of Colorado where I learned much in the field of outdoor education. My presentation will discuss the value of wilderness expeditions on all age groups, but specifically kids and teens and the benefits it brings to the world of environmental sustainability. I will touch on connection to land, sense of place, emotion connections, and instilling hope and trust in students through experiential education. Working with Indigenous people and providing their communities with service work is a part of all the expedition programs here after the backpacking and rafting portions. I will discuss the value of these perspectives in regards to social and environmental awareness and recognizing where one has privilege. My presentation is concluded by connecting the wilderness expedition lessons to content in Earlham courses. Finally, I discuss the main concepts learned and key take away from this experience and how I plan to utilize them in my future career of outdoor education. My key takeaways include how to instill values of connection in students; teach environmental awareness in an effective, influential manner; and foster connection to self and connection to place. I also instilled competence and self-trust for participants; and improved my skills in Outdoor Program Logistics and Management.

## **Remote Internship at Photobook Magazine (ArtBound Initiative Program)** **Anahit Aharonyan**

During this summer, I got the opportunity to be an Editorial Intern for Photobook Magazine. I received this opportunity through participating in the ArtBound Program. The program itself prepared me for the internship: how to distinguish the work style of my company, how to face challenges and address them and many more insightful lessons. The internship itself helped me build my editorial skills and work in the field that I want to specialize in the future. My main responsibilities included assisting in writing reports, working on website and enhancing the visibility of it, fact-checking several articles and etc. I'm excited to share more about my participation in ABI and the internship during Epic Expo and talk more about my responsibilities.

## **Clusterin Clings: Unraveling the Complexities of its Heparan Sulfate Affinity** **Ashley Jennings**

The leading cause of irreversible blindness is glaucoma. Glaucoma is characterized by increased pressure that puts a strain on the optic nerve causing loss of vision. Intraocular pressure (IOP) rises when aqueous humor (AH) cannot flow due to the thickening of the trabecular meshwork (TM). Clusterin is a secretory stress response protein that has been found to play a role in the progression of glaucoma. Preliminary data from our lab shows the loss of clusterin leads to an increase of ECM proteins which increases the IOP putting stress on the optic nerve leading to glaucoma. To study the mechanism of how clusterin could reduce the ECM proteins, we studied the interactions of heparan sulfate, a potential receptor for clusterin. Heparan sulfate is a protein that influences the formation of fibronectin and collagen, proteins in the ECM. These experiments will provide mechanistic evidence on how clusterin could be modulating ECM homeostasis.

## **Shaping Success: The Business of Art Glass in a Creative Economy** **Bailey Gibson**

I interned at Zimmerman Art Glass Factory in Corydon, Indiana. My main focus was to gain experience on how to run a small business, as I plan to do one day myself. Over the summer of 2024, I shadowed the office manager, learning the ends and outs of their family owned business. Interning as an operations manager is incredibly important for students majoring in Business Management. During this presentation I will highlight my accomplishments and my newfound knowledge of Business Management.

## **Internship with Delaware North** **Ben Pratt**

Working at Delaware North in Great American Ball Park offers a thrilling and dynamic experience within a major league sports venue. Employees take on diverse roles in food service, hospitality, and event management, contributing to the vibrant atmosphere of game days. The position demands strong customer service skills, teamwork, and the ability to thrive in a fast-paced environment. Staff members interact with fans from around the country, ensuring an exceptional game-day experience. This role not only enhances skills in communication and operational efficiency but also provides a unique opportunity to be part of the excitement and energy of Major League Baseball.

## **Internship as a Cyber Engineer at Socura** **Charles Bowen-Rayner**

During my internship at Socura as a Cyber Engineer, I focused on cybersecurity operations, working with tools such as Jamf, XSOAR, and Python/Big Query. My role involved managing internal devices through Jamf, automating incident response workflows using XSOAR, and leveraging Python for scripting and Big Query for data analysis to provide reports. These efforts contributed to enhancing the efficiency of security operations, reducing incident response time, and improving overall company security. This experience deepened my understanding of automation in cybersecurity and taught me the importance of data-driven decision-making in safeguarding digital environments.

## **Pillows for Paleontology, Discovering Data, and Relocating Fossils: An Internship at the Illinois State Museum** **Chloe Hendrickson**

With the funding of the EPIC program, I was involved in a Summer internship at the Illinois State Museum. There I worked in the paleontology and geology collection and participated in many projects throughout my internship. Some of the projects include making stabilizers for skulls, locating missing data for specimens, and moving a collection of 1,200 fossils. This experience allowed me to apply information I have learned in my Museum Studies classes and my job at the Joseph Moore Museum, and helped expand my overall knowledge of how a museum collection works and some of the challenges they face. This internship also helped prepare me for my future in museum related careers by giving me first-hand experience working with museum collections.

## **Real Estate and Consulting** **Clayton Vignon**

My presentation will focus on my internship as an appraiser assist with Gunn and Associates. I learned how to assist with research, site inspections, property inspections and data analysis to develop a credible real estate appraisal on residential properties.

## **Demystifying Mental Performance: Providing Sports Psychology Education and Support in Saint Lucia** **Conner Del Carmen**

Sports psychology in the Caribbean has largely remained an unknown discipline. This summer, I spent nearly two months on the Caribbean island of Saint Lucia as a sports psychology intern for the United Through Sport charity. I worked with various organizations and teams to provide education and support in areas related to the mental side of sports, instructing on techniques such as visualization, arousal control, and mindfulness; as well as assisting athletes in goal setting and achieving a balance between their sports and personal lives. Most weekdays also involved volunteering as a coach in physical education classes for preschool and elementary school-aged children, including those with disabilities. This session will reflect upon observations of sports, cultural attitudes, and lifestyle in Saint Lucia and how they impact the implementation of sports psychology intervention and mental performance enhancement techniques.

## **Field Focus: Insights from My Internship in Football Training at Bishop Luers High School**

### **David Turner**

During the summer, I interned at Bishop Luers High School, focusing on football workouts. My role involved assisting with daily training sessions, designing drills, and implementing conditioning programs aimed at enhancing athletic performance. Leveraging my knowledge of kinesiology, I helped athletes develop strength, produce power, and move more efficiently in all planes of direction. This applied expertise in biomechanics allowed for tailored workout plans that addressed specific needs and improved overall performance. I gained hands-on experience in coaching, athlete motivation, and sports conditioning techniques. Key achievements included observing significant improvements in team performance and deepening my appreciation for sports science. This experience has strengthened my commitment to a career in athletic training.

## **Dancing Rabbit EcoVillage**

### **Dorothy Pettet**

This presentation will focus on my internship as a village intern with Dancing Rabbit EcoVillage. I was engaged in a variety of tasks related to rural and sustainable living such as organic gardening, natural building, rotational grazing dairy animals and the creation and coordination of a kitchen and worker's cooperative.

## **Mutual Aid as Praxis**

### **Dove Rice-Snow**

In academia, we increasingly speak of mutual aid as a framework for political action. My presentation delves into the very practical pros and cons, obstacles and advantages, of groups such as Food Not Bombs, a Cleveland mutual aid organization I worked with via my internship this last summer.

## **Connecting the Land and People: My Internship at Bernheim**

### **Duncan Jordahl**

I set up a summer internship with Bernheim Forest and Arboretum through the EPIC Advantage program. Through my internship, I had the chance to work in and experience multiple facets of what makes Bernheim, Bernheim. With the Natural Areas team, I got to work on habitat restoration and trail maintenance. With them, I participated in making Bernheim more accessible for both people and animals alike. Working with the Horticulture team, I focused on edible garden maintenance and invasive species control within the arboretum. Finally, there was an opportunity to work with the arts department to learn about how art and nature intersect and to develop art that helps educate people on environmental issues. Through my internship, I gained experience in impacting both human and non-human ecosystems.

## **Buddhist Studies Summer Program at Rangjung Yeshe Gomde California** **Ekaterina Marchenko**

This summer, I studied the foundations of Buddhist philosophy at Rangjung Yeshe Gomde, a Tibetan Buddhist center located amidst redwood forests of Northern California. It was a unique opportunity to learn about Buddhism in the way it is taught to the monastic community - the course was taught by two monks trained in the Tibetan tradition, Tsangsar Tulku Rinpoche and Khenpo Urgyen Tenphel. The program integrated more academic based lectures with numerous opportunities for applying them in practice - one could attend two daily practice sessions, and every week there was a day dedicated for more thorough training. The end of the program culminated in a four day seminar given by Chokyi Nyima Rinpoche, a world-renowned meditation master and teacher in the Kagyu and Nyingma tradition of Tibetan Buddhism.

## **Summer at the Boston College Canine Cognition Center** **Eloise Richardson**

This past summer, I had the opportunity to work as a research assistant at the Boston College Canine Cognition Center. I didn't think I liked research but I knew in order for me to give it an honest shot, I had to be researching animal cognition—and after this summer, I've realized that I want to pursue a PhD. I find dog cognition incredibly valuable because of our close relationships with them. The most exciting thing I got to do this summer was collaborating with one of the grad students to design and pilot a study. Our goal was to find what would increase a dog's focus during a study—specifically on choice tasks, as sometimes dogs appear to make random decisions. It was incredibly exciting to be working on a study that could have improve future dog cognition research.

## **Bridging Resource Gaps for Psychiatric Patients: Insights from a Summer Internship** **Emma Shelton**

My internship placement was at Bloomington Meadows Hospital in Bloomington, IN. I interned there three days a week for the whole summer. I was working in the social services and therapy offices. I was mainly dealing with the psychiatric units of the hospital. I worked with both adults and children. My experience included attending team meetings in the morning and shadowing the art and group therapists. My main project was gathering patient information about basic needs, including access to housing, food, water, gas, and electricity. With the information I gathered, I located the highest needs of the age groups (children, adolescents, and adults) and compiled some resources to fill that gap.

## **Coaching Experience: Midland Baseball 15U** **Ethan Hear**

While coaching 15U baseball in Cincinnati, Ohio, the experience taught me that I want to do something with coaching for the rest of my life. It taught me that I have to learn patience when it comes to players that still need a little bit of coaching to become a successful baseball player.



## **OTU Entrepreneurship Internship**

### **Eric Bindus**

OTU Baseball is dedicated to fostering a love for the game through training programs for players of all levels, especially in underserved communities. Based in Richmond Hill, Ontario, our mission is to enhance skills while instilling core values like resilience and teamwork, inspiring the next generation of players through our online curriculum. During my internship, surrounded by entrepreneurial minds, I stepped out of my comfort zone and embraced new learning opportunities. A sales bootcamp taught me that selling is tough and often a numbers game, requiring persistence and emotional detachment. As the social media manager, I created engaging content that integrated OTU's products, aiming to turn viral moments into sales. This role deepened my digital marketing skills and highlighted the powerful connection between sports and entrepreneurship.

## **Working With Beasts: Internship in Paleontology Lab at Boonshoft Museum**

### **Fenris Jiang**

The Boonshoft Museum of Discovery is a children's museum committed to providing meaningful and entertaining science education and preserving collections for future generations. I worked as a full-time Paleontology lab technician there to prepare fossil specimens for collections and exhibits, which enriches our records and understanding of lost ecosystems in the past, and interpret natural science to visitors. This eight-week-long experience helped me to learn fossil preparation techniques and enhanced museum interpreting skills, as well as strengthened my interest in natural science, understanding of museums' importance in science research and education, and insights of small and localized museums. Therefore, the internship prepared me to keep studying and working in the natural history museum field.

## **AMPERe: Empowering the Future of Additive Manufacturing with Machine Learning**

### **Gannon Murray**

As laser powder bed fusion (LPBF), a 3D printing technique for metal components, becomes increasingly viable for aerospace applications, there is a growing need for enhanced quality control to ensure safety and performance. A key challenge is developing in-situ characterization methods that monitor the fabrication process in real-time. Synchrotron x-ray imaging is a promising approach, but it currently generates complex and noisy images that require manual expert analysis, limiting scalability. To accelerate discovery, automating this image analysis is crucial. This study evaluates the limitations of traditional computer vision methods for analyzing LPBF images and introduces AMPERe (Adaptive Melt Pool Edge Recognition), a new machine learning model that automatically measures critical features in these images with higher precision and efficiency. AMPERe represents a significant step forward in quality assurance for high-stakes manufacturing by enabling faster and more accurate analysis of large datasets.

## **Internship with Civil Defense in Whanganui, New Zealand**

### **Gwyn Martin**

This presentation focuses on my internship with Civil Defense in Whanganui, New Zealand. During my time, I was trained to respond to disasters, participated in outreach programs to educate the public, and helped with NZSAR's re-certification.

**Connecting with Jewish Stories through Language: Uriel Weinreich Yiddish Summer Program 2024**  
**Jacob Gurt**

The YIVO Institute's Yiddish Summer Program is the world's oldest Yiddish language intensive. As a linguist with future research goals involving the study of Jewish Languages and a family history stemming from the Jewish communities of Eastern Europe, participating in the program was an opportunity to immerse myself in a language with deep personal meaning and make connections with scholars and other students of the language at the site of one of the most significant archives of Eastern European Jewish documents in the world. A much-improved command of the language and conversations with friends made there have helped me make connections to other areas of knowledge and further hone my goals moving forward.

**Intern Abroad HQ: Athens, Greece**  
**Jacob Banfield**

During my internship in Athens Greece I was placed in Metropolitan General. In this internship I got to shadow various doctors in the emergency room, operating room, radiology department, and physiotherapy clinic.

**Boston: Semester in the City Impact Project**  
**Jadie Colvin**

This presentation will be about a project I completed during my Semester In the city experience in Boston Last spring. The goal of this project was to create a memorial that serves as a safe space for community members to remember and mourn loved ones who have passed away. I completed this project through community/individual interviewing and archival organization. At the end of the semester I produced a digital space with information of over 20 individuals as well as a physical memorial that is currently at the organization.

**Stop Child Abuse & Neglect Internship**  
**Janaiya Bright**

During the summer of 2024, I interned at SCAN in Fort Wayne, Indiana. I shadowed social workers attending home visits but also doing office visits as well. Some cases included a little more resources than just getting on track to give someone's child a better living environment. Some cases included fatherhood engagement, and other resources that parents or guardians could participate in to excel in their process of getting parental rights back. By shadowing, I learned how to sit and observe different interactions between a child and a parent. I also learned different ways parents and guardians can excel in providing a good life for their child. Though, the experience was rough sometimes, it was definitely worth getting a sense of what the system is actually like.

## **Small Scale Organic Vegetable Farming in Sandy Spring Maryland**

### **Jonathan Costello**

This summer I spent 8 weeks working for Sandy Spring Gardens in Maryland. It is a small, local, organic vegetable farm focused on supporting community with healthy delicious food. With a small team, I planted, cultivated, and harvested a wide variety of vegetables. I maintained and fixed irrigation systems. Between farming and working farmers markets I learned about all levels of the food distribution system. The food I helped produce went to local community members, and was often sold or donated to various food banks and local kitchens. The experience gave me a much deeper understanding of agriculture and horticulture, and made me think about the future of food justice and food systems.

## **Fostering Youth Development and Leadership Through Summer Camp Experiences**

### **Katherine Conner**

This past summer, I worked as an intern at Camp Joy, where I led activities designed to promote teamwork and personal growth among young campers. By planning daily recreational events, guiding group challenges, and providing mentorship, I helped create a supportive environment that encouraged children to step outside their comfort zones and develop new skills. I will reflect on the importance of role models in youth development and explore how programs like these contribute to building stronger communities by teaching children lifelong skills.

## **Assistant Language Teacher in Morioka**

### **Luke Rodgers**

I worked in Morioka public schools helping English teachers in the classroom. I filled in as an ALT (Assistant Language Teacher) for grades 1-9 at five different schools for 9 weeks over the summer. I was at schools daily, interacting with students and teachers, providing instruction and support. It was a good opportunity to be immersed in Japanese language and culture while helping out in a place it was needed. I participated in a demonstration class and meeting, went to an end of semester party and spoke at school assemblies. I encouraged student's interest in cross-cultural connection and English.

## **Dog Shelters In Greece**

### **Madison Ruwersma**

While volunteering through IVHQ at a dog shelter in Greece, I got a glimpse of the best and worst of humanity. I learned a lot about Greek culture surrounding animals, and I got to see firsthand the changes that Greece has gone through with their pets and how people are adjusting to this change. This experience has opened my eyes to a new culture and how America views pets differently than Greece. Going into this experience, I expected shelters similar to those in America, very clinical and equipped for the environment; after completing my volunteer experience I now know that while Greece is working on changing their treatment of pets, there is still a lot of work to be done to improve their shelters.

## **Coaching Licenses**

### **Makayla Hurey**

This summer, I used my Epic Advantage money to complete coaching classes to receive licenses. The licenses allow potential teams to see I have coaching experience which gives me a higher up than others. The coaching Licenses give me a chance to get a better coaching job since I will have licenses that many people will not have. I am going to continue to collect more coaching licenses as I move forward in my coaching career.

## **Empowering Children with Developmental Challenges: A Direct Support Professional's Role at Chileda**

### **Mbali Mhlongo**

Over the summer of 2023, I worked as a Direct Support Professional (DSP) at Chileda, a healthcare organization dedicated to improving the quality of life for individuals with cognitive and behavioral challenges. Chileda's mission is to help children and young adults with special needs, including Autism, Traumatic Brain Injury, and other developmental delays, to increase their social behaviors and develop independent living skills. In my role, I worked directly with students to teach essential life skills such as activities of daily living (ADLs), social communication, and leisure activities, while also implementing behavior interventions outlined in each student's Positive Behavior Support Plan (PBPS). This experience not only deepened my understanding of individualized behavior programming but also provided me with insight into therapeutic care approaches tailored to meet the diverse needs of the population we served.

## **Hermann Park Conservancy Field Experience**

### **Meredith Foye**

My internship experience was very rewarding at the Hermann Park Conservancy, a non-profit organization emphasizing the importance of horticulture and park conservancy. This organization founded in 1914 taught me a lot about land stewardship. Hermann Park Conservancy raises millions of dollars each year to enhance and maintain the Park. The Conservancy also manages the design of projects, and then shares construction costs with the City of Houston. As an intern I oversaw programs focused on visitor services, conservation and stewardship, tree care, and operations and maintenance of the McGovern Centennial Gardens. Although physically taxing at times, it confirmed my choice in working with wildlife.

## **EMT Certification: NREMT, Psychomotor Exam, and EVOC**

### **Meredith McGraw**

Throughout the month of July, the accelerated EMT program was taught at Cetronia Ambulance Corp. During the 4 week long program, we learned vital information relating to the human body, medication, state protocols, CPR, patient assessment, patient management, and safe driving standards. At the conclusions of this course Cetronia hosted a psychomotor exam, EVOC training, and provided a voucher for the National Registry-EMT exam. Furthermore, to complete the course we had to complete at minimum 10 patient contacts or 30 hours of ride time.

## **Coaching with Data**

### **Mitchell Roether**

I had an opportunity to coach a group of 15 year old baseball players this summer. The experience was an opportunity for me to experience an expand my leadership and coaching skills. I worked directly with the kids 4 to 5 days a week and traveled with the team for tournaments. We went to Atlanta, Nashville, and Indianapolis to compete. I also got to expand my skills using statistical data, as I analyzed their hitting statistics to try to make them better hitters. This opportunity allowed me to expand my view in what I would like to pursue in the future.

## **Climate Resilience Among Latino Homeowners in Richmond, IN**

### **Moises Zacatelco**

Climate change affects everybody, but some have a harder time improving their climate resilience. Difficulties may arise due to environmental challenges as well as sociopolitical factors. This research focused on the sociopolitical factors that limit climate resiliency among Latino homeowners in Richmond, IN. Our goals were broken down into two categories, data collection and information dissemination. First, climate resilience surveys were administered to Latino homeowners in order to better understand our community's needs, and encourage people to evaluate the energy efficiency of their homes. Second, based on survey responses we attempted to disseminate information about specific home improvements, and available tax incentives to make improving home energy efficiency more attractive and affordable. The survey itself is still open, therefore our final findings are not yet available.

## **Field Experience in the Black Hills of South Dakota**

### **Morgan Ball**

In the summer of 2024, I attended a field camp with the South Dakota School of Mines in the Black Hills of South Dakota. It was a two-week environmental and groundwater field and laboratory course. Most of the work was in groups and involved float mapping different areas within the Black Hills, examining water contamination issues, and addressing possible flood issues in the Rapid City area. I completed this course as part of the requirements for the Earth and Environmental Science major and as a prerequisite for graduate school.

## **Belief in Conspiracy Theories + A Psychology-themed Murder Mystery Escape Room**

### **Nathan Lasersohn**

Over this past summer, I interned with Dr. Shauna Bowes, a post-doc at Vanderbilt, who researches whether certain threats (on an individual or community level) impact how likely people are to believe in conspiracy theories and whether the inverse is true with individual and community-related strengths. The main study I assisted with looked at despair and resilience as predictors of health-related conspiracy beliefs in minority groups. I also researched and categorized open-ended survey responses having to do with threats to the self and to the community. I gained a greater appreciation for the scope and effort that goes into research, and how theories are developed.

## **Elite Physical Therapy**

### **Nic Wilson**

During my internship at Elite Physical Therapy, my aim was to gain a comprehensive understanding of the evaluation, treatment, and rehabilitation processes invoked in outpatient orthopedic physical therapy. While there I developed a proficiency in manual therapy techniques, became skilled in techniques like joint mobilization, soft tissue mobilization, and myofascial release. I also acquired knowledge of dry needling and cupping: Understanding the indications, contraindications, and application of these modalities. This internship helped me gain insights into different career paths within physical therapy (such as outpatient, orthopedics, sports or pediatrics) which helps me discern the specialized area in which I choose to practice.

## **Administration Internship: D.C. United Academy**

### **Oliver Stratton Treadway**

As an intern at D.C. United Academy, I assisted with the administration, logistical, equipment management, and communications aspects. This Academy is a youth and development program for the Major League Soccer club D.C. United. My goals were to gain hand-on experience in a high-level sporting environment. I also wanted to obtain a conceptual understanding of how to plan and organize both short-term and long-term plans, goals and events. The experience at this internship reached far beyond my expectations. From creating and managing inventory spreadsheets, creating player handbooks detailing club policies, to planning and executing a long-term project of putting together and distributing new gear to all players and staff utilizing the new inventory tracking system. This internship was invaluable and further confirms my desire to work in this arena professionally.

## **Real-World Finance**

### **Owen Trotto**

During my internship at Blue Bell Private Wealth Management, I immersed myself in the dynamic world of investment management and client relations. I was responsible for learning about technology in relation to finance, to gain a general understanding of finance, and to understand how a business organization operates. One of my key projects involved creating a cheat sheet for options traders, and another was the differences in 529 plans between states. Along with working on several presentations, including a comprehensive one on options and covered calls, and another comparing exchange-traded funds (ETFs), mutual funds, and closed-end funds. Throughout this experience, I honed essential skills such as Excel Proficiency and effective communication. The mentorship and support from my colleagues significantly enriched my learning journey and helped me understand the importance of teamwork in achieving firm objectives. This presentation will reflect on the internship goals, roles, and accomplishments.



## **My Epic Expo Experience: Working with youth in adapted sports in Costa Rica**

### **Quinn Doden**

My presentation/poster will be about my epic advantage, which I used for an internship in Costa Rica. During my time in Costa Rica I worked with kids with disabilities, assisting them in adapted sports. Adapted sports is a way for kids with disabilities to learn to work as a team, improve motor skills, practice following instructions, etc. It is also a way to disabled children to move their body and in fun and safe environment, and to simply have an enjoyable activity to look forward to in their week. Before being in Costa Rica, I had been studying abroad in Spain, and therefore I was able to speak in to the children and other locals in Spanish. This gave me a greater appreciation for knowing languages outside of English, which has become a dominant universal language.

## **Unpacking Scientific Literature**

### **Reece Zonts**

Scientific Literature (SL) is highly informative and efficient in sharing groundbreaking discoveries in the scientific community. However, SL is written in a fashion geared towards other scientific minds, often densely packed with terminology that is unrecognizable to those who aren't intermediate level STEM scholars at minimum. The general scientific knowledge required to interpret SL makes academic journal publications incomprehensible to the majority of peoples, including novice STEM scholars, barring them from staying up to date on innovations within the scientific community that aren't covered by mainstream news. In an effort to close this gap in information accessibility, I conducted a primary literature review on writing structures of publications from a variety of scientific fields and synthesized my findings into a resource on Unpacking Scientific Literature. Also, due to their reputation as highly informative and particularly dense (as perhaps this one may be), I synthesized an additional resource on Unpacking Abstracts.

## **Struggle Is A School - Organizing Exchange with the Nonviolent Medicaid Army**

### **Rene Gaudreau**

I had the pleasure of interning with the Nonviolent Medicaid Army, which is a grassroots organization that advocates for healthcare as a human right, which was graciously funded by the EPIC Advantage program. I experienced engaging conversations and dialogue with numerous communities across the state of Indiana, as it relates to various theoretical texts. I worked with field organizing, assessing the organizing landscape in various cities and towns throughout Indiana, transcribing personal accounts of individuals' experiences with Medicaid, and studying different methods of pedagogy across various organizations. It was a very personable and rewarding experienced which intensified my passion to working with and helping people.

## **Sheep, Dairy, & Abolition at a Quaker Homestead: Internship at Rokeby Museum**

### **Sabrina Kirchner**

Through a happenstance connection to an Earlham alum, I was drawn to Rokeby Museum in Vermont as the summer Education and Interpretation Intern. As a former Quaker homestead, Rokeby is a site which showcases the history of the sheep and dairy farming industries which shaped Vermont's identity and economy. The family there were staunch abolitionists and assisted an unknown number of freedom seekers. My primary jobs were doing research to update three signs which relate to sheep and dairy farming and assisting with running the two week theater camp in which the children created a story based on Rokeby's history. Both of these roles served to deepen the public's understanding of their states history and to show that history is not frozen in the past, it has a lasting impact on our lives today.

## **Predicting entrepreneurial pitch success using behavioral, textual, and EEG neuroforecasting**

### **Sharon Wong**

Women-owned businesses attract less than 2% of U.S. capital, and closing this gap requires a deeper understanding of how entrepreneurial pitches engage investors. Traditional methods rely on self-reported data, which may not capture real-time decision-making processes. This study addresses the gap by using neuroforecasting, combining EEG, sentiment analysis, and self-reports to predict pitch outcomes. We conducted an experiment with 28 subjects watching 14 Shark Tank pitches, measuring EEG frontal alpha asymmetry (FAA) and neural synchrony to assess attention and motivation. Results showed FAA and dynamic capability significantly predicted investor interest, while textual sentiment analysis had limited impact. Notably, FAA predicted investor interest within 10 seconds of a pitch, and neural synchrony around 50 seconds into the pitch predicted real-world deal outcomes. These findings demonstrate the potential of integrating neurodata with traditional metrics to refine pitch strategies and improve funding success.

## **Building Resilience in Public Health: Insights from Nepal's Epidemiology and Disease Control Initiatives**

### **Shubhangini Shah**

This poster presents work conducted during a summer internship with the Epidemiology and Disease Control Division (EDCD) of Nepal's Ministry of Health, focusing on two key areas: Epidemiology and Outbreak Management, and the Non-Communicable Disease (NCD) and Mental Health Section. During the internship, I reviewed WHO guidelines, analyzed case reports, and contributed to public health initiatives aimed at strengthening Nepal's response to communicable diseases and the rising NCD burden. Key insights from epidemiological data analysis include the implementation of WHO protocols and the development of strategic responses to disease outbreaks. The project also highlighted the challenges of managing the dual burden of infectious and non-communicable diseases within the context of Nepal's limited public health infrastructure. This poster concludes with policy recommendations and future strategies for enhancing Nepal's public health capacity to address emerging crises, with a focus on improving data analysis, collaboration, and resource allocation.

## **SOLUCICON CO2ZERO: Environmental Consultancy in Spain**

### **Sydney Schmidt**

Through this experience, I was able to learn what environmental sustainability looks like from a business perspective and how to market a product/service. I learned valuable skills such as how to read CO2 emission invoices and calculate carbon footprint emissions in accordance with the ISO 14064 standard. Additionally, I was able to gain an understanding of what it would be like to work for a Spanish-speaking company, and similarly, I learned a lot of Spanish sustainability vocabulary.

## **Working with the Richmond Parks and Recreation Department: Making Connections with the Community**

### **Sylvan Gilkey**

The Floral Division of the Richmond Parks and Recs Department works throughout the local area to maintain beautiful pollinator gardens, clear trails in local parks, and conserve and restore local habitat. With the support of the Epic Advantage program, I had a 9-week internship with them in the Naturalist position, helping them to achieve all of these things. I worked to remove invasive plants, aid in identifying different plant species, and improve the quality of the plant life and habitat around Richmond, Indiana. My internship encouraged me to make more connections to the Richmond community that has helped me better understand how environmental sustainability needs to connect with people.

## **Summer Internship in Nicaragua**

### **Tae Sakazaki**

CDCA-JHC has multiple projects around Nicaragua, including Sustainable agriculture, Sustainable Economic Development, Health Care, and Education. I worked at the health clinic in Nueva Vida, Ciudad Sandino, for six weeks in June and July. My main task in the clinic was creating a database of chronic patients with hypertension and diabetes; I checked the last six months of their Glucose and P/A data for over 140 patients. Also, I went to home visits in the community with a nurse to check patients' glucose levels and P/A. This presentation is about what I have learned about community health in Nicaragua and what 'development' means.

## **The Caribbean Philosophical Association Summer School**

### **Tae Sakazaki**

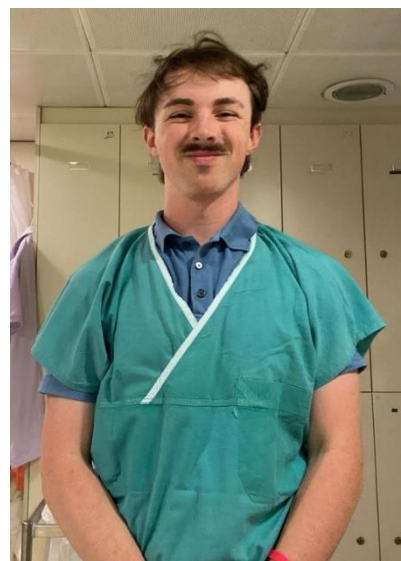
I participated in the Caribbean Philosophical Association Summer School in University of Connecticut for one week in June. The professors gave lectures about various topics, such as Africana Phenomenology and Sankofa Epistemology. It was such a great opportunity for me to explore different areas of Philosophy. This presentation is about what I have learnt from this summer school and what I would like to explore more afterwards.

## **YMCA Summer Camp Counselor Willow Runyon**

Adventure Camp and Sport Camp were both summer camps that took place at the ParkView YMCA location simultaneously for 9 weeks during the summer of 2024. Campers were split into animal-themed groups based on their grade level (Sports Camp consisted of all elementary grades). During camp, campers would engage in differing activities based on the theme of the week. There was a Lego week, a space week, a science week, etc. No matter the theme, the activities were completely hands-on, engaging, and unplugged from technology, providing learning experiences that were stimulating and authentic. My role as a camp counselor was to lead the campers through these activities, provide support, and ensure safety. Each animal group required a counselor, and the camp in general required before/after care camp counselors and special needs camp counselors.

## **Navigating Global Workflows: The Impact of Offshoring on Office Lifestyle and Economic Dynamics Zain Hammad**

After working with a customer service center in New York for Noon, a company based in the Middle East, gaining first-hand experience with offshoring and its implications on office culture, worker lifestyles, and the broader economy. Offshoring, a practice of shifting business operations to another country, deeply influences work environments, employee engagement, and economic systems on both local and international scales. During my tenure, I observed how cultural differences shaped the office lifestyle and how the flow of tasks across borders affected employee satisfaction and productivity. This presentation will explore these dynamics, reflecting on the pros and cons of offshoring, its economic impact, and the insights I gained about its influence on the workforce. I will also discuss how global operations can benefit the economy while posing challenges for employees working in different regions.



## **SUMMER COLLABORATIVE RESEARCH**

### **Associations between amygdala connectivity and experienced discrimination in childhood**

**Presenters: Nick Goode, Linh Nguyen, Eric Potter, and Elina Thomas**

Racism is a public health crisis in the United States. Understanding how experiences of racism and perceived discrimination in marginalized communities impact brain connectivity and function provides a foundation for future research and interventions for mitigating negative outcomes. We utilized data from the ABCD Study® to evaluate associations between perceived discrimination and amygdala connectivity to the thalamus and anterior cingulate cortex in 350 cis-gendered African American children (ages 9-11). A self-report measure of perceived discrimination was measured using the Perceived Discrimination Scale. Linear mixed-effects models were run to assess significance while accounting for covariates such as handedness, puberty status, and highest parent education. After controlling for multiple comparisons, these amygdala connections were not significantly associated with perceived discrimination; however, a significant effect of sex was found for right amygdala connectivity to the bilateral ACC. Post hoc analyses indicated that reported perceived discrimination was significantly higher in males versus females.

### **Constructing E. coli Strains to Study Bacterial Enzymes in D-Amino Acid Toxicity**

**Presenters: Michaela King, Skyler Murray, and Lexie Kuzmishin Nagy**

Amino acids are transported by tRNAs to the ribosome, the site of the protein assembly, during the process of protein synthesis. There are two types of amino acids: D-amino acids (D-aa), which are harmful compounds in protein synthesis, and L-amino acids, which are always used in protein synthesis. D-aminoacyl-tRNA deacetylase, or DTD, is an enzyme that breaks down D-aa mischarged on tRNAs in E.coli bacteria. Similarly, ProXp-x, an enzyme found in soil bacteria, may provide the same protection as DTD. ProXp-x can remove D-amino acids from D-aminoacyl-tRNAs in vitro, but this activity has not been tested in vivo. The goal of our project is to create plasmids that contain the genes that encode for the proX, the ProXp-x gene, the K45A gene, and DTD gene. Once the plasmids are created, we can test the enzyme's ability to protect against D-amino acid toxicity which has already been examined in E. coli in the DTD gene. The K45A however does not have editing abilities so it can act as a negative control. This involves cloning bacteria plasmids, testing for ProXp-x expression, conducting PCRs, gel electrophoresis, restriction digestions, ligations, and transformations. We have successfully made digestions of pBAD33 with SacI and HindIII and K45A PCR. However, our ligations and transformations of Rp-ProXp-x K45A into pBAD33 and DTD into pET15b were not successful which could be caused by many factors and can be studied further.

### **Quantum Computing: Optimization in the New Era**

**Presenters: Shun Suzuki and Javier Orduz**

Following the innovative idea of quantum physics that explains some phenomena classical physics could not, quantum computing has been rapidly developing. Even though it has not been used practically yet, there are some fields where quantum commuting can perform faster than classical computing theoretically. This poster will compare how fast classical and quantum computing perform for optimization after explaining the basic concepts of quantum computing.

## **Generating tRNA Chimeras to Study ProXp-x tRNA Recognition**

**Presenters: Alex Busse, Alec Gellrich, Owen Hodge, Ashutosh Mishra, and Lexie Kuzmishin Nagy**

In protein synthesis, tRNAs must deliver their corresponding amino acids to the ribosome for translation. When these tRNAs are charged with incorrect amino acids, those amino acids must be removed, or the protein synthesized may misfold and reduce organismal fitness. Amino acids can be found in both D or L-enantiomers. When a cell has a profusion of D-amino acids, then D-aminoacyl-tRNAs (D-aa-tRNAs) will form, and there is a decrease in available properly charged aminoacyl-tRNAs (aa-tRNAs) within the cell. Without the wealth of L-aa-tRNA within the cell, there is a decline in the overall fitness of the bacteria. An enzyme called ProXp-x is able to increase the survival of cells by deconstructing D-aa-tRNAs. ProXp-x is able to read and identify a variety of mischarged amino acids. To deacylate mischarged aa-tRNAs, ProXp-x must recognize tRNAs. As such, we designed tRNA chimeras of E. coli tRNA<sup>Pro</sup> to better understand the acceptor stem's importance in tRNA recognition. ProXp-x is known to bind to the acceptor stem region of the tRNA; through site-directed mutagenesis using PCR, single base pairs in the acceptor stem were changed to those found in non-substrates of ProXp-x to determine where ProXp-x binds to tRNA<sup>Pro</sup>. Through a series of PCR's, we identified that the standard primer design of site-directed mutagenesis was unable to fully replicate the whole plasmid. We designed new primers using the Q5 mutagenesis protocol. Using the newly designed primers, we were able to fully replicate the pUC119 tRNA<sup>Pro</sup> (UGG) plasmid with the single base mutation on the 5' stand. This can later be used in kinetic assays to determine the effects of these base pair mutations.

## **In Hot Water: Do Current and Parental Environments Impact Heat Tolerance in Three Eurasian Populations of a Freshwater Crustacean?**

**Presenters: Chris Angell, Tamsyn Hale, and Tertulle Nivrose**

We explored heat acclimatization in two generations of *Daphnia magna* across three different strains. The parental generation were incubated at either 20°C or 28°C then the offspring of both groups were incubated at 20°C. To measure heat tolerance, *Daphnia* from each generation were submerged in a heated bath of 37°C until immobilization. The *Daphnia* in the parental generation reared at 28°C experienced a higher average time to immobilization and reproduced at an earlier age than that of the control parental generation (20°C). This research found no evidence suggesting that this was carried on to the second generation. Additionally, there was some statistical evidence of a difference in heat tolerance between the different strains. These results suggest that the current environment of the *Daphnia* takes precedence in phenotypic expression over their parent's conditions.

## **The Anatomy of Cryptography: Entanglement, Teleportation, and Cryptography in the Quantum Era**

**Presenters: Levi Goldberg and Javier Orduz**

What is quantum cryptography and how do quantum concepts such as entanglement, teleportation, and the no-cloning theorem make quantum cryptographic paradigms like BB84 more secure than classical cryptography? This poster will provide a beginner-level explanation of quantum computing and several important concepts in quantum computation, describe the methodologies behind classical cryptography to provide an introduction to quantum cryptography, and illustrate how quantum cryptography is superior to its classical counterpart.



## **Mapping of the Organizations and Hispanic Community in Richmond Indiana** **Presenters: Mariela Camacho and Parsa Mallik**

This research aimed to explore and strengthen ties between the Spanish-speaking population at Earlham College and the Hispanic community in Richmond to promote language use and community engagement. The study had two phases: quantitative data analysis and qualitative interviews. Public data from the US Census Bureau (2000, 2010, 2020) and the American Community Survey provided insights into demographic trends, occupations, and educational enrollment. Additionally, data from the National Center for Educational Statistics highlighted Hispanic student populations in schools and universities. Qualitative data was gathered through structured interviews with 39 Spanish speakers—27 at Earlham and 12 from Richmond—working across various sectors, including health and business. The findings revealed a steady growth in Richmond's Hispanic population, emphasizing the need for more Spanish-language resources. Meanwhile, the significant number of Spanish-speaking employees at Earlham suggests potential to better support Latino students and recruit more in the future.

## **Synthesis and Application of Carbon Quantum Dots Using Lemon Juice** **Presenters: Braden Guinn, Nathan Lefkowitz, and Lori Watson**

This research investigates the synthesis of carbon quantum dots (CQDs) using lemon juice organic components and explores fluorescence quenching using various metals. Quantum dots are semiconductor nanoparticles with unique optical and electronic properties influenced by quantum mechanical effects. They can be utilized in the fields of biosensing and other analytical and material applications, including LEDs, solar cells, and environmental monitoring. Compared to traditional metal-based quantum dots, carbon-based quantum dots are environmentally friendly and non-toxic, and so are particularly useful for bioimaging and in other applications to reduce end-use heavy metal waste. In this work, lemon juice was used to produce CQDs using an environmentally friendly process, and CQD formation with other components of organic acids was explored. CQD from citric acid proved to be the most effective component for synthesizing CQDs, producing the strongest fluorescence. The fluorescence quenching of CQDs in the presence of different metals and at different pHs was compared to determine ranges for maintaining detectable fluorescence for analytical use of metal concentration determination.

## **The War on Drugs is a War on Non-White Communities** **Presenters: Giselle Nishimwe, Tae Sakazaki and Beth Mechlin**

The War on Drugs has targeted non-White communities in the United States. Throughout history, specific policies have reinforced systemic racism through the criminal legal system. Reagan's Anti-Drug Abuse Act created harsher penalties for crack than for powder cocaine. Clinton's Crime Bill contributed to the over-policing of non-white communities, police force militarization, and mass incarceration. The militarized over-policing of non-white neighborhoods for drugs has resulted in higher rates of mental health issues, civilian deaths, heightened racial profiling, and neglect of other crimes. African Americans are six times more likely to be incarcerated for drug offenses than White Americans, despite similar rates of drug use across racial groups. Incarcerated individuals lose their freedom in jail and struggle to find employment, healthcare, and housing after release. These racial inequities in drug regulation and enforcement have served to sustain a history of oppression dating back to slavery and Jim Crow segregation.

**Whitewater River Weir Dam Post-Removal Assessment, Richmond, Indiana**  
**Presenters: Morgan Ball, Ella Gallagher, Gwyn Martin, Shannon Hayes, Andy Moore and Katherine Liu**

We assessed changes to the East Fork Whitewater River following the removal of the 2-meter high weir dam in Fall 2023. In July-August 2024, we resurveyed 12 cross sections and a long profile of the channel bed using total stations in order to determine how the riverbed and channel morphology changed following dam removal. Velocity and water quality parameters were measured throughout the study area. We found that the large pool behind the dam no longer exists, and the channel has become much narrower and shallower. Most of the sediment previously stored behind the dam has been deposited in pools and runs within 350m of the former dam, although we measured deposition up to 650m downstream. The water velocity in the former dam pool is greater now, and dissolved oxygen is more stable, but the water quality has not improved in the ways we anticipated.

**Understanding the effects of climate change and microclimate variation on plant-pollinator interactions**

**Presenters: Lily Doyle, Kanishka Fayyaz, Harley Pickett and Melanie Kazenel**

This study explored how microclimate variation affects plants and plant-pollinator interactions. We specifically studied how floral abundance, flowering phenology, and pollinator visitation to flowers varied along transects with different degrees of microclimate variation. At each of two sites near the Rocky Mountain Biological Laboratory in Gothic, Colorado, we established two 2m x 50m transects that represented high and low microclimate variation, respectively, and were divided into 25 2m x 2m plots. Twice per week, for a total of seven weeks, we counted the number of flowers in each plot and observed and recorded pollinators — bees, wasps, flies, or butterflies — that visited flowers within these plots. Preliminary results suggest a relationship between high microclimate variation and increased floral diversity. Additionally, high floral abundance was associated with greater pollinator diversity. Further analysis in the upcoming academic semester will provide more comprehensive insights into these ecological relationships.



# STORYTELLING BLOCK

## A New and Exciting Way to Share Student Stories

Get ready to be captivated by Epic Expo's new storytelling formats! We're introducing **PechaKucha** and **Unplugged Storytelling** to provide students with fresh and engaging ways to share their experiential learning and career discerning opportunities.

**PechaKucha** is a fast-paced presentation style that will challenge our students to be concise and creative. With just 20 slides and 20 seconds per slide, they'll need to deliver a powerful and impactful message.

**Unplugged Storytelling** offers a more intimate and authentic way to connect students with their audience. By sharing their stories without technology, they'll create a deeper connection and showcase their ability to communicate effectively.

### Why is storytelling important?

- **Develops essential skills:** Storytelling helps students hone their communication, problem-solving, and collaboration skills, which are highly valued in the workplace.
- **Builds confidence:** Sharing their experiences can boost their confidence and self-esteem.
- **Creates connections:** Storytelling allows students to connect with others on a deeper level and build lasting relationships.
- **Showcases their unique perspective:** Students stories can help them stand out and showcase their individuality.

## EPIC ADVANTAGE FACULTY LED TRIPS

### Germany Summer Research Trip

**Zohaib Asif, Aruna Bharati and Ayman Husain**

We will be presenting our research on heritage tourism and transformational architecture by comparing two distinct areas of Germany: Berlin and the Ruhr region. We will also be providing insights into our short-term experience in Germany.

### Edinburgh Festival Fringe

**Presenters: Austi Jenkins, Mia Slayton and Lynne Perkins Socey**

Epic Advantage: Edinburgh Festival Fringe is a career-discerning opportunity through which thirty students (so far) have created, refined, and toured an original theatrical production to the world's oldest and largest arts festival. Students in the first two cohorts developed invaluable personal and professional skills through each phase of the experiential learning process; outcomes included job offers, graduate school, internships, and more original work. Learn about plans for the 2026 cohort.

## **EPIC ADVANTAGE INDEPENDENT EXPERIENCES**

### **The Muse in Museums Arson Smith**

This presentation will focus on my summer internship at the Joseph Moore Museum. It was beneficial to intern with the local community, to learn how our museum works and how important museums are for people, communities and science. I have found inspiration and passion in museum work.

### **Disability Justice and Theatrical Design: A Class on Accessibility in Theatre Quinn Bucher**

Theatre has always been a kind and inclusive community. However, it isn't the most accessible for the disabled community. This summer, I worked with Earlham alumna Caitlin Cafiero to learn about the practical ways to make theatre accessible to everyone through the theatrical design process. During this course, I learned about all types of access, from public access needs in general to the intricacies of individual designs. As a disabled person myself, I found it difficult to get involved in theatre at first due to all of the accessibility issues I would have to face. That inspired me to start this project so that, hopefully, in the future, I'll be able to help other people by making sure accessibility isn't a concern. I had a wonderful time during this class, and it has made me want to continue with accessibility in theatre as a career.

### **From Set to Basement, The World of Postproduction Yara Matar**

This presentation will focus on my summer internship as a Production and Post-Production intern with Red Rock Films in Silver Springs, Maryland. During my internship I had the opportunity to work with the Director, Associate Producer, Assistant Editors and the Vice President of Post Production to receive hands on experience of how they complete their broadcast quality programs. I assisted in footage organization and logging, deliverables, review screenings and outputs, and stock footage research.

### **Investigative Journalism on Homelessness for the future of Richmond, Indiana and the World Hiyori Kobayashi**

I reported the news in Richmond, Indiana as the first intern from Earlham College at a local newspaper company, Western Wayne News for two and a half months. Of the seven stories, the most extensive article I worked on was the investigative report on the impact of homelessness in Wayne County, "Living Without 'Home Sweet Home,'" published on the front page on July 24th, 2024. As the homeless population grows nationwide, the number of individuals experiencing homelessness has also been increasing in Richmond. The pandemic has exacerbated housing instability, and it is crucial to have a trustworthy source with people's voices and quantitative data. I gained insights into how difficult it is to break the cycle of unstable living and how different the situation is from one person to another. I will reflect on the power of storytelling in discussing the future of Richmond and the world.

## FREEMAN ASIA INTERNSHIP PROGRAM

### How Weirdness In Japan Made My Internship Fantastic Winnie Kratz

Through the Freeman Asia Internship Program, I was accepted to work at a company teaching English without "teaching" in Tokyo, Japan. Instead of a textbook, events and conversations are used for immersion learning. Going into the internship, I started with social media promotion and posts. However, as it went on, my duties expanded to include attending daycare centers, teaching English lessons, and running events for the company. With the world becoming increasingly divided over specific issues and problems, companies like this will make a tremendous difference in providing the world with people who can communicate with each other. My experience had some strange or culture-shock-esque moments, but in the end, they were the times that made my experience unique and meaningful. This experience ultimately taught me how to make a place that isn't home a place that is.

### Freeman Asia Internship Aruna Bharati, Helena Jose, Miguel Quiroga and Michelle Vanegas

Our presentation will focus on our experience in Japan as interns in a new place. Although we interned at different locations we shared living space and other cultural experiences.

### Embracing Independence: My Transformative Internship in Tokyo Noelle Patterson

My journey in Tokyo as a part of the Freeman Asia Program at Edison.ai was a blend of professional development and personal discovery. Traveling alone for the first time, I faced unexpected challenges, from missing my flight to navigating an unfamiliar city without a working phone. Each obstacle pushed me to embrace resilience and independence, teaching me the importance of asking for help. During my internship, I focused on managing social media and contributing to image generation projects, which deepened my understanding of effective communication and brand storytelling. Reflecting on my experiences in Shibuya, I realize that independence is not about being alone; it's about the confidence to face challenges and the connections we make along the way. I return to Earlham ready to apply these lessons and tackle new challenges with a renewed sense of purpose.



## OTHER FUNDED EXPERIENCES

### **Behind the Curtain: Promoting Feminist Narratives at Magnolia Theatre Company** **Austi Jenkins**

Feminist theatre is crucial in amplifying women's voices and challenging societal norms through powerful storytelling. My internship at Magnolia Theatre Company—a nonprofit dedicated to this mission—uses the stage to give women an outlet to use their voices. Over the summer, they allowed me to contribute to their mission by getting a look behind the scenes of nonprofit theatre work while in the preparation phase for the upcoming season of productions. This included learning various marketing tools designed to uplift women's narratives. Over the summer, I worked closely with the passionate artistic team to ensure that these stories reached a wider-scaled audience through an enhanced online presence. This hands-on experience allowed me to combine my skills in Theatre Arts with meaningful contributions to a nonprofit that prioritizes the feminine narrative, which deepened my understanding of how to merge theatre with advocacy.

### **Internship at St Christopher's Hospital** **Hitomi Sakuta**

I will discuss my summer internship at St. Christopher's Hospital, funded by the Center for Global Health and how the experience helped my discernment toward a career in public health.

## **Alumni Presentations**

### **From Basement to Boardroom**

Biology major shares how her Epic Earlham journey took her from the basement of Stanley Hall to the boardroom of Biotech.

Brandy L. Bennett '05

### **Unexpected Crossroads: My Journey from Politics to Writing**

Will shares how his Epic adventure took him from politics into higher education administration and creative writing.

Jeffrey Perkins '94 PAGS/Politics

### **Before There Was Epic: A Then and Now**

Neil Levine, '83

# CONCURRENT SESSIONS

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## **Gender Underground: DC to Stockholm Epic Advantage**

**Presenters: Art Crockett, Karissa Hauke, Taye Ogundipe, Sophia Scheiber, Anna Wible and Maggie Thomas**

This is a presentation of research conducted during the summer 2024 Epic Advantage program taking place in Washington D.C., USA and Stockholm, Sweden. This presentation will include information about our group project, which assesses the impact of gender equality in a country on how people hold their bodies on public transport. Students from the program will also briefly report on their own observational research studies, which look at cross-cultural differences in domains related to careers of interest.

## **Hiking with Hadrian: Field reports from a trek across Roman Britain**

**Presenters: Chloe Cook, Brendon Cronan, Max Fox, Karla Fribley, Henry Gough, Miles Knake, Maxwell Paule, Miguel Quiroga, Isabella Shelton, Madison Short, Rey Jensen-Sizelove, Hannah Skene and Sami Zaroui.**

In the summer of 2024, a group of LIFT students hiked the entirety of Hadrian's Wall - a massive Roman fortification stretching 84 miles from coast-to-coast across northern England. Come hear about the art, poetry, and self-reflection inspired by this trek through Roman Britain.

## **Interfaith Conflict Resolution and Peacebuilding: Case Studies in Bali and Aceh**

**Presenters: Yayah Barrie, Miyu Enomoto, Joseph Cyrus Garretson, Dylan Gayle, Lailul Ikram, Christine John, Reba McGloughlin, Avin Newswanger and Rebecca Rzeszut**

Over the summer, our group embarked on a transformative journey to Indonesia to explore interfaith conflict and peacebuilding. In Bali, we delved into the unique ways various religions peacefully coexist, with a particular focus on the influence of Hindu philosophy. Through engaging dialogues with individuals from diverse backgrounds, we gained valuable insights into fostering religious harmony. In Aceh, we transitioned from theory to practice by leading a conflict resolution workshop for high school students, applying the principles we had learned. This immersive experience deepened our understanding of Indonesia's rich cultural and religious landscape. We look forward to sharing the wisdom gained from the people, culture, and land, and hope to inspire others with these vital lessons on peacebuilding and conflict resolution.

## **Perspectives of Granada: Presentation of Learning for Spain Off-Campus Program**

**Presenters: Haley Baugues, Quinn Doden, Orin Gentner, Khalid Kishawi, Andre Moriel, Sydney Schmitt and Belen Villarreal.**

Returning students will present insights and perspectives gained as a result of participating in the Spain semester off-campus program during the Spring of 2024, held in Granada.



**Davis Peace Prize- The Kama Campaign Project**  
**Presenter: Eric Ford Twumasi**

My presentation is about my summer experience through the Davis Project for Peace and Epic Advantage program to embark on a personal project, the Kama Campaign. The Kama Campaign is a peacebuilding initiative aimed at improving sanitation in the Ayigya Zongo community, located in the Oforikrom Municipality of Ghana. The project tackled waste management issues by providing 100 industrial-size recyclable waste bins at key points and deploying two motorized tricycles to collect and transport waste to the Kumasi Compost and Recycling Plant (KCARP). Local residents were employed and trained as waste collectors, ensuring the sustainability of the project. The campaign also included educational workshops on waste management, environmental health, and community engagement. Through partnerships with Terraplus Ghana, local authorities, and municipal officials, the project fostered a cleaner, healthier community while creating job opportunities. The campaign concluded with the establishment of the "Kama Club" to promote ongoing waste management education and bi-weekly clean-up exercises. The Kama Campaign has made a lasting impact on both the environment and the residents of Tech Junction and Ayigya Zongo.



# Epic Advantage





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