Beloit & Beyond Conference, November 5, 2024

Additional events

11:45-12:45 **Launch Party** for the School of Global and Public Service (GPS), Science Center Atrium. Please RSVP by Friday, November 1, at 4:00 p.m. if you would like to attend the pizza lunch.

Greenhouse, Science Center		
Drop in 12:30-2:00	Cassie Kowalski, Dhriti Nair, Louis Benard, Benjamin O'Connor, Nora Leifheit	Beloit Greenhouse Open House

Impact Beloit Classroom 109, Library

Study Abroad: France, Argentina, Spain

Moderator: Joseph Derosier, Modern Languages and Literatures		
8:50-8:55	Joseph Derosier	Opening remarks
8:55-9:20	Ojaswi Dhakal	Spring of Solo Travels and Voyage through the South of France
9:20-9:45	Rafaella Pavarini	Learning the Politics of Argentina's Madman
9:45-10:10	Joonas Briggs	Studying Abroad in Spain: Differences between Spain and America

AI and Underwriting

Moderator: Sohaib Kiani, Computer Science		
10:20-10:25	Sohaib Kiani	Opening remarks
10:25-10:50	Shivam Mahajan, Rahul Shah	Headstarter AI Fellowship Experience
10:50-11:15	Maya Betzler	What is Surety? A Look into my Summer Internship
11:15-11:40	Prince Upadhyay, Vanshith Bhandari	AI Engineer Internship Experience

Insights from PRAX286 on Civic Engagement in Beloit

Moderator: Suzanne Goebel, Career Works		
1:00-1:05	Suzanne Goebel	Opening remarks
1:05-1:30	Alison Eubanks, Moosa Sherwani, Mateo Marek	Connecting Classroom and Community
1:30-1:55	Abbey Scott, Thomas Glenn, Abisha Bhatta	Connecting Classroom and Community
1:55-2:20	Anna Williams, Olivia Norquist, Bethany Yu, Hrishikesh Chavan	Connecting Classroom and Community

Conferences and Crash Courses

Moderator: Brian Morello, Center for Entrepreneurship		
2:30-2:35	Brian Morello	Opening remarks
2:35-3:00	Prince Upadhyay	Experiencing an Open Data Science Conference
3:00-3:25	Hoang Minh Pham, Jalen Ponder,	Beloit2Bay: Career Pathways in the Silicon Valley

	Eric Seo, Maya DeGeorge	
3:25-3:50	Rafaella Pavarini, Kathryn Arnold	Financial Literacy Crash Course: Simplifying Your Financial Life Without Fear

LITS Classroom 203, Library

Lessons Learned Abroad: Northern Ireland and Costa Rica

Moderator: JingJIng Lou, Education & Youth Studies		
8:50-8:55	JingJIng Lou	Opening remarks
8:55-9:20	Aaditya (Aadi) Joshi	Academic Opportunities & Cultural Insights while Exploring Northern Ireland
9:20-9:45	Kristen Laiosa	Peace and Polarization in Northern Ireland Through the Lens of the Education System
9:45-10:10	Brady Wachholz, Dahlia Shearer	Abroad & Beyond: How Perspectives and Experiences from Studying Abroad Apply to Life Beyond Beloit

Experiential Learning in Beloit, Chicago, and Del Valle, TX

Moderator: Emily Sager, Career Works		
10:20-10:25	Emily Sager	Opening remarks
10:25-10:50	Margarite Richardson	Reflection on an Internship Through the Lens of World Building and CRIS
10:50-11:15	Alex Atou	Engaging with the Beloit Community During My Internship
11:15-11:40	Yona Acuña	Breakthrough Collaborative: My Teaching Fellow Experience

Experiential Learning with Non-Profits in Beloit

Moderator: Sylvia Lopez, Modern Languages and Literatures		
1:00-1:05	Sylvia Lopez	Opening remarks
1:05-1:30	Bristan Fialek	Stateline Works of Mercy: Helping a Young Nonprofit Grow
1:30-1:55	Dahlia Shearer, Ella Aizeki, Julia Weber	Working with the Community: What Being a Reading Buddy Means to Us
1:55-2:20	Maritza Silva Montoya, Marcus Studinski, Michelle Carlin	Even Start Family Literacy: Latinx People in the Midwest

The Boundary Waters & Impact Beloit Community Fellows

Moderator: Pablo Toral & Sylvia Lopez, Political Science; Modern Languages and Literatures		
2:30-2:35	Pablo Toral & Sylvia Lopez	Opening remarks
2:35-3:00	Cosette Barac, Bethany Yu, Mateo Marek, Matthew Mueller	Our Experience: A Month in the Wilderness, Lessons and Reflections
3:00-3:35	Aaditya Joshi, My Le, Kitana Gulotta, Sydney Moses,	Impacting Beloit through the Community Fellowship Program

Richardson Auditorium, Morse-Ingersoll Hall

Into the Boundary Waters and Beyond

Moderator: Chris Fink, English		
8:50-8:55	Chris Fink	Opening remarks
8:55-9:20	Ezekiel Kingsbury, Jaelin Hensley	Buggin' Out in the Boundary Waters
9:20-9:45	Vanessa Skildum, Julia Weber	Stepping Out of Your Comfort Zone: Writing In The Boundary Waters
9:45-10:10	Abhey Guram	From Wilderness Advocacy to Washington Policy Insights: Learning Qualitative Research Methods Across Boundaries

Local Learning: Software Engineering and Wisconsin Politics

Moderator: Greg Koutnik, Political Science		
10:20-10:25	Greg Koutnik	Opening remarks
10:25-10:50	Liam Walker	Impact Beloit Concierge Internship Program: Software Engineering with Fairbanks Morse Defense
10:50-11:15	Sophia Miller	It's a Lot Like Parks and Recreation: My Summer in Local Politics
11:15-11:40	Rebeca Galindo, Christian Moore	Legislative and Campaign Work in Wisconsin State Politics

Marketing and Experiences in Economics

Moderator: Laura Grube, Economics and Business		
1:00-1:05	Laura Grube	Opening remarks
1:05-1:30	Taman Azad	From LinkedIn Posts to Real-World Impact: How Content Creation Led Me to a Marketing Internship at Adro
1:30-1:55	Sristi Sejuti Halder	Expanding Diversity in Economics: Summer Fellowship at Becker Friedman Institute, University of Chicago
1:55-2:20	Elzbieta Patapaite	A Look into an Investment Banking Summer Analyst's Life

Impact Beloit's Concierge and Community Internships

Moderator: Jessica Fox-Wilson & Charles Westerberg, Economics and Business; Sociology		
2:30-2:35	Jessica Fox-Wilson & Charles Westerberg	Opening remarks
2:35-3:00	Katie Arnold, Aj Fitzpatrick, Momina Amjad, Yaksh Toyesh Ujoodha	Impact Beloit Concierge Internship: How to Gain Invaluable Work Experience and Make an Impact on the Community of Beloit
3:00-3:25	Samantha Irwin, Trang Tran,	Impact Beloit Concierge Internship: How to Gain Invaluable Work Experience and Make an Impact on the Community

	Anna Lehne, Kate Hudetz	of Beloit
3:25-4:00	Ezekiel Kingsbury, Emmalee Madruga, Kai Herrera, Olivia Alvarado, Brigid Parker	Community Engagement Through the Impact Beloit Community Fellows Program

Room 101, Sanger Science Center

Machine Learning and Partial Differential Equations

Moderator: Mehmet Dik, Mathematics		
8:50-8:55	Mehmet Dik	Opening remarks
8:55-9:20	Vu-Anh Le	Extending PyLenM: A Machine Learning Framework for Contaminant Attenuation Timeframe and My MIT Summer Research Experience
9:20-9:45	Eric Seo	Optimized White Sox Lineup Construction with Machine Learning Ensemble Model and Monte Carlo Game Simulation
9:45-10:10	Vu-Anh Le	Mathematical Foundations of Neural Operators and A Case Study Model for Solving PDEs at Google Research

New Zealand's Stolen Lands and Environmental Conservation

Moderator: Pablo Toral, Political Science		
10:20-10:25	Pablo Toral	Opening remarks
10:25-10:50	Rosa Coit	Learning on Stolen Land: Studying Abroad in Colonial Contexts
10:50-11:15	Helmi Kawsar	How I Landed an Internship My Freshman Summer and Built Community Connections
11:15-11:40	Riley Earl Ponio	From Parks to Purpose: My Journey in Environmental Conservation via an Internship with the Illinois Department of Natural Resources

Costume Shops, Summer Camps, and Swim Instruction

Moderator: Shelbi Wilkin, Performing and Applied Arts		
1:00-1:05	Shelbi Wilkin	Opening remarks
1:05-1:30	Lillie Aubin, Alister Murphy, Amelie Lichte	Working in the Costume Shop
1:30-1:55	MacKenzie Harris	Love Water: Adaption and Inclusion in Swim Instruction
1:55-2:20	Levi Hansen, Connor Vogel, Mari/David Moyar	Camp Counselors & What They Do!

Experiences in India and Northern Ireland

Moderator: Shawn Gillen, English		
2:35-3:00	Ishan Bhasin	Quantifying the Link Between School Commutes and Academic Success
3:00-3:50	Ella Silva, Thomas Fleming, Marissa Wells,	Northern Ireland Global Experience Panel and Discussion

Siona Shishak,
Casey Barasch,
Lyndsey Turner,
Anna King

Room 249, Sanger Science Center

Connections with Biochemistry

Moderator: Corbin Livingston, Chemistry		
8:50-8:55	Corbin Livingston	Opening remarks
8:55-9:20	Sol Ulaszek	Potential Apoptotic Upregulation in BAF-Knockout Differentiation of Brown Adipocytes
9:20-9:45	Kamila Cano-Giraldo	Progress in Enzymatic Carbon-Carbon Bond Formation with Boronic Acids
9:45-10:10	Anahi Diaz-Morales	Niclosamide, a Promising Future Molluscicide

Interactions with Chemistry

Moderator: Corbin Livingston, Chemistry		
10:20-10:25	Corbin Livingston	Opening remarks
10:25-10:50	Noa Levy	Synthesis and Analysis of Cadmium Pigments
10:50-11:15	Alex Zeimetz	Manufacturing of Tellurite Glasses by Levitation
11:15-11:40	Satirtha Saha Protya	Novel 3D Printed Reactors for Selective Photocatalytic Oxidation of Ethylbenzene to Acetophenone via Continuous Flow Reaction

Dysplasia, Bone Mineral Density, and Phytophagy

Moderator: Helen Werner, Biology		
1:00-1:05	Helen Werner	Opening remarks
1:05-1:30	Jane Lamona Price	Use of the University of Colorado Periacetabular Osteotomy in the Evolving Treatment of Developmental Dysplasia of the Hip
1:30-1:55	Parnian Alavi	Bone Mineral Density Changes during Post-Mortem Interval
1:55-2:20	Simone de Montigny	Investigating Phytophagy, Pollination, and Toxin Interactions Between Mosquito *Aedes japonicus* and Fly Poison *Amianthium muscitoxicum*

The Role of Renin, PET Denoising, and Chronostratigraphy

Moderator: Jay Zambito, Geology		
2:30-2:35	Jay Zambito	Opening remarks
2:35-3:00	Azeez Ganiyu	The Physiological Role of Renin in the Nucleus Ambiguus in ChAT-Cre x Ren Floxed Mice
3:00-3:25	Mohammad Tanzil Idrisi	My DAAD RISE Scholar Journey with Low-Dose Positron Emission Tomography (PET) Denoising Research in Germany
3:25-3:50	Kelsey Engelke	Chronostratigraphy of Late Devonian Sandstones from Southwestern Illinois and East-Central Missouri

Room 349, Sanger Science Center

Experiences in HealthCare and Becoming a CNA

Moderator: Emily Sager, Career Works		
8:50-8:55	Emily Sager	Opening remarks
8:55-9:20	Ama Ankobea-Gyapomaa Ameyaw	Behind the Scenes: Discovering My Passion for Research Through Healthcare Experiences
9:20-9:45	Kitana Gulotta	Building Healthier Communities: Summer Internship Experience at Community Health Systems of Wisconsin
9:45-10:10	Tyrel Spivey, Gavin Thorpe	Empathy in Action: The Road to Becoming a Certified Nursing Assistant (CNA)

Data, Disparities, and Policy Analysis in Healthcare

Moderator: Rachel Bergstrom, Biology		
10:20-10:25	Rachel Bergstrom	Opening remarks
10:25-10:50	Korynne Wilson	Data in Action: Driving Positive Change in Nonprofit Healthcare
10:50-11:15	Alisiia Demkina	Health Insurance Disparities Among Young Hispanic Adults in the Midwest
11:15-11:40	Sristi Sejuti Halder	Creating Impact: My Internship as a Policy Analyst with Wisconsin Department of Health Services

Fields of Physics

Moderator: Carlos Cartagena-Sanchez, Physics, Engineering, and Astronomy		
1:00-1:05	Carlos Cartagena-Sanchez	Opening remarks
1:05-1:30	Momina Amjad	Bounded Magnetic Turbulence
1:30-1:55	Laraib Irfan	Exploration in the Field of Accelerator Physics: My Summer Research Experience at Cornell University
1:55-2:20	Samuel Slabaugh	Applications of Additive Manufacturing: Micro-scale Additions to Increase Heat Resistance During Supersonic Travel

Engaging in Economics

Moderator: Diep Phan, Economics and Business		
2:30-2:35	Diep Phan	Opening remarks
2:35-3:00	Shruti Tyagi	Transitioning Research Skills: From Campus Climate Analysis to Professional Internships
3:00-3:25	MukhammadAli Shavkatov	Bridging Economies: Transforming Global Trade through the Port of Baku and the Trans-Caspian Corridor
3:25-4:00	Jose Larrain, Sandhya Pise,	Corporate Finance Summer Analyst

Abstracts

Sponsor: Carlos Cartagena-Sanchez

LITS Classroom 203, Library, 11:15-11:40

Yona Acuña '26

Austin, Texas

Major: Physics
Minor: Education & Youth Studies

Breakthrough Collaborative: My Teaching Fellow Experience

During the Summer of 2024, I participated in a nine-week teaching program with Breakthrough Collaborative, a national program that accepts undergraduate students in any field to teach middle schoolers math, science, history, English, and an elective course.

In this presentation, I discuss my work as an eighth-grade science teacher in Del Valle, Texas as part of the Breakthrough Central Texas program in my home state. I received two weeks worth of training with former and current professional educators in how to understand, accommodate, connect, and teach students. One of the benefits for Breakthrough students and their families is that this program is free and families can receive legal support if needed.

Sponsor: Helen Werner

Room 249, Sanger Science Center, 1:30-1:55

Parnian Alavi '25

Shiraz, Iran

Majors: Biology; Health & Society

Bone Mineral Density Changes during Post-Mortem Interval

Understanding the changes in bone mineral density (BMD) during the postmortem interval (PMI) is crucial for enhancing our knowledge in completing forensic biological profiles. I hypothesized a negative correlation between bone mineral density and time since death. I worked with computed tomography (CT) scans from the New Mexico Decedent image Database (NMDID), to analyze specifically the Ward's triangle in the left femur.

This research includes male CT scans of the age 30 to 49 years old with no known bone disease. In recent literature, there are enough studies showing us that changes in bone mineral density in this area is very significant. Therefore, I made 3D models of this triangle to further investigate the bone mineral density measurements using software analysis. The findings suggest the need for additional data to be collected, due to the skew in the time since death.

Sponsor: Jessica Fox-Wilson

Room 349, Sanger Science Center, 8:55-9:20

Ama Ankobea-Gyapomaa Ameyaw '25

Kumasi, Ghana

Major: Biochemistry

Behind the Scenes: Discovering My Passion for Research Through Healthcare Experiences

Throughout my academic journey, I have strived to expand my understanding of the intersection of medicine and research. Initially fueled by a strong interest in healthcare while pursuing a pre-med degree, I embraced every opportunity as a chance for deeper career exploration and personal growth.

In this presentation, I share several transformative experiences including research and patient care,

most recently at CSL Plasma. Engaging with patients, donors, and researchers enriched my understanding of patient care, revealing the complexities and emotional aspects of the healthcare system. These interactions ultimately unveiled a deeper passion for laboratory research and the behind-the-scenes work that promotes health. While I appreciated my moments with individuals in healthcare settings, I found significant fulfillment in the research process and the excitement of uncovering new discoveries within the protective confines of the lab. In short, I explore how my various healthcare experiences led me to identify my interest in research while still valuing the meaningful interactions I had with patients along the way.

Sponsor: Carlos Cartagena-Sanchez

Room 349, Sanger Science Center, 1:05-1:30

Momina Amjad '26

Gojra, Pakistan

Majors: Physics; Engineering

Bounded Magnetic Turbulence

Over the summer, I did research with Professor Carlos Cartagena-Sanchez, who introduced me to one of the most interesting and fascinating fields of physics, plasma physics. This research was the continuation of his research previously done at Bryn Mawr Plasma Laboratory, where the Bryn Mawr Experiment (BMX) is a 270 cm long, 24cm diameter cylindrical flux-conserving vacuum chamber. The magnetized plasma gun injects magnetic helicity into a truncated zero guide field region within the flux-conserving vacuum chamber. Prior experiments on the Bryn Mawr Experiment indicate that the magnetized plasma gun generates steeper than Kolmogorov magnetic power spectral densities, indicating the magnetic fluctuations are all co-propagating.

In this experiment, the flux-conserving vacuum chamber is magnetically truncated by inserting grounded aluminum circular plate within the diagnostic section. The plate effectively traps the magnetized plasma. The plate is grounded, creating a flux through it. This will act as counter-propagating to the magnetic fluctuations flowing through it.

Sponsor: J. Leslie

Richardson Auditorium, Morse-Ingersoll Hall, 2:35-3:00

Katie Arnold '25

Clinton, Wisconsin

Major: Business Economics

Aj Fitzpatrick '25

Chicago, Illinois

Majors: Business Economics; Media Studies
Minor: Finance

Momina Amjad '26

Gojra, Pakistan

Majors: Physics; Engineering

Yaksh Toyesh Ujoodha '25

Quatre Bornes, Mauritius

Majors: Data Science; Computer Science

Impact Beloit Concierge Internship: How to Gain Invaluable Work Experience and Make an Impact on the Community of Beloit

In this panel, hear students talk about their experiences in the Impact Beloit Concierge Internship program, ask the students questions, and learn how you can participate too.

The Impact Beloit Concierge Internship program is Beloit College’s initiative to place Beloit students with employers throughout the Beloit community in a mutually beneficial relationship. Students gain

hands-on, practical skills and experiences that prepare them for the workforce after graduation. Additionally, Impact Beloit participants are assigned an alumni mentor who guides them through their work experience, offering suggestions, advice, and problem-solving frameworks to their mentees.

Beloit boasts a plethora of employment options, ranging from large corporate businesses to smaller boutique establishments in various industries. Impact Beloit Concierge Internship community partners include First National Bank & Trust, Fairbanks Morse Defense, Beloit Sky Carp, Midstates Concrete Industries, Kerry Ingredients, Beloit Health System, Geronimo Hospitality Group, and more. These companies generously accept 1-3 interns at their site throughout the academic year, permitting students to work 10-20 hours/week and accommodating scheduled academic breaks.

Students in the Impact Beloit program also meet in a classroom setting to discuss their experiences, as well as to get feedback from their peers and the Executive Director of Impact Beloit, Tim Leslie. This roundtable discussion features four Impact Beloit participants who discuss their experiences and thoughts about the program. The Impact Beloit Concierge Internship is in its second year at the college, and its ultimate goal is to make a noticeable difference across three pillars: careers, communities, and connections.

Sponsor: Jessica Fox-Wilson

LITS Classroom 203, Library, 10:50-11:15

Alex Atou '25

Cotonou, Benin Republic

Major: Business management
Minor: Studio Art

Engaging with the Beloit Community During My Internship

During my time interning at Friends of the RiverFront, a nonprofit committed to rejuvenating Beloit's riverfront with innovative programs, I experienced working as part of the event team and captured moments as a photographer/videographer. My responsibilities included overseeing and supporting attendees during events, arranging event areas, and handling the sale of beverages. These gatherings aimed to foster a connection with the community and establish a local identity while being enjoyable for families. They left an impact not only on Beloit's residents but also on visitors who came to appreciate the city more.

This practical involvement sharpened my skills in organizing events, and it also enabled me to establish meaningful connections with the community by hearing their stories. The internship assisted me in expanding my network, and it reinforced my understanding of how essential community involvement is in fostering lively public areas.

Sponsor: Shelbi Wilkin

Room 101, Sanger Science Center, 1:05-1:30

Lillie Aubin '26

Milwaukee, Wisconsin

Major: Anthropology

Alister Murphy '26

St. Paul, Minnesota

Major: Studio Art

Amelie Lichte '26

Milwaukee, Wisconsin

Major: Studio Art
Minor: Museum Studies

Working in the Costume Shop

In this roundtable, we discuss our experiences working in the Beloit College costume shop, including the daily tasks and special skills learned while working in the costume shop. We go over the critical and creative problem solving necessary to be successful in the space, such as talking about the importance of different forms of communication, problem solving with co-workers, considering differing forms of collaboration, and keeping performers informed throughout the process of the production.

Sponsor: Mehmet Dik

Richardson Auditorium, Morse-Ingersoll Hall, 1:05-1:30

Taman Azad '27

Malda, West Bengal, India

Majors: Data Science; Business Management
Minor: Marketing

From LinkedIn Posts to Real-World Impact: How Content Creation Led Me to a Marketing Internship at Adro

As an international student navigating college life in the United States, I learned that finding my voice on LinkedIn was more than just an online presence. It became a game-changer in my professional journey. Through intentional content creation, I shared my experiences and insights, which ultimately led me to an exciting internship at Adro, an early-stage fin-tech startup based out of New York.

During my time at Adro, I was responsible for developing content tailored specifically for international students, helping them navigate financial services in the United States. I received the opportunity to collaborate with the best minds and build strong professional relationships with them. This internship connected directly to my academic learning, especially in my Marketing Principles & Strategy class with Professor Matt Laszlo. These lessons have been invaluable, not only at Adro but also in my role as President of the Marketing Club, where I apply what I have learned to guide student-driven projects.

This opportunity did not just fall into my lap. I share how my consistent LinkedIn posts caught the attention of Adro's team, and break down how my storytelling approach helped me stand out in a crowded digital space.

Through this experience, I have learned not only the importance of content creation but also the value of being intentional about the message I put out. My hope is that my story will inspire others to see LinkedIn not as just another social platform, but as a tool to build real-world connections and opportunities.

Sponsor: Pablo Toral

LITS Classroom 203, Library, 2:35-3:00

Cosette Barac '27

Chicago, Illinois

Major: undeclared

Bethany Yu '27

Maple Grove, Minnesota

Major: Political Science

Mateo Marek '25

Madison, Wisconsin

Majors: Phycology; Critical Identities Studies; Health and Society

Matthew Mueller '25

Janesville, Illinois

Major: Japanese

Our Experience: A Month in the Wilderness, Lessons and Reflections

In the summer of 2024, we spent a month taking an environmental justice course at the Boundary Water Canoe Area Wilderness at the Coe College Field Station. The setting of this course provided a completely different learning environment from a traditional classroom. This course explored questions of identity, class, and power in relation to environmental sustainability through direct engagement with the land and the communities that call it home.

The experience was full of moments of joy as well as moments that required strong mental and physical resilience. At the Field Station, we learned wilderness survival skills, researched and visited nearby communities, and did homework together inside and outside of the classroom. After a long day, we might jump into the lake for a swim. We traveled through the wilderness, navigating remote lakes, scavenging for firewood, and finding stunning resting places.

In this presentation, we highlight the personal, professional, and academic growth we experienced at the Wilderness Field Station. The Boundary Waters allows students to adjust to new and unfamiliar people and develop team-building skills, while wilderness situations grow students' resourcefulness and resilience. We had new hands-on experiences available nowhere else and refined our knowledge of field research through methods of data mining and data analysis strategies that are useful to careers in political science, sociology, and many other fields and professions.

Sponsor: Katherine Harris

Impact Beloit Classroom 109, Library, 10:50-11:15

Maya Betzler '25

Walla Walla, Washington

Majors: Mathematics; Business Economics

What is Surety? A Look into my Summer Internship

I was a Surety Underwriting Intern for the core contract product sector, which involves major construction projects and large contracting firms. Surety, however, is everywhere. One needs bonds for everything. Surety is a niche and tucked away industry. Vaguely, surety is about promises. In a surety bond, there are three parties: the principal, obligee, and surety. A surety bond guarantees the principal's fulfillment of the obligation to the obligee.

In this presentation I enlighten you on the intricacies of this industry, while also sharing my experiences working for Liberty Mutual. This includes my client lunches, day-to-day experiences in the office, learning a new industry, and my work trip to Boston. I look forward to sharing these experiences with you.

Sponsor: Disha Shende

Room 101, Sanger Science Center, 2:35-3:00

Ishan Bhasin '26

Hyderabad, India

Major: Physics

Quantifying the Link Between School Commutes and Academic Success

This study investigates the relationship between the time taken to travel to school and academic performance among school-aged children in India, utilizing data from the Young Lives India Round 5 survey conducted in 2017.

The research focuses on a cohort of 15-16 year-old students in the states of Andhra Pradesh and Telangana. With rapid urbanization and educational expansion, understanding how logistical factors, such as commuting time, influence student outcomes is essential for policy formulation.

The analysis employs econometric techniques to isolate the effect of commute duration on educational outcomes measured by standardized cognitive testing while controlling for socioeconomic background.

Sponsor: Sylvia Lopez

Impact Beloit Classroom 109, Library, 9:45-10:10

Joonas Briggs '25

Chicago, Illinois

Major: International Relations
Minor: Spanish

Studying Abroad in Spain: Differences between Spain and America

During my junior year, I was fortunate to study abroad in Murcia, Spain. My goal was to improve my Spanish as well as get a good experience with Spanish culture. In this presentation, I discuss the differences between Beloit College and the university in Murcia and the programs I participated in. The first program was with other international students to improve my language skills, the second was with other Spanish students. I also share experiences in classes and what I was able to learn about the history, culture, politics, and values of Spaniards.

Independent travel with friends was also part of my experience. I visited other countries such as France and England and even got to learn more about my own heritage and customs when visiting Finland during a holiday break. During my time in Spain, I learned a lot more about being independent, developed life skills such as knowing who to trust, developing a routine to stay focused, and learning to reach all my destinations on time and safely. I also share the importance of study abroad and the benefits of being able to learn and live in a completely different country.

Sponsor: Corbin Livingston

Room 249, Sanger Science Center, 9:20-9:45

Kamila Cano-Giraldo '25

Gurnee, Illinois

Major: Biochemistry
Minor: Philosophy

Progress in Enzymatic Carbon-Carbon Bond Formation with Boronic Acids

Biocatalysis offers a promising avenue for achieving sustainable and selective routes to valuable compounds. Organoboron compounds play a vital role in organic synthesis and catalysis. They are widely available, have notable functional group tolerance, and are non-toxic. Enzymatic conversion of boronic acids to carbon-carbon bonds may offer benefits over chemo-, regio-, and stereoselectivity compared to traditional approaches.

My project involved identifying enzymes that convert boronic acids to alkyl compounds through carbon-carbon bond formation. Specifically, heme proteins (protoglobins) were tasked with transferring carbenes to boronic acids and esters. By systematically screening diverse protoglobin enzymes and employing substrate walking approaches, this research aims to identify novel enzyme variants with activity toward the desired transformation.

Sponsor: Joseph Derosier

Room 101, Sanger Science Center, 10:25-10:50

Rosa Coit '25

Charleston, Illinois

Majors: History; Environmental Justice and Citizenship
Minor: French

Learning on Stolen Land: Studying Abroad in Colonial Contexts

In spring 2024, I studied at Te Kunenga Ki Pūrehurua (Massey University) in Palmerston North, Aotearoa (New Zealand). I learned a lot while there, but there were some things that stood out compared to my experience here. Beloit College and Massey University have many similarities, one of the most

important is their position as colonial institutions occupying stolen land. Massey University was built on the land settled by Māori peoples four hundred years ago. Similarly, Beloit College was built on land stolen from the ancestors of the Potawatomi, Peoria, Miami, Meskwaki, and Ho-Chunk peoples. However, Aotearoa is dealing with its colonial history and present in a very different way than the US. I examine the differences I saw in Aotearoa, as well as how my whiteness shaped my experiences studying abroad in a colonized country. I also discuss how I grappled with feelings about being on colonized land, and how that uncomfortability compared with attending Beloit College.

Sponsor: Helen Werner
Chloé Lahondère (Virginia Tech)

Room 249, Sanger Science Center, 1:55-2:20

Simone de Montigny '26

Neenah, Wisconsin

Majors: Biology; Geology

Investigating Phytophagy, Pollination, and Toxin Interactions Between Mosquito *Aedes japonicus* and Fly Poison *Amianthium muscitoxicum*

Phytophagy plays a significant role in mosquito biology, influencing survival and reproductive success. This study investigates the interactions between the invasive mosquito species *Aedes japonicus* and the toxic plant *Amianthium muscitoxicum* (fly poison), with a focus on mosquito feeding behavior, pollination potential, and the effects of nectar on mosquito survival and behavior. *Aedes japonicus* is a disease vector mosquito which has recently invaded Eastern North America, and has been observed interacting with fly poison plants at Mountain Lake Biological Station in Pembroke, VA.

Visitation assays were performed with *A. muscitoxicum* plants to assess sugar feeding and potential pollination. 40.3% of *Ae. japonicus* in visitations tested positive for fructose, indicating feeding on fly poison. Pollen screening revealed that 5.2% of mosquitoes carried pollen, suggesting potential for pollination. Force-feeding assays demonstrated that mosquitoes consuming fly poison nectar had significantly reduced survival compared to those fed a sucrose solution, with a median survival time of 2 days versus 11 days.

These findings suggest that *Ae. japonicus* utilizes *A. muscitoxicum* as a source of carbohydrates, while the toxic properties of the nectar negatively impact their survival. Because of this, fly poison toxins have a potential use in control methods for this invasive disease vector mosquito species. Future research should explore the viability of fruits produced by visited plants and further investigate the behavioral effects of toxic nectar. Insights gained through this research could contribute to developing control strategies for *Ae. japonicus* populations.

Sponsor: Disha Shende

Room 349, Sanger Science Center, 10:50-11:15

Alisiia Demkina '25

Saint Petersburg, Russia

Majors: Quantitative Economics; Psychology
Minor: Computer Science

Health Insurance Disparities Among Young Hispanic Adults in the Midwest

This research investigates the factors driving health insurance disparities among young Hispanic adults (ages 18-26) in the Midwest, a region where healthcare access remains a persistent challenge for minority groups. Hispanic individuals, in particular, face numerous obstacles—including language barriers, lower income, and education levels—that make securing insurance difficult.

By analyzing data from public health and census sources, this study uncovers the socioeconomic forces shaping health coverage within this demographic. The findings reveal a stark reality: lower income and education levels are significant predictors of uninsured rates, placing young Hispanic adults at a distinct

disadvantage compared to their non-Hispanic peers. This lack of coverage deepens vulnerabilities within the community, underscoring the need for systemic change.

The study points to potential solutions, emphasizing the importance of policy interventions aimed at improving education and addressing income inequality to bridge the insurance gap. It also highlights the critical need for culturally tailored outreach and education programs to ensure that young Hispanic adults can access the healthcare they need.

By shedding light on these disparities, this research provides key insights for policymakers and healthcare leaders seeking to create a more equitable healthcare system in the Midwest, ultimately paving the way for healthier, more inclusive communities.

Sponsor: Joseph Derosier

Impact Beloit Classroom 109, Library, 8:55-9:20

Ojaswi Dhakal '25

Kathmandu, Nepal

Major: Quantitative Economics
Minor: Finance

Spring of Solo Travels and Voyage through the South of France

In the spring of 2024, I studied abroad in Aix-en-Provence, France, a charming city known for its lavender fields and sunny days in Southern France. I was part of the Business Economics program at Aix-Marseille University, taking classes in economics, finance, and marketing. But the real magic happened outside of class. I visited wonderful places like Cannes, Antibes, Villefranche-sur-Mer, and Nice, as well as small villages like Èze and Beaulieu-sur-Mer. I even took a day trip to the glamorous Monte Carlo in Monaco.

My adventure did not stop in France. I went backpacking across Europe, from Copenhagen in Denmark to explore cities like Prague, Vienna, and Budapest by train. It was a trip I will never forget. I also got to reconnect with my best friends from Beloit, and we traveled together, making memories I will always treasure. I climbed more mountains than I ever had in Nepal, swam in different parts of the Mediterranean, and made friends from all over the world. This was one of the best experiences of my life, and I cannot wait to share the stories with you.

Join me as I look back on these unforgettable moments!

Sponsor: Corbin Livingston
Nick Robertson (Northland College)

Room 249, Sanger Science Center, 9:45-10:10

Anahi Diaz-Morales '25

Ham Lake, Minnesota

Major: Chemistry

Niclosamide, a Promising Future Molluscicide

Over the summer of 2024, I worked on developing a granular formulation to release bayluscide in a controlled manner into aquatic ecosystems to target invasive mussel populations. The initial stages of pesticide development must be done in the lab for safety reasons, making it a challenge to truly know how formulations would perform in an open lake environment. But by the end of the summer we were able to develop a method to quickly measure bayluscide concentrations, created new formulations, and tested their release rates to assess efficiency. We found inefficiencies in our formulation and addressed them by experimenting with different ratios, clays, and additives. Ultimately, this experience taught me a lot about the scientific process specifically how slow, yet rewarding, it can be.

Sponsor: James Zambito

Room 249, Sanger Science Center, 3:25-3:50

Kelsey Engelke '25

Roscoe, Illinois

Majors: Geology; Anthropology

Chronostratigraphy of Late Devonian Sandstones from Southwestern Illinois and East-Central Missouri

The Devonian Period is a critical time in Earth's history, recording the evolution of forests, tetrapods, and insects. Fundamental to understanding these important evolutionary events is a high-resolution time scale. This project is focused on refining our understanding of the chronostratigraphy (time component of rock units) from southwestern Illinois and east-central Missouri. The Late Devonian is subdivided into the Frasnian and Famennian stages, and rocks of these ages are further subdivided into different units characterized using superposition, lithology, fossil content, chemical composition, and age. In southwestern Illinois and east-central Missouri, the Sylamore Sandstone, Bushberg Sandstone, and Glen Park Limestone have been inconsistently determined to be Frasnian and/or Famennian in age by previous researchers.

This presentation outlines the use of various tools and techniques, including geochemistry, petrography, and conodont biostratigraphy to interpret samples from the Sylamore Sandstone, Bushberg Sandstone, and Glen Park Limestone and attempt to better constrain their age.

Sponsor: Suzanne Goebel

Impact Beloit Classroom 109, Library, 1:05-1:30

Alison Eubanks '26

Plainfield, Illinois

Majors: Biochemistry; Health & Society

Moosa Sherwani '26

Karachi, Pakistan

Majors: Data Science; Business Management

Mateo Marek '25

Madison, Wisconsin

Majors: Critical Identity Studies; Psychology; Health & Society

Connecting Classroom and Community

This semester, we are taking PRAX286: Community and Civic Engagement. The course consists largely of community-based learning, allowing students to make connections between the curriculum and the real world. This presentation focuses on what we have learned from working with the greater Beloit community and how our experiences tie into Beloit's Integrated Learning Outcomes (ILOs).

Alison Eubanks

For my Community Connections course, I am interning at Community Health Systems–a community health center that provides medical, dental, and behavioral health services at an affordable rate to members of the Beloit community, particularly for those who are on Medicaid or uninsured. At Community Health Systems, I am learning about the behind-the-scenes of public health through creating outreach materials and assisting with a full rebrand of the center. My internship has exposed me to the inner workings of public health, especially in terms of outreach strategies, community demographics, and creating programs that provide meaningful care to the community we serve.

Moosa Sherwani

Enrolling in the Impact Beloit Community Connection class got me placed with the Boys and Girls Club. Here I help develop youth into successful citizens. In my presentation, I talk about analyzing the data

related to the organization's operations and its clients here in Beloit, preparing reports for areas of improvement, and suggesting new ideas for activities that can enhance the children's experiences and stimulate their interest in the organization.

Mateo Marek

Impact Beloit: Community & Civic Engagement has granted me the opportunity to invest in the larger Beloit community and learn beyond the campus by applying my skill set to a local organization. This semester, I am an intern for Family Services, a non-profit organization dedicated to empowering individuals and families by providing trauma informed care, refuge, recovery, and resiliency tools. My role and responsibility within Family Services has taken the form of a self-directed project which analyzes and addresses secondary trauma and community connectedness through methods of identity intersectionality, cultural competency education, and community care.

Sponsor: Sylvia Lopez

LITS Classroom 203, Library, 1:05-1:30

Bristan Fialek '26

Crystal Lake, Illinois

Major: Cognitive Science

Stateline Works of Mercy: Helping a Young Nonprofit Grow

In spring 2024, I interned with Stateline Works of Mercy, a local nonprofit that provides laundry services, warm meals, and internet access to homeless people in Beloit. In that time, I filled out grant applications, contacted local funding organizations, and did further research to insure that Stateline Works of Mercy would have a long list of possible funders for after my internship ended. My research efforts, in turn, have awarded them almost $5,000 in grant money.

In this presentation, I share what I have learned about networking, the ways in which a young nonprofit can grow and expand, and the wonders that a tight-knit community of nonprofits and funding organizations can accomplish when they come together.

Sponsors: Gregory Koutnik and Jessica Fox-Wilson

Richardson Auditorium, Morse-Ingersoll Hall, 11:15-11:40

Rebeca Galindo '25

South Beloit, Illinois

Majors: Political Science; Critical Identity Studies

Christian Moore '27

Dubuque, Iowa

Major: Political Science

Legislative and Campaign Work in Wisconsin State Politics

This summer, Rebeca and Christian gained hands-on experience in Wisconsin State Politics through State Representative Clinton Anderson's Office and Campaign Team. In this presentation, Rebeca shares insights from her legislative research on AI and policy issues, as well as her work assisting constituents. Christian discusses his role in coordinating outreach efforts, creating campaign materials, and managing voter data.

Sponsor: Randi Mogul
Pablo Nakagawa (Medical College of Wisconsin)

Room 249, Sanger Science Center, 2:35-3:00

Azeez Ganiyu '24

Beloit, Wisconsin

Major: Biology
Minor: Health and Society

The Physiological Role of Renin in the Nucleus Ambiguus in ChAT-Cre x Ren Floxed Mice

Renin is a rate-limiting step vital to the renin-angiotensin system (RAS) in maintaining cardiovascular homeostasis through mainly vasoconstriction and anti-diuretics. Renin was thought to be located in the kidney as initially discovered, but through modern imaging such as RNAScope, my research group has found evidence of renin in the brain. Specifically, cholinergic-expressing neurons are generally localized to an area in the brain called the nucleus ambiguus (NuAm), which also happens to be a significant cardioinhibitory center in the brainstem. This research also found the expression of other RAS genes such as angiotensin II (AngII), angiotensin-converting-enzyme, and angiotensin Type 1 receptor (AT1R), which suggests that the NuAm has a vital role in the regulation of RAS.

To test how renin in these neurons affects physiology, the research team created a conditional KO model in mice that effectively removes renin from cholinergic neurons in the brain, i.e., the NuAm. We also measured other parameters, such as heart rate (HR) and systolic blood pressure (SBP) in these mice using radiotelemetry, which also led us to do a heart rate variability (HRV) analysis. To test these mice under stressed conditions, we did an autonomic challenge using a parasympathetic blocker, methylatropine, to compare wildtype (normal) vs our renin KO mice. When analyzing our data, we found that our male renin KO cohorts had a blunted response compared to the females in HR and SBP, as well as an opposite trend in our HRV data, showing that there is some sex-dependent phenotype that leads to lower parasympathetic activity.

This discovery of a sex-dependent phenotype led us to run a transcriptomic analysis via bulk RNA sequencing, further showing the genotypic differences observed in our autonomic challenge using methylatropine. Based on the study's findings, it was concluded that renin in cholinergic neurons is essential for maintaining autonomic balance and cardiovascular homeostasis, especially in a sexdependent manner. Additionally, the study defined the NuAm as an intrinsic source of renin with biological significance and provided conclusive evidence for the existence and operation of the brain RAS.

Sponsor: Beth Dougherty

Room 349, Sanger Science Center, 9:20-9:45

Kitana Gulotta '25

Beloit, Wisconsin

Majors: Psychology; International Relations
Minor: Spanish

Building Healthier Communities: Summer Internship Experience at Community Health Systems of Wisconsin

In the summer of 2024, I participated in Wisconsin Area Health Education Center's (AHEC's) Community Internship Program (CHIP) and interned at the Beloit Area Community Health Center. This program is designed for college students interested in public health, allowing them to gain experience in various health organizations across Wisconsin through an eight-week internship.

During my time there, I actively engaged in community events, educated the community about clinic services, researched Medicaid utilization trends, and led research initiatives to support grant applications. I focused on the Health Resources and Services Administration's grant for expanding behavioral health services, which the clinic successfully received. This experience provided me with valuable knowledge about federally qualified health centers and potential career paths after graduation.

Sponsor: Pablo Toral

Richardson Auditorium, Morse-Ingersoll Hall, 9:45-10:10

Abhey Guram '25

Punjab, India

Majors: Quantitative Economics; Political Science
Minor: Environmental Studies

From Wilderness Advocacy to Washington Policy Insights: Learning Qualitative Research Methods Across Boundaries

This presentation reflects on the use of qualitative research methods, particularly visual sociology, for policy analysis. My reflection is grounded in two transformative experiences. I first learned about visual sociology in the Boundary Waters Canoe Area Wilderness while conducting a research project at the Wilderness Field Station in the summer of 2024. My project was called "Turning the Tide: Is the Time Right Now?," and examined the impact of environmental racism and economic tensions on the Ojibwe people. I collected and analyzed my own original data on the field by relying on a research technique that at the time was new to me called "visual sociology." While this project allowed me to hone my skills in field research, qualitative analysis, and visual storytelling, I later applied these methods developed in a natural wilderness area in what some scholars would define as a "political wilderness," the key institutions of economic policy management in the capital city. While working as a Research Analyst at Creative Investment Research in Washington, D.C., where I evaluated sustainable investment opportunities and monitored federal legislation on socially responsible investing, I was able to collect and analyze data via visual sociology that was invisible to senior researchers.

Thanks to my ability to collect and analyze my own data, I developed original insights in a wider range of research topics and I added depth of analysis to my interpretation of the data. This set me apart from other researchers. Being equipped with new research techniques, I drew my own conclusions, which were pivotal in shaping my understanding of social responsibility, community advocacy, and policy. In addition to the academic and professional benefits of these field research techniques, I gained personal confidence in navigating complex sociopolitical landscapes and a clearer sense of my professional trajectory. These projects reinforced my passion for policy, teaching me how academic skills translate beyond the classroom to real-world impact, ultimately shaping my interest in environmental and economic policy.

Sponsor: Laura Grube

Richardson Auditorium, Morse-Ingersoll Hall, 1:30-1:55

Sristi Sejuti Halder '26

Dhaka, Bangladesh

Majors: Quantitative Economics; Data Science
Minor: Mathematics

Expanding Diversity in Economics: Summer Fellowship at Becker Friedman Institute, University of Chicago

In summer 2024, I participated in the Expanding Diversity in Economics (EDE) Summer Institute, hosted by the Becker Friedman Institute for Economics at the University of Chicago and the Hutchins Center at Brookings. This program aims to diversify economics by supporting undergraduates from underrepresented backgrounds through intensive training and mentorship.

The experience began with three weeks of rigorous residential learning at the University of Chicago, where I engaged in quantitative training, including statistical programming, econometric modeling, and microeconomic analysis. As part of a group data project, I employed techniques like Ordinary Least Squares (OLS) regression and instrumental variable analysis to explore the influence of race on homeownership. This experience was further enriched by guest talks from esteemed scholars, including Anjali Adukia, John List, Manasi Deshpande, Cecilia Rouse, Ben Bernanke, and Nobel Laureates Michael Kremer and James J. Heckman, which provided invaluable insights into the practical applications of economic theory.

The final week in Washington, D.C. provided an in-depth look at fiscal and monetary policy through visits to key institutions like the Federal Reserve and the Treasury. I also helped conduct a macroeconomic project with the Brookings Institution, gaining practical insights into how economic research shapes public policy.

In my presentation, I discuss my experience in the EDE program, the skills I gained, and the application process. I highlight the valuable connections I made and the networking opportunities I had, including visits to key institutions like the Federal Reserve Board, JPMorgan Chase, Northern Trust, The World Bank, and the International Monetary Fund. I also elaborate on my personal and professional growth throughout the program and emphasize the importance of diverse representation in economics and how the EDE program fosters this diversity.

Sponsor: Suzanne Goebel

Room 349, Sanger Science Center, 11:15-11:40

Sristi Sejuti Halder '26

Dhaka, Bangladesh

Majors: Quantitative Economics; Data Science
Minor: Mathematics

Creating Impact: My Internship as a Policy Analyst with Wisconsin Department of Health Services

Since May 2024, I have been working as a Program and Policy Analyst Intern at the Wisconsin Department of Health Services, applying Results-Based Accountability and Quality Improvement tools to enhance divisional performance metrics. Throughout my internship, I led five quality improvement initiatives, designed and optimized operational procedures using Stata, Clear Impact software, and data-driven methodologies, and developed Tableau dashboards to visualize performance data. These efforts streamlined workflows, enhanced operational efficiency, and directly contributed to decision-making in division-wide meetings. Additionally, I conducted in-depth performance data analysis to identify inefficiencies, providing actionable recommendations that led to a 10% increase in engagement and effectiveness across key performance areas.

In this presentation, I share my internship journey at the Wisconsin Department of Health Services as a Program and Policy Analyst. I discuss the initiatives I led, the skills I gained in data analysis, operational optimization, and quality improvement, as well as my contributions to strategic projects that fostered data transparency and collaboration. Additionally, I elaborate on how data-driven approaches can optimize public services and the importance of collaboration across divisions.

Sponsor: Jessica Fox-Wilson

Room 101, Sanger Science Center, 1:55-2:20

Levi Hansen '26

Chicago, Illinois

Majors: Psychology; Creative Writing

Connor Vogel '25

Palmdale, California

Majors: Physics; Political Science

Mari/David Moyar '26

Oak Park, Illinois

Major: Geology
Minor: Education in Youth Studies

Camp Counselors & What They Do!

In summer 2024, we each played a different role at our summer camps: Levi was a general counselor, Connor was a specialist who led baseball lessons, and Mari was a supervisor. In this presentation, we provide an overview of what it is like to work at three different camps, along with the differences and similarities between our experiences in our own individual majors.

Levi worked at Camp Starfish, a camp for individuals with higher needs ranging from neuro-divergency, traumatic history, history of aggression, and behavioral problems. He was a regular camp counselor focused solely on entertaining the campers at any activity, he was primarily put in high-energy activities such as martial arts, athletics, or gymnastics.

Connor worked at Camp Walt Whitman, a sleep away, sports summer camp in the mountains of New Hampshire for kids aged eight to fifteen.

Mari worked as the Site Supervisor of the Outdoor Explorers Nature Camp, a day camp consisting of 48 children per week in grades K-3. Her responsibilities covered those of a counselor's, along with overseeing eight counselors, creating weekly schedules, communicating with parents, etc.

We all gained various takeaways relating to how we want to progress our careers.

Levi learned about the power of redirection relating to behavioral management, how to keep individuals entertained for long hours, and how to work with individuals and find mutually beneficial solutions (such as helping a camper shower at a time that works for them).

Connor learned how to work with all different kinds of people, from kids diagnosed with ADHD to kids from other countries. He also learned how to work and motivate children who don't want to do anything.

Mari learned about the significance of positive role models in regards to both campers and camp staff.

Sponsor: Yaffa Grossman

Room 101, Sanger Science Center, 1:30-1:55

MacKenzie Harris '24

Beloit, Wisconsin

Majors: Sociology; Critical Identity Studies
Minor: Biology

Love Water: Adaption and Inclusion in Swim Instruction

Over the past year, I have been working for Foss Swim School as a swimming instructor. I have worked with hundreds of people coming from all different backgrounds and life experiences in this role. My time at Foss has been extremely rewarding, but despite the best efforts of staff, several children are not taught to their full potential. This is because the Foss Swim School lesson plan and curriculum is not built to be adaptive and inclusive to those with mental and physical disabilities.

As a student at Beloit College, I have been given tools to challenge the oft-invisible barriers that create inequities. I developed alternative lesson plans personalized to each student's needs, embracing the ideas of diversity, equity, and inclusivity that Beloit College is known for. Using that education in the workplace has built lasting connections between myself, students, and their parents.

Sponsor: Mehmet Dik

Room 249, Sanger Science Center, 3:00-3:25

Mohammad Tanzil Idrisi '26

India

Majors: Computer Science; Mathematics

My DAAD RISE Scholar Journey with Low-Dose Positron Emission Tomography (PET) Denoising Research in Germany

During my summer internship as a DAAD RISE Scholar, one of the most prestigious research programs in Germany. I worked on low-dose Positron Emission Tomography (PET) image denoising techniques. PET is a critical imaging method used in diagnosing and managing conditions such as cancer, neurological disorders, and cardiovascular disease. However, reducing the radioactive dose required for these scans is essential to minimize health risks and increase scan frequency, particularly for sensitive populations, such as children and pregnant women.

My work focused on developing a model to help reduce the radioactive doses that are injected into a patient's body. I worked on Machine Learning models like AG-Net, an anatomically-guided low-dose PET image denoising system utilizing a multimodal 3D U-Net architecture. The model incorporates self-attention mechanisms and residual connections, ensuring that global and local image structures are preserved while optimizing learning efficiency. Additionally, I developed a new model named GNAU-Net 3D (guided noise attention 3D U-NET) and a self-supervised noise attention diffusion model (SSND-3D), which further enhanced image quality by 15% and 20% with minimal radioactive exposure.

These advancements allow for significant reductions in scan dose – by a factor of 1/100 or 1/50 – while maintaining image quality comparable to high-dose scans. My work on GNAU-NET 3D will be presented at the Fully 3D Conference in China, the Ultra-Low Dose PET Challenge 2024, etc. This research has the potential to significantly improve patient safety and healthcare outcomes, making PET scans more accessible and feasible for frequent use.

Sponsor: Carlos Cartagena-Sanchez
Sadie Grace Seddon-Stettler (Cornell University)

Room 349, Sanger Science Center, 1:30-1:55

Laraib Irfan '25

Lahore, Pakistan

Majors: Physics; Applied Chemistry
Minor: Mathematics

Exploration in the Field of Accelerator Physics: My Summer Research Experience at Cornell University

In spring 2024, I took a graduate-level class in Accelerator Physics at the U.S. Particle Accelerator School (USPAS). It was a challenging experience made possible by the support of my professors and mentors at Beloit College. This experience helped me secure a summer research opportunity as an intern with Center for Bright Beams (CBB) at the Cornell (University) Laboratory for Accelerator-based ScienceS and Education (CLASSE).

Accelerator physics focuses on designing and operating particle accelerators, with an emphasis on making these operations more efficient and cost-effective. At CLASSE, I was placed within the Superconducting Radio Frequency (SRF) group, where the goal was to enhance the performance of these accelerator cavities by manufacturing them using superconducting materials. My work focused on the current temperature mapping system at CLASSE for the SRF cavities, which map heat distribution across the cavity surface to detect hotspots and surface defects. I developed a temperature map layout for the 2.6 GHz SRF cavity and implemented strategies to optimize how we analyze the data collected from the temperature mapping system. The temperature mapping system required a strong acquaintance with MATLAB software and computational analysis, for which my courses in physics and mathematics at Beloit had prepared me.

Working as a scientific researcher at a renowned lab in my field of interest has significantly boosted my confidence and comfort in a high-stakes environment. I gained valuable technical skills, but perhaps more importantly, I learned how to navigate the collaborative, interdisciplinary environment of a research lab. I invite you to learn more about how this experience reinforced my passion for accelerator physics and broadened my perspective on the impact of scientific research.

Sponsor: J. Leslie

Richardson Auditorium, Morse-Ingersoll Hall, 3:00-3:25

Samantha Irwin '25 — Eureka, Missouri

Majors: Cognitive Science; Psychology

Trang Tran '25 — Hanoi, Vietnam

Majors: Cognitive Science; Environmental Communication & Arts
Minor: Marketing

Anna Lehne '25 — Grantsburg, Wisconsin

Majors: Philosophy; Russian Language and Culture

Kate Hudetz '25 — Plainfield, Illinois

Major: Business Economics

Impact Beloit Concierge Internship: How to Gain Invaluable Work Experience and Make an Impact on the Community of Beloit

In this panel, hear students talk about their experiences in the Impact Beloit Concierge Internship program, ask the students questions, and learn how you can participate too.

The Impact Beloit Concierge Internship program is Beloit College's initiative to place Beloit students with employers throughout the Beloit community in a mutually beneficial relationship. Students gain hands-on, practical skills and experiences that prepare them for the workforce after graduation. Additionally, Impact Beloit participants are assigned an alumni mentor who guides them through their work experience, offering suggestions, advice, and problem-solving frameworks to their mentees.

Beloit boasts a plethora of employment options, ranging from large corporate businesses to smaller boutique establishments in various industries. Impact Beloit Concierge Internship community partners include First National Bank & Trust, Fairbanks Morse Defense, Beloit Sky Carp, Midstates Concrete Industries, Kerry Ingredients, Beloit Health System, Geronimo Hospitality Group, and more. These companies generously accept 1-3 interns at their site throughout the academic year, permitting students to work 10-20 hours/week and accommodating scheduled academic breaks.

Students in the Impact Beloit program also meet in a classroom setting to discuss their experiences, as well as to get feedback from their peers and the Executive Director of Impact Beloit, Tim Leslie. This roundtable discussion features four Impact Beloit participants who discuss their experiences and thoughts about the program. The Impact Beloit Concierge Internship is in its second year at the college, and its ultimate goal is to make a noticeable difference across three pillars: careers, communities, and connections.

Sponsor: Joshua Moore

LITS Classroom 203, Library, 8:55-9:20

Aaditya (Aadi) Joshi '25

India

Majors: Quantitative Economics; Biochemistry
Minor: Finance

Academic Opportunities & Cultural Insights while Exploring Northern Ireland

This presentation discusses the valuable experience of participating in a study abroad program at Queen's University Belfast through a direct exchange with Beloit College, with a focus on finance. Queen's Business School, renowned for its academic rigor and pragmatic approach to finance, offered me an exceptional opportunity to deepen my understanding of global economic systems and refine my financial acumen.

Navigating the educational framework in Northern Ireland presented both challenges and rewards, fostering the development of my analytical skills and promoting independent study, which are vital for grasping intricate financial concepts. Additionally, cultural immersion and community involvement, particularly through initiatives such as 'Future Ready Skills' and 'Handy Helpers,' significantly enriched my overall experience and cultivated skills essential for success in today's workforce.

This overseas study abroad program has played a pivotal role in shaping my career trajectory. It broadened my professional network and provided valuable insights into international finance, effectively preparing me for a future in investment banking. In my presentation, I elaborate on how these experiences have expanded my perspective, enhanced my professional capabilities, and highlighted the importance of international education in developing a well-rounded understanding of finance.

Attendees gain insights into the advantages of study abroad programs in improving educational outcomes and enhancing career readiness in the finance sector.

Sponsor: Sylvia Lopez

LITS Classroom 203, Library, 3:00-3:35

Aaditya Joshi '25

India

Majors: Quantitative Economics; Biochemistry
Minor: Finance

My Le '25

Dong Nai, Vietnam

Majors: Quantitative Economics; Data Analytics

Kitana Gulotta '25

Beloit, Wisconsin

Majors: International Relations; Psychology
Minor: Spanish

Sydney Moses '25

Los Angeles, California

Majors: Anthropology; Creative Writing

Abhey Guram '25

Punjab, India

Majors: Quantitative Economics; Political Science
Minor: Environmental Studies

Impacting Beloit through the Community Fellowship Program

We are all participating this academic year in the Impact Beloit Community Fellows program as interns at Stateline area organizations.

Aadi

I am working as a Community Development Intern with the Downtown Beloit Association (DBA). As a part of DBA, I am responsible for bridging the gap between college students and the Beloit community as a whole. In this role, I have the opportunity to collaborate with passionate professionals to support and enhance the Beloit community. In addition to developing skills in community development, I am eager to contribute to initiatives that promote growth, inclusivity, and positive change.

My

As a fellow with the Beloit International Film Festival (BIFF), I have ownership of multiple projects, whose main purpose is to strengthen the long-standing connection between Beloit College and BIFF, and the Beloit community. Ranging from working with students news teams and different departments on campus to doing community outreach activities, and being featured on a radio station, the Impact Beloit Community Fellowship experience has enabled me to apply in-class lessons and on-campus working experience in the greater Beloit community, where I an learning, engaging, and growing.

Sydney

I am interning at the Beloit Historical Society (BHS), helping to catalogue and organize donations to its collections. I have also been researching, writing, and illustrating a children's activity book to be provided to children who visit BHS. My internship also entails helping plan Traveling Trunk programs, boxes of educational materials that local schools can use to educate their students about Beloit's history.

Abhey

As an Impact Beloit Community Fellow, I am interning as an Accounting Assistant at YWCA Rock County in Janesville. I support the finance director in managing the organization's financial records. My role also involves developing strategies and improving efficiency in the financial operations. This experience has enhanced my knowledge of accounting principles while deepening my understanding of the YWCA's mission to empower women and eliminate racism. Through this internship, I am gaining practical skills in financial management and strengthening my commitment to community service and social justice. Working at a non-profit, I am learning about the unique financial challenges these organizations face and the importance of resource optimization.

Kitana

I am interning at the University of Illinois College of Medicine Rockford (UICOMR) as an undergraduate research assistant. My main project is to survey former participants of a global health elective at UICOMR in order to assess how that experience impacted their choice of medical practice, location, and engagement in community health, global health, and primary care. I am also collecting data about food items sold in dollar stores, using the Nutrition Environment Measures Survey. This research aims to help understand how dollar stores impact community nutrition, particularly in underserved areas.

Sponsor: Mehmet Dik

Room 101, Sanger Science Center, 10:50-11:15

Helmi Kawsar '27

Dhaka, Bangladesh

Majors: Biochemistry; Quantitative Economics
Minor: Marketing

How I Landed an Internship My Freshman Summer and Built Community Connections

Just after wrapping up my freshman year at Beloit College, I worked at Welty Environmental Center as a Summer Outreach Educator. During my journey as an educator, I gained much experience taking

leadership roles, working with children, and traveling places. While I naturally fit in the role this summer, it was not easy getting the position.

In this presentation, I discuss my previous connections, share how a former rejection landed me this position, and highlight the ways Career Works along with my experiences at Beloit College improved my application.

I also share the ways I forged connection with the community through my work and how this position has opened the door for a new career probability for me.

Sponsor: Pablo Toral

Richardson Auditorium, Morse-Ingersoll Hall, 8:55-9:20

Ezekiel Kingsbury '25

Aurora, Colorado

Majors: Political Science; Psychology

Jaelin Hensley '25

Grants Pass, Oregon

Major: Engineering
Minor: GLAM

Buggin' Out in the Boundary Waters

In summer 2024, we took an entomology course at Coe College's Wilderness Field Station in the Boundary Waters Canoe Area Wilderness, 1,090,000 acres seemingly free of civilization. While our primary goal was to study insects, the wilderness had much more to teach. After enduring a flood, a capsized canoe, dwindling food supplies, and a severe lightning storm, we learned far more than just about bugs.

Spending all hours of the day with the same couple of people for a month straight imbued some valuable communication lessons upon us. Being forced to pay attention to the little things, immersed in an environment with minimal human presence, and subject to the whims of nature, we had our personal relationships tested. As a result, we needed to sharpen our teamwork skills. In the end, we gained far more from this course than a typical classroom setting would allow.

These experiences gave us a deeper understanding of the interdependence of life while sharpening our communication and conflict-resolution skills. These skills are, interestingly enough, not just applicable in the woods! We both have found extreme value in these lessons for our personal lives and the development of our professional careers. Determining how to portion out the last jar of peanut butter without killing each other translates surprisingly well towards group projects and never-ending Zoom meetings.

Sponsor: Charles Westerberg

Richardson Auditorium, Morse-Ingersoll Hall, 3:25-4:00

Ezekiel Kingsbury '25

Aurora, Colorado

Majors: Political Science; Psychology

Emmalee Madruga '25

Sacramento, California

Majors: Psychology; Sociology

Kai Herrera '25

Rochelle, Illinois

Majors: Sociology; Critical Identity Studies

Olivia Alvarado '25

Orlando, Florida

Major: Sociology
Minors: English; Philosophy

Brigid Parker '25

Oak Park, Illinois

Majors: Sociology; Creative Writing
Minor: Spanish

Community Engagement Through the Impact Beloit Community Fellows Program

After participating in the Beloit College Community Fellows Program for 10 weeks, presenters highlight their experience with what George Kuh (2008) describes as a high-impact learning practice. They briefly discuss internship opportunities at Beloit College through Impact Beloit. Then they focus on their interactions with community engagement in the public and nonprofit sector. In particular, panelists talk about their experience with navigating communication with and for different populations within the larger community of Beloit.

Internship sites include: the Beloit City Manager’s Office, the Beloit Historical Society, the Beloit Community Foundation Literacy for Life Program, the Community Action Fresh Start Program, and Nature at the Confluence. After introducing their sites, presenters look forward to answering questions about their experiences in a panel-style format.

Sponsor: Deborah Lynch

Greenhouse, Science Center, Drop in 12:30-2:00

Cassie Kowalski '26

Waukesha, Wisconsin

Majors: Anthropology; History
Minors: Museum Studies; Ancient Mediterranean Studies

Dhriti Nair '26

Pune, India

Majors: Computer Science; Quantitative Economics

Louis Benard '26

Ann Arbor, Michigan

Major: Biology
Minor: Anthropology

Benjamin O'Connor '26

Berwyn, Illinois

Major: Evironmental Biology
Minor: Spanish

Nora Leifheit '25

Saint Paul, Minnesota

Major: Biology

Beloit Greenhouse Open House

The greenhouse offers Beloit students a place to learn and provides a calming atmosphere on a busy campus. We strive to create an inviting and peaceful space for all students and faculty who wish to stop by. The people who do the work to create that space are student workers who have the opportunity for hands-on learning through the caretaking of over seventy plants belonging to thirty-five families and species. Each member of the greenhouse team contributes their own set of skills, passions, and expertise.

The greenhouse is open for the greater campus population between 8 am and 4 pm Monday through Friday. The nearly 1,600-square-foot building is split into five rooms, which include the tropical room, the succulent/cacti room, a small lab room, the head house room, and a central plant room. Some plants, including the oakleaf fig (*Ficus lyrata*), night-blooming cereus (*Epiphyllum oxypetalum*), and *Euphorbia splendens (Euphorbia milii var. splendens*), are over thirty years old. Other plants featured in the five greenhouse rooms, like the staghorn fern (*Platycerium bifurcatum*)which was added to the greenhouse in 1964, are over 50 years old.

During the Beloit and Beyond Conference, the greenhouse will be open from 12:30-2:00 for tours to help get the word out and encourage more students and staff to use the space as a resource in their lives. Greenhouse attendants will be present to share personalized tours of the space and to encourage comfort in exploring this wonderful building.

Sponsor: Jingjing Lou

LITS Classroom 203, Library, 9:20-9:45

Kristen Laiosa '27

Milwaukee, Wisconsin

Major: Undeclared

Peace and Polarization in Northern Ireland Through the Lens of the Education System

This summer, ten students, including myself, got the opportunity to study abroad for two weeks in Northern Ireland and Ireland through a GEO class titled Peace and Polarization. During this course, we examined the Troubles, which was a period of conflict between Catholic and Protestant groups from the late 1960s to the 1990s, through the lens of the education system. We saw first hand the segregation

present both in the Northern Irish education system, and throughout Northern Irish society itself. We were able to hear from various stakeholders of different perspectives: scholars, grassroots activists, people who lived through the Troubles, and advocacy organizations supporting different education models—state controlled, Catholic maintained, shared learning, or integrated.

During our time in Belfast and Derry in Northern Ireland, the parallels between the Troubles and both modern and historical conflicts were evident as we came to a realize the difference between positive peace and negative peace, and sought to understand the legacy that conflict leaves behind, and how, in many cases, even once the violence ends, the conflict and intergenerational trauma continues. We also examined parallels between the Troubles in Northern Ireland and conflict in the U.S., most notably the civil rights movement. Through hands-on learning and cultural immersion, we were able to gain a thorough understanding of conflict in Northern Ireland, and how we can apply that learning in our own lives to make a lasting impact on the world.

Sponsor: Diep Phan

Room 349, Sanger Science Center, 3:25-4:00

Jose Larrain '25 — Santiago, Chile
Major: Quantitative Economics
Minor: Finance

Sandhya Pise '26 — Pune, Maharashtra, India
Major: Major Quantitative Economics
Minor: Finance

My Le '25 — Dong Nai, Vietnam
Majors: Quantitative Economics; Data Analytics

Ethan Watts '25 — Rockford, Illinois
Major: Business Management

Corporate Finance Summer Analyst

We are economics and business majors who talk about their summer internships and offer advice to students on how to find them.

Jose Larrain interned at Itaú, Brazil's largest bank, as a corporate finance summer analyst.

Sandhya Pise interned at TATA Sons in India, doing macroeconomic research and policy advocacy.

My Le interned at BVK, an advertising agency in Milwaukee, WI, as a social media marketing intern.

Ethan Watts was a financial planning intern at Savant Wealth Management, an investment firm in Rockford, IL.

Sponsor: Mehmet Dik
Haruko Murakami Wainwright (Massachusetts Institute of Technology)

Room 101, Sanger Science Center, 8:55-9:20

Vu-Anh Le '25 — Ha Noi, Viet Nam
Major: Mathematics

Extending PyLenM: A Machine Learning Framework for Contaminant Attenuation Timeframe and My MIT Summer Research Experience

Groundwater contamination presents a critical environmental challenge, often requiring long-term and resource-intensive on-site sampling. In this presentation, I will introduce a more efficient, data-driven approach to managing contamination by utilizing machine learning techniques to predict when pollutant levels will naturally decline to safe thresholds.

By extending the Python package PyLenM, I developed predictive models that estimate the time required for contaminants like Strontium-90 and Iodine-129 to reach regulatory standards. Through the application of linear regression and Long Short-Term Memory (LSTM) models, I can forecast near-future contamination levels and significantly reduce the reliance on manual sampling. Additionally, by employing Random Forest regression, key factors influencing clean-up times are identified, offering deeper insights into the site-specific behavior of contaminants. Initial findings from the Savannah River Site are encouraging, showing a downward trend in contamination and demonstrating the potential of this approach.

I will also share insights from my participation in the MIT Summer Research Program, where I had the privilege of working with Professor Haruko Wainwright and her collaborators at the Department of Energy. I will briefly discuss how MIT fosters cutting-edge innovation and the unique blend of tradition and modernity that defines Massachusetts as my dream state.

Sponsor: Mehmet Dik
Jake Garrison (Google Research)

Room 101, Sanger Science Center, 9:45-10:10

Vu-Anh Le '25

Ha Noi, Viet Nam

Major: Mathematics

Mathematical Foundations of Neural Operators and A Case Study Model for Solving PDEs at Google Research

Solving Partial Differential Equations (PDEs) in high-dimensional spaces is a fundamental challenge across scientific computing, particularly when computational efficiency and stability are required. Recent introductions of some neural operator generations such as DeepONet and Fourier Operator have initially reduced the challenge of this task. However, their behaviors have not yet been examined carefully. In this work, I introduce a comprehensive mathematical framework for analyzing neural operators, with a focus on its stability, convergence, clustering behavior, universality, and generalization capabilities. Based on these theoretical insights, I propose design recommendations for constructing more efficient and robust neural operators.

Key results include novel theorems that provide guarantees for stability and exponential convergence in high-dimensional settings, as well as analysis of clustering behavior in function space. I also present a resultant architecture that integrates global and local information, enhancing the operator's ability to approximate complex PDE solutions. Numerical experiments validate the theoretical findings, demonstrating improved performance in accuracy, convergence, and generalization compared to traditional methods. This work bridges the gap between mathematical theory and practical design, advancing the application of neural operators in scientific computing.

Sponsor: Corbin Livingston

Room 249, Sanger Science Center, 10:25-10:50

Noa Levy '25

St. Paul, Minnesota

Major: Biochemistry

Synthesis and Analysis of Cadmium Pigments

This research explores the toxicological effects of cadmium, a heavy metal that disproportionately impacts communities of color, contributing to environmental racism in the United States. Cadmium is both carcinogenic and teratogenic, and exposure to it leads to severe health conditions, including cancer, kidney disease, and liver disease. The mechanism of cadmium toxicity is linked to its interaction with metallothioneins, small cysteine rich proteins produced by the liver and kidneys that bind to toxic metals. While metallothioneins mitigate cadmium's harmful effects, this process induces oxidative stress and increases the transport of cadmium to these organs, further contributing to health disparities.

This research not only delves into cadmium's toxicological impact but also investigates its structural properties through the synthesis of cadmium sulfide and comparison with Arylide Yellow, another yellow pigment commonly used in art. By analyzing the structural differences between cadmium-based pigments and nontoxic alternatives, the study aims to bridge scientific inquiry with cultural practices, providing insight into the safe and informed use of art materials. The goal is to deepen the understanding of how cadmium's structure relates to its toxic effects on living organisms and to explore the biochemical implications of its interaction with metallothioneins. Ultimately, this research contributes to the broader conversation on environmental justice, advocating for strategies to mitigate the harmful health impacts of heavy metal contamination in marginalized communities.

Sponsor: Mehmet Dik

Impact Beloit Classroom 109, Library, 10:25-10:50

Shivam Mahajan '25 Beloit, Wisconsin

Majors: Computer Science; Mathematics

Rahul Shah '26 Beloit, Wisconsin

Major: Computer Science

Headstarter AI Fellowship Experience

In this presentation, we showcase the key projects we have completed during our tenure at Headstarter AI, a company that works on building the #1 community for emerging software engineers. We participated in their 7-week software engineering fellowship program where we were supposed to build 5+ AI based applications, participate in hackathons, have problem-solving sessions (similar to LeetCode) and connect with top software engineers in the engineering space. The fellowship is designed to push the boundaries of AI development and practical software engineering skills.

Our projects included:

-Study Stash: A flashcard generator that can help students.

-Rate my professor: An application that can be used by students to check the rating of their professors.

-Pantry Tracker: An app that can be used by small businesses to effectively track and manage their inventory.

These projects achieved a 98% accuracy rate, serving a total of 1000 users. In this presentation, we explore the development and technological processes behind each project and discuss the practical obstacles and successes we encountered during the fellowship.

Sponsor: Pablo Toral

Richardson Auditorium, Morse-Ingersoll Hall, 10:50-11:15

Sophia Miller '27

Salem, Oregon

Majors: International Relations; Environmental Studies

It's a Lot Like Parks and Recreation: My Summer in Local Politics

How do you respond to an email about a constituent's kidnapping on your first day as an intern for your local legislator? What do you say at the door of a Republican voter while canvassing for a Democratic candidate?

These questions are informed by two experiences I had this summer: an internship with Oregon Legislator Tom Andersen (HD-19) and a fellowship with Congresswoman Andrea Salinas' reelection campaign (OR-6).

While working for Representative Andersen, I attended community events, tours, meetings with lobbyists, and legislative committee sessions. I was also responsible for creating strategic social media content. I worked with Congresswoman Salinas' reelection campaign as a part of my fellowship funded by the Democratic Congressional Campaign Committee (DCCC). During my fellowship, I attended civic education seminars by prominent political figures, including Maxwell Frost, Jaime Raskin, and Micheal Cohen. I also utilized voter contact tools - including canvassing, phone banking, and VAN - to increase voter turnout.

My time with both elected officials revealed the breadth of responsibilities, the differences in legislative and campaign work, and types of careers at different levels of politics. Through vignettes about unusual emails, hard conversations and surprise findings, I will showcase the work I conducted, the skills I developed, and the influence of my summer experiences on my academic plans and career aspirations. I will also reflect on how my double major in International Relations and Environmental Studies (Justice and Citizenship) prepared me for this work and how lessons from this summer have informed my studies at Beloit College.

Sponsor: Laura Grube

Richardson Auditorium, Morse-Ingersoll Hall, 1:55-2:20

Elzbieta Patapaite '26

Panevezys, Lithuania

Major: Quantitative Economics
Minor: Political Science

A Look into an Investment Banking Summer Analyst's Life

My sophomore year I secured an Investment Banking internship at R. W. Baird as a summer analyst. Following completion of a comprehensive banking bootcamp and WallStreetPrep crash course I engaged in diverse projects, including IPOs, Quarterly Reports, and both Buy Side and Sell Side projects, while honing my networking skills.

In this presentation, I highlight the essential skills needed for success and clarify the expectations placed on college interns. A huge part of this was recruiting and effective networking shortcuts tailored for aspiring investment bankers.

From navigating informal networking events to participating in high-stakes meetings with management teams, my experiences underscore the unique opportunities and challenges within the investment banking landscape. Join me to learn about the realities of this competitive field and prepare for your own journey in investment banking.

Sponsor: Pablo Toral

Impact Beloit Classroom 109, Library, 9:20-9:45

Rafaella Pavarini '25

São Paulo, Brazil

Majors: International Relations; Quantitative Economics

Learning the Politics of Argentina's Madman

I spent the spring semester of 2024 in Argentina, a country renowned for its natural beauty, vibrant culture, and rich culinary traditions, yet also marked by economic instability and poverty. I spent five months studying economics at the Universidad del Salvador in Buenos Aires and learned shocking statistics such as that 50% of the people are living below the poverty line and that 6 million people lack access to basic sanitation. These realities were difficult to reconcile with my daily life, which took place in the affluent neighborhoods of Recoleta and Retiro. I only got a clear understanding of Argentina's economic extremes when I volunteered with a nongovernmental organization (NGO), Módulo Sanitario, whose mission was to bring bathrooms to the homes of citizens who had never had one before.

This volunteer experience was incredibly rewarding because I got to learn about poverty from the field, through the conversations that I had with the people I was trying to help. When I went to Argentina I was skeptical of President Javier Milei, a right-wing extremist, self-proclaimed capitalist anarchist. By working with and listening to the people, I began to understand how they justified their political choices. They told me that, when living on less than US$2.00 a day, anyone promising a way out becomes an obvious choice. "Javier Milei es un loco, pero es nuestro loco." ("Javier Milei is a madman, but he's our madman.")

Sponsor: Brian Morello

Impact Beloit Classroom 109, Library, 3:25-3:50

Rafaella Pavarini '25

São Paulo, Brazil

Majors: Quantitative Economics; International Relations

Kathryn Arnold '25

Clinton, Wisconsin

Major: Business Management

Financial Literacy Crash Course: Simplifying Your Financial Life Without Fear

As graduating seniors about to enter the "real world," we have the all too familiar feeling of unpreparedness sits in our chests. We know economic models, statistical methods, how to write a research paper, among other things we have been taught at Beloit College. However, we wanted practical knowledge about topics that are necessary for life-living: mortgages, insurance, credit cards, investments, bank accounts, debt control, and how to live an overall financially prosperous life. Even though there is a Life and Financial Planning course offered at Beloit, a common issue is that students are too busy to take it and/or have to prioritize other classes in order to finish their major requirements.

For that reason, the Women in Economics & Business Club (WEB) has been sponsoring a series of lunch & learn sessions to promote financial literacy in simple terms. The course is open to everyone, but WEB's goal is to make learning about financial topics less intimidating to women, as well as to dismiss the stereotype that only economics/business majors are interested in knowing how to financially manage their lives. Everyone should be financially literate, or at least have the option to be.

This Financial Literacy Crash Course, led by Brian Morello, covers a variety of topics in an approachable and accessible manner. This crash course series encourages students to come learn about financial literacy for one hour once per week, all while enjoying a free lunch. During the sessions, we get into details and synthesize the key points that students need in their day-to-day lives. The deliverable will be a series of one-pagers covering the sessions, ultimately to be combined in a packet for attendees to refer back to throughout their lives, all of which contribute to our goal to make financial literacy accessible, approachable, and widespread.

Sponsor: Brian Morello

Impact Beloit Classroom 109, Library, 3:00-3:25

Hoang Minh Pham '26

Ho Chi Minh City, Viet Nam

Major: Computer Science

Jalen Ponder '25

Detroit, Michigan

Major: Business Economics

Eric Seo '25

Chicago, Illinois

Major: Mathematics
Minor: Physics

Maya DeGeorge '25

Grand Junction, Colorado

Major: Business Management

Beloit2Bay: Career Pathways in the Silicon Valley

Beloit College's Beloit2Bay conference aims to establish strong connections between the College and the Silicon Valley and its institutions by addressing opportunities for our students in the Bay Area. This initiative positions Beloit as a competitive institution that engages business, entrepreneurship and STEM students with alumni, employers and academic institutions as a source for internships, employment and graduate school opportunities.

This panel features student attendees and focuses on the takeaways and outcomes from the experience, including sharing networking successes, internship possibilities, an overview of the Bay Area ecosystem for careers, knowledge gained regarding graduate school at Stanford and University of California-Berkeley and advice for joining future trips.

Sponsor: Pablo Toral

Room 101, Sanger Science Center, 11:15-11:40

Riley Earl Ponio '25

Morris, Illinois

Major: Environmental Biology
Minor: Political Science

From Parks to Purpose: My Journey in Environmental Conservation via an Internship with the Illinois Department of Natural Resources

During the summer of 2024, I worked with the Illinois Department of Natural Resources, focusing on land management along the Illinois and Michigan Canal. From June to late August, I was responsible for maintaining seven state parks, engaging in tasks that included landscaping, operating heavy machinery, and performing various conservation efforts. This hands-on experience allowed me to interact directly with the natural environment and develop a deeper appreciation for the beauty and complexity of our ecosystems.

This internship taught me valuable lessons about my personal interests and professional aspirations. I discovered my passion for working outdoors and the importance of wildlife conservation in our daily lives. Through this experience, I recognized that my major in environmental biology and my minor in political science connect to numerous aspects of life and can lead to impactful career opportunities. Additionally, I realized my desire to pursue a career with the Department of Natural Resources as a conservation police officer, where I can actively contribute to protecting the environment while enforcing regulations that safeguard our natural resources. Overall, this experience solidified my commitment to a career dedicated to environmental stewardship and public service.

Sponsors: Rachel Bergstrom and Randi Mogul

Room 249, Sanger Science Center, 1:05-1:30

Jane Lamona Price '26

Denver, Colorado

Major: Biochemistry
Minors: Cognitive Science, Psychology Concentration; Kinesiology & M

Use of the University of Colorado Periacetabular Osteotomy in the Evolving Treatment of Developmental Dysplasia of the Hip

Presently, three main surgical corrections exist for developmental dysplasia of the hip, a congenital orthopedic condition impacting the pelvis, femur, and acetabulofemoral joint. Such approaches are the University of Colorado Periacetabular Osteotomy (CU PAO), Birmingham Interlocking Pelvic Osteotomy (BIPO), and Bernese Periacetabular Osteotomy (Bernese PAO).

Though each of these three techniques is still widely used, the recently developed CU PAO maximizes surgical success and minimizes complications, making it the preferred surgical approach to dysplastic correction. This presentation will investigate the extent to which the CU PAO's combined acetabular osteotomy approach yields decreased incidence of sciatic and lateral femoral cutaneous nerve severing, increased preservation of the ilioischial column, increased preservation of the labrum, and increased ilial osseous contact. Wholly, this surgical technique provides an opportunity for decreased time under anesthesia, reduced incidence of surgical failure, and immediate postoperative weight-bearing–revolutionizing the treatment of developmental dysplasia of the hip and transforming the field of hip preservation.

Sponsor: Rachel Bergstrom
Dr. Haresh Manyar (Queen's University Belfast)

Room 249, Sanger Science Center, 11:15-11:40

Satirtha Saha Protya '25

Khulna, Bangladesh

Majors: Biochemistry; Cognitive Science; Data Analytics

Novel 3D Printed Reactors for Selective Photocatalytic Oxidation of Ethylbenzene to Acetophenone via Continuous Flow Reaction

In the context of the photooxidation industry, there is a pressing need to move away from batch-mode reactors due to limitations in light penetration, mixing, and gas-liquid mass transfer to innovative, reliable, and economical solutions. Building on previous work, this project extends the research on 3D printed reactors for the continuous flow photooxidation of alkyl benzenes, specifically targeting the conversion of ethylbenzene to acetophenone.

To optimize this process, an extensive literature review was conducted to identify the most effective heterogeneous catalysts and their optimal conditions for the selective oxidation of ethylbenzene to acetophenone. The findings from the literature were then used to benchmark experimental conditions. Furthermore, the design improvements of our 3D-printed reactors were assessed by calculating the Reynolds number, demonstrating that the enhanced design achieved higher Reynolds numbers, which facilitated better gas-liquid mixing, resulting in improved conversion rates, selectivity, and yield of acetophenone during the photocatalytic oxidation of ethylbenzene.

Innovative 3D printed reactors, designed for continuous flow operation, showed significant advancements over traditional batch reactors. Under ambient conditions, the redesigned reactors achieved a conversion rate of 62% for ethylbenzene with a selectivity of 64% for acetophenone. By transitioning from a monolithic cylindrical reactor to a baffled serpentine reactor with static mixing zones, my research group improved light penetration and gas-liquid mass transfer, leading to an increase in conversion and yield.

This research highlights the potential of 3D-printed reactors to revolutionize the photooxidation industry by providing scalable, efficient, and environmentally friendly alternatives to conventional methods.

Sponsor: Jessica Fox-Wilson

LITS Classroom 203, Library, 10:25-10:50

Margarite Richardson '27

Deerfield, Illinois

Major: Undecided

Reflection on an Internship Through the Lens of World Building and CRIS

This presentation reflects on my internship experience with the South East Chicago Commission (SECC) under Special Service Area 61 (SSA 61), focusing on my engagement with community development and public service on the South Side of Chicago. Through this non-profit organization, I had the opportunity to directly participate in initiatives aimed at improving the and enhancing urban spaces, notably through the installation of festive 4th of July banners. My responsibilities included attending and assisting at commissioner meetings, preparing billing reports, and conducting asset inventories, which provided me with practical insights into the operational aspects of community service.

Throughout my internship, I observed and interacted with various stakeholders involved in urban development, which deepened my understanding of the concepts discussed within Critical Identity Studies. By witnessing firsthand the intersection of policy-making, community engagement, and identity in action, I gained valuable insights into how public infrastructure affects individual and collective identities, particularly in marginalized communities. Events that highlighted local culture and community pride showcased the resilience and diversity of identities present in these neighborhoods.

This experience not only enhanced my practical skills but also reinforced my commitment to advocating for equitable community development. I look forward to sharing my insights on the link between community service and identity formation, demonstrating how real-world applications of Critical Identity Studies can inform and inspire future efforts in urban planning and social justice initiatives. This presentation contributes to the ongoing discussion of the role of non-profits in shaping social identities and fostering community resilience in urban environments.

Sponsor: Suzanne Goebel

Impact Beloit Classroom 109, Library, 1:30-1:55

Abbey Scott '25

Bradenton, Florida

Majors: Biology; Business Management

Thomas Glenn '26

Waukesha, Wisconsin

Majors: Spanish; Education and Youth Studies

Abisha Bhatta '26

Kadthmandu, Nepal

Majors: Biology; Health and Society; Business Management

Connecting Classroom and Community

This semester, we are taking PRAX286—Community and Civic Engagement. The course was structured to include community-based learning, allowing students to make connections between the curriculum and the real world. This presentation will focus on what we have learned from working with the greater Beloit community and how our experiences tie into the ILOs.

Tommy Glenn

Through the Community Connections course with Suzanne Goebel my classmates and I have been expected to complete 90 hours of work this fall semester as a volunteer or intern through a partnered community organization. I have been able to continue my work at the Stateline Literacy Council, which I began in the fall of 2023 through Prof. Sylvia Lopez's course Intro to Latinx Studies. Last year, I spent time working with adult students preparing to take the citizenship exam as well as English language learners. I am currently tutoring English language learners as well as helping students in the adult basic education program (ABE) with reading comprehension. My presentation covers my experience with the placement, the opportunities that I have been given, and what I have learned so far with my paired place site.

Abbey Scott

As part of my Community Connections course this semester, I have been working as a paraprofessional at Even Start Family Literacy, a program that supports low-income families by providing educational opportunities for both children and adults. In the preschool classroom, I create weekly lesson plans, teach basic motor and language skills, and manage the classroom.

Through this experience, I have developed greater patience, organization, and adaptability, all of which will benefit me in my future career. The more time I spend at Even Start, the deeper my understanding of the community outside Beloit College has been. I've also gained valuable insight into the significant impact the program has on families by offering them opportunities for continued learning and support in everyday life.

Abisha Bhatta

Through the Impact Beloit Community and Civic Engagement class, I am interning at Nature at the Confluence, a non-profit organization located in South Beloit, Illinois. I enjoy how the place allows me to learn about nature in new ways and become closer to it. I also appreciate the efforts made by Nature at the Confluence to spread awareness about the importance of nature, of which is something I want to be a part. The small natural discoveries I shall make there are what excite me. With the help of this course and this professional experience outside of the classroom, I am looking forward to knowing more about the greater Beloit community and its evolution in recent years.

Sponsor: Katherine Harris

Room 101, Sanger Science Center, 9:20-9:45

Eric Seo '25

Downers Grove, Illinois

Major: Mathematics
Minor: Physics

Optimized White Sox Lineup Construction with Machine Learning Ensemble Model and Monte Carlo Game Simulation

Traditional baseball lineup strategies often rely on intuition and basic statistics. However, with advancements in data analytics and machine learning, there is potential to enhance these strategies through various mathematical techniques.

Using a comprehensive dataset of play-by-play event files, our approach leverages a machine learning ensemble model to predict at-bat outcomes and simulate game results. The model integrates various player performance metrics, situational factors, and game contexts to analyze lineup performance. By running Monte Carlo simulations, the model identifies lineups that maximize the team's predicted run count, providing a data-driven approach to lineup optimization.

Sponsors: Laura Grube and Diep Phan

Room 349, Sanger Science Center, 3:00-3:25

MukhammadAli Shavkatov '26

Andijan, Uzbekistan

Major: Quantitative Economics
Minor: Finance

Bridging Economies: Transforming Global Trade through the Port of Baku and the Trans-Caspian Corridor

This presentation explores how strategic trade and infrastructure developments at the Port of Baku are bridging economies and transforming global trade along the Trans-Caspian Corridor. During my internship at the Baku International Sea Trade Port within the Strategic Development and Planning department, I conducted a comprehensive analysis of economic trends, international trade flows, and logistical efficiencies, focusing on enhancing Azerbaijan's role as a key player in global logistics.

I analyzed cargo flows along the Trans-Caspian route, comparing it to other major Eurasian trade routes. I developed presentations that illustrated trade flows and economic dependencies within the region. My research aimed to uncover systemic challenges while identifying improvements to the Middle Corridor to enhance port efficiency and strengthen trade capacity.

Furthermore, I collaborated closely with senior economists and interviewed various experts in Azerbaijan to gain deeper insights into the economic landscape. My findings provided actionable recommendations for optimizing the operations of the Port of Baku, including the integration of new technologies to streamline logistics and improve cargo management.

This presentation will delve into the methods and insights gained during my research, highlighting how strategic improvements at the Port of Baku and along the Trans-Caspian Corridor can unlock new economic opportunities and bolster global trade routes. Through this analysis, I aim to shed light on the port's role in facilitating growth and its potential to serve as a vital link between continents.

Sponsor: Sylvia Lopez

LITS Classroom 203, Library, 1:30-1:55

Dahlia Shearer '25

Skokie, Illinois

Majors: Biochemistry; Spanish
Minor: Health & Society

Ella Aizeki '25

Lafayette, Colorado

Majors: Cognitive Science; Music

Julia Weber '27

Minneapolis, Minnesota

Majors: French Language and Culture; English: Creative Writing

Working with the Community: What Being a Reading Buddy Means to Us

In this talk, we describe Todd Elementary's Reading Buddies program and its long history with Beloit College. Dahlia, Ella, and Julia each recount their own experiences and why they find Reading Buddies important.

Dahlia:

I have participated in Reading Buddies since Freshman year and have been leading it since my Sophomore year. Throughout my time in Reading Buddies, I have been able to foster relationships with children from many different backgrounds with various personalities. Reading Buddies has also been a great chance to get out into the community of Beloit.

Ella:

Living on a college campus, I often have a small bubble of interaction, and participating in this program pops that bubble and lets me see and love the community and people of Beloit in a rich and deep way. This program has been an important bridge of the college and outer Beloit community and has been immensely beneficial to the students at Todd Elementary School. I have always had an affinity for working with kids, and helping direct this program has allowed me to share that passion and encourage other Beloit students to pop their interaction bubble too.

Julia:

The Reading Buddies program has been part of my journey here at the college since the start of my first year. I had never interacted with kids, and am so grateful to the program for giving me the opportunity to laugh, to smile, and to read to little people with big personalities. In many ways, the program has changed my outlook; I now feel a sense of belonging and of responsibility to my community that I had never felt before.

Sponsor: Shawn Gillen

Room 101, Sanger Science Center, 3:00-3:50

Ella Silva '26

Portland, Oregon

Major: Media Studies
Minor: Journalism

Thomas Fleming '27

Decatur, Georgia

Major: Cognitive Science and Sociology
Minor: Philosophy

Marissa Wells '25

Woodstock, Illinois

Major: Media Studies
Minor: Studio Art

Siona Shishak '27

Alexandria, Virginia

Major: Undeclared

Casey Barasch '26

Madison, Wisconsin

Major: Spanish
Minor: Education

Lyndsey Turner '25

Beloit, Wisconsin

Major: Education and Youth Studies & Creative Writing

Anna King '27

Etna, New Hampshire

Major: Media Studies, Japanese Language & Culture, and Business Man

Northern Ireland Global Experience Panel and Discussion

This summer, we enrolled in a Global Experience Seminar, Representing Decolonization: Ireland. This course took us to Northern Ireland to study the history of conflict and moving past that conflict as a nation. We explored the critical global issue of ethnopolitical conflict and its impact on the individual and the community, specifically using the conflict of The Troubles as a framing device. We then were responsible for documenting our experience and analysis of the issues being explored through various artistic projects, like short films, video or photo essays, creative writing, and a variety of other creative interpretations. Our presentation would take the form of a panel discussion of sorts, individually briefly

touching on our final projects, talking about the experience of being in Northern Ireland, and taking questions from the audience about the class and trip.

Ella:

My final project took the form of a zine focused on how queerness interacts with the other conflicts at play in Northern Ireland, and how art is used as a political and societal tool as well as a way to express emotions related to those concepts. The zine is organized like a digital journal and includes poetry, photography, writing, and artwork.

Thomas:

My project combined poetry with footage I captured in Ireland, attempting to paint a picture of how it felt to learn about the Troubles. I used haiku for each poem, wanting to present the essence of what that experience was like rather than a description. The final product married the poems with relevant footage in different video clips cut together.

Marissa:

My final project focused on the many murals that were scattered throughout Northern Ireland and the purpose behind the art medium, through the form of a collage. My collage incorporated 21 murals, mostly from Derry, bringing all of the conflicts together in one piece. Murals in Ireland serve as visual narratives, reflecting the country's complex history, cultural heritage and contemporary issues. The murals found in Belfast and Derry are beautiful ways to commemorate the tragedies that have occurred in the North while also bringing light to the past violence in order to prevent future violence.

Siona:

My mini-documentary attempted to evaluate the role of traditional folk music in the process of decolonization. I captured footage throughout the trip to use in the final video, which was complemented by voiceover narration and several contrasting versions of trad classic, "The Dawning of the Day". My analysis was guided by Frantz Fanon's favored theory of decolonization, as presented in his work "The Wretched of the Earth".

Casey:

My project involved two things: journaling and playing the banjo. In Belfast, I scoped out the live music scene before joining in on an open trad session, where I learned about Irish traditional music while playing it. Finally, I wrote a folk song in the style of Irish music called, "The Ugliest Building in Belfast" based on my journals from the trip.

Lyndsey:

My project was in the form of a research-based poem and reflected the empathetic relationship extended from Northern Ireland Republicans (Irish Catholics) to current-day Palestinians, and compared and contrasted that of the relationship between Northern Ireland Unionist (British Protestants) and Israelis. The poem focused on the issues of colonization, more specifically the tactics used by colonizers to oppress the colonized, and how these tactics eventually lead to violence and genocide.

Anna

My project was called "Colonization and the Connemara: Northern Ireland, Ireland, and Finding the (Good) In Colonization." Through this project I explored the ties between the British colonization of Ireland and the Irish pony breed, the Connemara. Pulling from external research, our time in Ireland and Northern Ireland, and my personal experiences with the breed, I created a digital media "zine" that followed the development of the breed and its place in the tumultuous history of Ireland.

Sponsor: Sylvia Lopez

LITS Classroom 203, Library, 1:55-2:20

Maritza Silva Montoya '26

Round Lake Beach, Illinois

Major: Engineering
Minor: Mathematics

Marcus Studinski '26

Stevens Point, Wisconsin

Majors: International Relations; Spanish

Michelle Carlin '25

Chicago, Illinois

Majors: Business Management; Spanish
Minor: Finance

Even Start Family Literacy: Latinx People in the Midwest

Although the Latinx presence in the United States is believed by many to be recent, there are many misconceptions despite extensive research and documentation. This can be seen in academic research, labor records, and testimonies gathered. The Latinx presence in the Midwest is not only long-standing, but it is also critical to the economy and culture of the region.

Through readings examining Latino/a experiences in education, labor, and culture and by interacting with Latinas in a local literacy program, we have come to appreciate how critical the Latino presence is in the Midwest. Latinos/as are consistently asked to contribute yet receive little recognition for their contributions.

In our presentation, we discuss our work as conversational tutors of Latinx ELL learners to dispel myths and prejudices about this community and attest to its resilience and tenacity.

Sponsor: Christopher Fink

Richardson Auditorium, Morse-Ingersoll Hall, 9:20-9:45

Vanessa Skildum '27

Beloit, Wisconsin

Majors: Creative Writing; Sociology
Minors: GLAM; Journalism

Julia Weber '27

Minneapolis, Minnesota

Majors: Creative Writing; French

Stepping Out of Your Comfort Zone: Writing In The Boundary Waters

During the month of July in 2024, we had the opportunity to spend four weeks in the Boundary Waters Canoe Area Wilderness at the Coe College Wilderness Field Station on Low Lake in Ely, Minnesota. Through this experience, Vanessa and Julia were given the opportunity to explore their writing, explore the nature around them, and to challenge themselves in a unique and unparalleled way.

Vanessa

Entering the Boundary Waters Canoe Wilderness, I had little experience with hiking, fishing, and camping. I had never touched a canoe. It starkly contrasted with my everyday life, where I'm always on the move, completing tasks quickly and efficiently. This journey forced me to slow down both mentally and physically. Through the slow travel of the canoe and the hours when there was no specific task. I learned to appreciate the quiet moments in between, embodying nature writer Sigrid Olsen's insight: "Joys come from simple and natural things: mists over meadows, sunlight on leaves, the path of the moon over water." Come learn how this experience deepened my love for nature, taught me the importance of relying on others, and that slowing down is where you will find unexpected joys.

Julia

I speak about my experience throughout the process: getting there, being there, canoeing for miles there, etc. In particular, my journey in learning the joys of nature, the profoundness of my Minnesotan heritage, and getting to know my own personal tenacity. My intention is to compel you to look around, to learn the patient art of seeing, because as the writer Mary Oliver says in her poem *Instructions for Living a Life*: "pay attention, be astonished, tell about it."

Sponsor: Carlos Cartagena-Sanchez

Room 349, Sanger Science Center, 1:55-2:20

Samuel Slabaugh '26

Lexington, Kentucky

Major: Mathematics
Minor: Physics

Applications of Additive Manufacturing: Micro-scale Additions to Increase Heat Resistance During Supersonic Travel

As a Summer 2024 Research Assistant working within the Institute for Sustainable Manufacturing at the University of Kentucky, I worked under a PhD student on a project that evaluated possible microscale additions to a substrate in order to make it more heat resistant during supersonic travel. During my time on the project, we focused on plasma torching, a technique involving placing samples under hot plasma, as well as Sensofar scanning, an analysis used to quantify the roughness of a porous substrate. These analyses yielded data which was used to determine how well each sample kept the microscale addition.

During my time on the project, my learning extended beyond just science. I also learned about the inner workings of graduate level research, and gained insight into the field of mechanical engineering. The PhD student I worked with taught me about the different stages of graduate school, as well as how the skills and experiences gained from summer research can be applied to industry or other research positions in future professional development.

Sponsor: Emily Sager

Room 349, Sanger Science Center, 9:45-10:10

Tyrel Spivey '24

Fort Lauderdale, Florida

Majors: Biology; Sociology

Gavin Thorpe '25

Miami, Florida

Major: Biology
Minor: Health and Society

Empathy in Action: The Road to Becoming a Certified Nursing Assistant (CNA)

In the summer of 2024, we participated in an eight-week Certified Nursing Assistant (CNA) program offered at Blackhawk Technical College. For the first six weeks, we focused primarily on developing the theoretical knowledge needed to be successful. For the last two weeks of the class, we were able to complete our clinical hours at Cedar Crest Assisted Living Facility.

The clinical practice component was particularly impactful. Working directly with patients in real healthcare settings allowed us to apply our skills in real-time, fostering confidence and competence. We encountered a range of situations that challenged us to think critically and respond compassionately, reinforcing the idea that flexibility is crucial in caregiving. By the end of the class we were able to confidently pass exams and get checked off for skills that we used in the nursing home. The CNA course at Blackhawk Technical College not only prepared us for immediate employment but also instilled a deep appreciation for the impact we can have on people’s lives.

In this presentation we will discuss more on how we found and funded the opportunity, how the class was structured, what we learned in and out of the classroom, the process to become certified, and what is next for us.

Sponsor: Diep Phan

Room 349, Sanger Science Center, 2:35-3:00

Shruti Tyagi '26

Delhi, India

Major: Quantitative Economics
Minor: Finance

Transitioning Research Skills: From Campus Climate Analysis to Professional Internships

In summer 2024, I worked as a research assistant with Professor Phan, focusing on the analysis of campus climate survey data from a student satisfaction survey. My role involved summarizing the findings and comparing them to national data, which provided valuable insights into how our campus climate aligns with broader trends. Through this process, I developed a deep understanding of research methodology, including how to source reliable data, analyze it effectively, and present findings clearly and concisely. These experiences also strengthened my technical writing skills, enabling me to communicate complex information to a broader audience. I am now applying the skills I gained during this research internship to my current internships, demonstrating how research techniques can be transferred and adapted to different fields.

Sponsor: Corbin Livingston

Room 249, Sanger Science Center, 8:55-9:20

Sol Ulaszek '26

New Brighton, Minnesota

Major: Biochemistry

Potential Apoptotic Upregulation in BAF-Knockout Differentiation of Brown Adipocytes

Research has shown the BRG-/BRM-associated factor (BAF) protein complex is recruited to DNA to expose genes related to brown adipocyte differentiation through the shifting of nucleosomes, but the effects of its loss during differentiation remain to be seen. In a study of the change in expression at the RNA and protein levels of genes associated with internally motivated apoptosis across the course of brown adipocyte differentiation, my research group discovered incomplete differentiation and potential upregulation of pro-apoptotic genes as a result of BAF knockout.

Cells were treated with PROTAC inhibition of BAF across the 7-day course of brown adipocyte differentiation, with conditions of treatment for all seven days, during the induction period of brown adipocyte differentiation, and post-induction for the remainder of differentiation. qPCR analysis of RNA expression across brown adipogenic genes determined a pro-apoptotic shift in multiple treatment time courses. This study proposes new understandings about potential loss of cell function and vitality in cells known to associate with BAF over the course of differentiation.

Sponsor: Diep Phan

Impact Beloit Classroom 109, Library, 2:35-3:00

Prince Upadhyay '25

Vadodara, Gujarat, India

Major: Data Science

Experiencing an Open Data Science Conference

Attending the Open Data Science Conference (ODSC) 2024 West proved to be a transformative experience, broadening participants' understanding of the latest trends in data science and enhancing their professional development skills.

In this presentation I share valuable insights and strategies acquired for successfully navigating such conferences. I outline the journey from initially approaching industry experts with confidence to establishing enduring professional relationships. Additionally, I provide practical advice on how to maximize the benefits of attending technical sessions, maintaining professionalism throughout the event, and staying informed about advancements in AI and machine learning.

This presentation is designed to provide you with practical tools to effectively utilize conferences for growth, aiming to inspire and empower you to advance your career and personal development through these events.

Sponsor: Sohaib Kiani

Impact Beloit Classroom 109, Library, 11:15-11:40

Prince Upadhyay '25
Vadodara, Gujarat, India
Major: Data Science

Vanshith Bhandari '26
Mangalore, Karnataka, India
Majors: Computer Science; Buisness Management

AI Engineer Internship Experience

In this presentation, we showcase two key projects from our AI Engineering Internship. These initiatives demonstrate our application of advanced AI techniques to enhance learning and streamline flight bookings.

As part of a collaborative squad, we honed essential skills in artificial intelligence, natural language processing (NLP), and backend system integrations. This experience enabled us to tackle technical challenges and contribute to open-source project Rex, an AI tool that further developed our problem-solving capabilities.

Our work involved utilizing cutting-edge technologies such as VertexAI API, large language models (LLMs), retrieval-augmented generation (RAG) techniques, Langchain, and dynamic request monitoring. Based on these requirements, we developed "Quizify", an AI-powered quiz generator, and "Flights", a natural language flight search and booking system.

In our presentation, we detail the development processes, explore the AI technologies employed, and address the practical challenges we encountered throughout the Internship journey.

Sponsor: Joshua Moore

LITS Classroom 203, Library, 9:45-10:10

Brady Wachholz '25
Norwood Young America, Minnesota
Majors: Health & Society; Business Management

Dahlia Shearer '25
Skokie, Illinois
Majors: Biochemistry; Spanish
Minor: Health & Society

Abroad & Beyond: How Perspectives and Experiences from Studying Abroad Apply to Life Beyond Beloit

Using our experiences abroad, Costa Rica and Ireland, we share the benefits of studying abroad and how it can be applied to life beyond Beloit College, specifically looking at how studying abroad can help in the application and interview process for graduate school or a job.

Brady:

During the spring of 2024 semester, I studied abroad in Cork, Ireland; studying at University College Cork through direct enrollment. I took courses to expand my knowledge in health sciences; and capitalize on the resources of a large university. I will share my academic experiences at UCC and what I gained personally from studying abroad, as well as a brief research project on physical accessibility that was conducted for PRAX 209: Global Experience in Action.

Dahlia:

I studied abroad in San José, Costa Rica throughout the spring of 2024. While there, I was able to explore all parts of Costa Rica and I was enrolled in classes focused on holistic health, the healthcare system in Costa Rica, and a tropical ecology class. I was also able to grow in my Spanish-speaking skills through Spanish courses I took and from living with a host family. I will be able to share information on my experiences in Costa Rica and information from my studies of the Costa Rican healthcare system.

Sponsor: J. Leslie

Richardson Auditorium, Morse-Ingersoll Hall, 10:25-10:50

Liam Walker '26

Elmhurst, Illinois

Major: Computer science
Minor: Finance

Impact Beloit Concierge Internship Program: Software Engineering with Fairbanks Morse Defense

As a part of the Impact Beloit Concierge Internship Program, I have joined the Fairbanks Morse Technology (FMT) Software Engineering Team at Fairbanks Morse Defense (FMD). Fairbanks Morse Defense is a prime supplier of engines and technology solutions for the United States Navy, based right here in Beloit.

My internship position includes back-end development for their FM-Onboard software, research & development with the AI solutions team, and other internal programming projects. In this presentation, I discuss my work as it relates to these positions, the interview and selection process, and how the Impact Beloit Concierge Internship Program has allowed me to achieve this position, as well as support me throughout the internship.

Sponsor: Suzanne Goebel

Impact Beloit Classroom 109, Library, 1:55-2:20

Anna Williams '24

St. Louis, Missouri

Major: Biochemistry
Minor: Spanish

Olivia Norquist '25

St. Paul, Minnesota

Major: Psychology
Minors: Art; Dance

Bethany Yu '27

Maple Grove, Minnesota

Major: Political Science

Hrishikesh Chavan '26

Mumbai, India

Majors: Quantitative Economics; Data Science

Connecting Classroom and Community

This semester, we are taking PRAX286—Community and Civic Engagement. The course was structured to include community-based learning, allowing students to make connections between the curriculum and the real world. This presentation will focus on what we have learned from working with the greater Beloit community and how our experiences tie into the ILOs.

Anna:

Community-based learning is a crucial part of liberal arts education as it develops skills and relationships outside the classroom. In Beloit, more residents live below the poverty line than the national average. Through this class, I am supporting the low-income community in Beloit by working with Caritas Food Pantry to provide food and other necessities to local neighbors.

Olivia:

I partnered with Kids Fun And Drama to increase my awareness of organizations in the greater Beloit community. Kids Fun And Drama (KFAD) is a children's theater and performing arts program available to children ages 7-18 years old. KFAD strives to build self-esteem, poise, and knowledge of theatre, music, and dance in each child enrolled in the program.

Beth:

I am working with the Rising Tide Center. Rising Tide's focus is to combat a lack of opportunities for young people within the Beloit community. For the past three years, Rising Tide has been building a vibrant youth and community center and has established a network of accessible programming for youth sports. They are now beginning a free after-school program.

Hrishikesh:

As a Discovery PLAYce Intern at the Beloit Public Library, I have focused on fostering early childhood development through interactive play and literacy-based activities for children ages 0-6, with special attention to ages 0-3. The program is designed to spark brain development, encourage school readiness, and promote adult-child engagement in a community setting. My responsibilities include observing how children interact with the space and its resources, engaging with families, and conducting community surveys to expand the program's reach.

Sponsor: Rachel Bergstrom

Room 349, Sanger Science Center, 10:25-10:50

Korynne Wilson '25

Camino, California

Majors: Biology; Health & Society

Data in Action: Driving Positive Change in Nonprofit Healthcare

In this internship, I explored the role of data collection and analysis in improving healthcare delivery and operational efficiency at HealthNet of Rock County, a nonprofit medical and dental clinic serving un- and underinsured populations in and around Janesville, Wisconsin. By utilizing data to inform healthcare strategies, the clinic addresses unique challenges and delivers targeted, equitable care. My experiences as a Data Collection Intern at HealthNet and a Community Health Internship Program Intern with the Wisconsin Area Health Education Centers (AHEC) System have provided insights into how data can be applied to drive meaningful outcomes in clinical settings.

In my 2023 internship, I contributed to the development of Seal-a-Smile, a school-based dental sealant program to improve oral health in low-income communities. Working closely with local schools, I collected and analyzed data, which informed grant proposals and program deliverables, ultimately expanding access to preventative dental care for underserved children. Additionally, I created new employee badges based on the True Colors Personality Test, aimed at fostering better communication and collaboration among staff. This initiative highlighted how data-informed tools can be used not only in patient care but also to improve workplace dynamics, enhancing overall organization efficiency.

This experience led to my current role at HealthNet, where I manage and analyze clinic data to support grant writing, published reports, budget development, and program design. I also assist in implementing new donation policies and inventorying pharmaceuticals and medical supplies.

In this presentation, I offer attendees practical insights into the critical role data plays in both healthcare delivery and operational processes within nonprofit settings. I demonstrate how data can drive innovative, sustainable improvements in community health services by focusing on the intersection of data, health program development, and team-building strategies like the True Colors test.

Sponsor: Corbin Livingston

Room 249, Sanger Science Center, 10:50-11:15

Alex Zeimetz '25

Roscoe, Illinois

Major: Biochemistry

Manufacturing of Tellurite Glasses by Levitation

Pure tellurite glasses are difficult to synthesize with only two known methods: repeatedly dipping in cold water and levitation. Tellurite glasses were synthesized with 99% purity but not with 99.999% purity. To understand the role of impurities, tellurium dioxide was doped with the 99.999% purity and 99% purity with La_2O_3, Eu_2O_3, and Y_2O_3 at low concentrations to study glass formation and the different effects on the structures. Different gasses such as nitrogen, oxygen, and argon were tested with the tellurite beads to examine their impact on the glass. Since the beads released a large amount of smoke in the levitator when heated up the weights of the beads before and after levitation were also recorded to see if there is a correlation between different gasses and or different purities with weight loss. To understand the structures of the glass beads, Raman spectroscopy was used to determine the chemical makeup of the glass tellurite beads.

OUR SINCERE THANKS

Thank you to all those who advanced the work of our students through their time and educational expertise, and by funding through a variety of opportunities designated for research support.

Link to the online program