Elkin R. ISAAC

ALBION COLLEGE

EST 1990

STUDENT RESEARCH SYMPOSIUM

Thursday, April 16, 2026

Elkin R.

ISAAC

ALBION COLLEGE

EST 1990

STUDENT RESEARCH SYMPOSIUM

by the Numbers

1990

The first symposium was held on April 20, 1990

577

Number of poster presentations 1990-2026

2,970

Number of students who have presented 1990-2026

104

Number of platform and poster presentations 2026

1,827

Number of platform presentations 1990-2026

127

Number of students presenting 2026

Elkin R.

ISAAC

ALBION COLLEGE

EST 1990

STUDENT RESEARCH SYMPOSIUM

8:30-10:15 am | Student Research Platform Presentations

Forum #1 Norris 100

Forum #2 Towsley Auditorium Norris 101

Forum #3 Norris 102

Forum #4 Norris 104

10:45 am | Honors Convocation

Goodrich Chapel

1:15-4:00 pm | Student Research Platform Presentations

Forum #1 Norris 100

Forum #2 Towsley Auditorium Norris 101

Forum #3 Norris 102

Forum #4 Norris 104

4-5 pm | Student Research Poster Session

Shaheen Atrium

MORNING SESSION

FORUM #1 – NORRIS 100

8:30	Grace Halstead (Marshall)	Stratigraphy, Paleoenvironments, and Correlation of the Permian Phosphoria Rock Complex, Southwest Montana
8:45	Bonnie Lord (Lee-Cullin)	Exploring Runoff Management Prioritization for Albion College's Campus via GIS
9:00	Lydia Meissner (Marshall)	Environmental Stress and Faunal Turnover of Brachiopods and Bivalves in the Permian Phosphoria Rock Complex, Idaho
9:15	Bryn Osborne (Sblendorio)	A Home in the Heat: Investigating the Benefits of Heat Shields on the Thermal Microclimates of Bird Nest Boxes
9:30	Kaelyn Ruiter (Zellner)	Line Identification of M-Star Spectra at Mt. Wilson Observatory
9:45	Grace Sobaski (Cahill)	Can Genetic Diversity Explain a Lack of Anti-Predator Response in Aquatic Isopods?
10:00	Camila Tapia (Lee-Cullin)	Evaluating the Environmental Impact of Immigrants in the United States Using Geospatial Analytics

FORUM #2 – TOWSLEY AUDITORIUM NORRIS 101

8:30	Daniah Al-Saffar, Lynsey Brearley, Andrea DI Napoli, Hugo Fillion, Thomas Gauvreau, Chase Jorgensen, Carter Stahl, Simone Taylor (Baker, Bruneteaux-Swann, Mathews)	Business Model: MindConnect
8:45	Ivan Barron, Yasmine Bouallegue, Beatriz Cardoso, Haileystar Castaneda, Solène Facih, Niouma Sakho, Brenna Staley, Papa Yaw Thompson (Baker, Bruneteaux-Swann, Mathews)	Grocer Link Solutions
9:00	Manus Bennett, Alex Briatte, Clément Gautier, Alex Kotas, Axelle Mellier, Aziz Oztruk, Vincent Ravalec, Lucas Szymanski (Baker, Bruneteaux-Swann, Matthews)	NeuroShield
9:15	Larissa Botega (Baker)	Beyond the Classroom: Ensuring Equity in Experiential Learning for All Students
9:30	Bonnie Lord (Lee-Cullin, Harnish, Revenaugh)	River Stories: The Kalamazoo River in Watercolor
9:45	Connor Clark, Margo Gilbert, Beata Karwaczka, Emma Kastl, Amani Williams (Day, Wilch)	Tracking Sustainability at Albion College
10:00	Abigail Dombrowski (McWhirter)	Burial & Exodus: An Examination of Breslau's 20th Century Jewish Community

FORUM #3 – NORRIS 102

8:30	Hannah Arledge (Christopher, Hill, Visco)	Harmonious and Obsessive Passion as Predictors of Expectations of Success
8:45	Megan Chipman (Roberts)	Adolescents, Literature, And The Grief Process
9:00	Autumn Eles (Rabquer, Quesenberry)	Empowering Young Patients: Illustrating Chronic Illness through Graphic Medicine
9:15	Annika Lindstrom (Betz, Francis, Dillon)	Perceived Coping Ability and Kinesiophobia After Injury in the Context of Psychological Trauma and Resilience
9:30	Karsen Mellado (Christopher, Hill, Visco)	Perceived Hireability in Different Professional Fields and Mental Health Stigma
9:45	Maryam Sohail (Olapade)	Investigating Global Trends in PCOS and Twin Pregnancies: Understanding the Role of Infertility Treatments
10:00	Payton Landry (Wieth)	Proactive Safety Measures Regarding Active Shooters at Albion College

FORUM #4 — NORRIS 104

8:30	Ethan Thomas (Sacks)	How the Experiences of Civil War Prisoners Both Weakened and Reinforced Their Support for the War
8:45	Brendan Mulcahy (Sacks)	Civil War Uniforms: What They Reveal About Confederate Society
9:00	Raylene Bosier (Kirby)	The Principles of Beauty and Aesthetics: A Philosophical Approach
9:15	Tommy Frias (Kirby)	Laws of Nature and the Paradox of Free Will
9:30	Cameron Thompson (Kirby)	Architects of Action: How Contemporary Agent-Causal Accounts Solve the Paradox of Free Will
9:45	Trinity Castle-Pollard (Brown)	The Past Pushes You Forward
10:00	Heidi Faramelli (Brown)	Through My Lens: A Novel-Writing Journey

AFTERNOON SESSION

FORUM #1 — NORRIS 100

1:15	Payton Baker, Tejal Richardson (Streu)	Progress Towards the Synthesis of a Light Activated BCR-ABL Inhibitor
1:30	Logan Hutchinson, Olivia Sliwinski (Streu)	Progress Towards the Synthesis of a Novel Photoswitchable Antibiotic
1:45	Ian MacDonald (Streu)	Synthesis of a Novel Photoswitchable BCR-ABL1 Tyrosine Kinase Inhibitor
2:00	Ernest Njoroge (Streu)	Development of Photoreversible Azo-Stilbene GLP-1 Agonist for Diabetes Treatment
2:15	Emma Schramm, Demetrius Smith (Rohlman)	A Study of Flaviviral RNA Polymerases
2:30	Melanie Symons (Streu)	Characterization of the Light-Induced Bioactivity of Three Novel BCR-ABL Inhibitors
2:45	Paige Williamson (Olapade, Streu, Baker)	Microbiological and Biochemical Experiences with TransPharm Preclinical Solutions
3:00	Andrew Woods (Streu)	Synthesis of an Analogue of a Validated Bruton's Tyrosine Kinase Inhibitor
3:15	Alex Zoschke (Streu)	Synthesis & Testing of a Novel Photoswitchable BCR-ABL Inhibitor That Targets Drug-Resistant Mutations
3:30	Carly Fraser (Streu)	Diabetes and Colonialism
3:45	Haileystar Castañeda (Rohlman)	How Mexican Food Can Alleviate Metabolic Disorders' Symptoms

FORUM #2 — TOWSLEY AUDITORIUM NORRIS 101

1:15	Jillian Bentley (Kayser, Henderson, Riedel)	The Birth of the Modern American Stage Manager
1:30	Brandon Blake (Abbott, Kim)	Sergei Prokofiev: Piano Concerto No. 3 in C major, Op. 26
1:45	Anungoo Mendsaikhan (Kim)	Fritz Kreisler: Praeludium and Allegro in the Style of Pugnani
2:00	Caleb Galvan (McCaskill, Solomon)	Affliction of Freedom
2:15	Leonardo Gomez (Dixon)	Autism and Me: Neurodiverse Conditions Through Art
2:30	Ben Harkness (Abbott)	Changing Perspectives: Philosophical and Theological Approaches to Music in Renaissance Europe
2:45	Abigail Hoskey (Clarke)	Flowers Grow in the Ashes: A Musical Composition Reflecting on the Coexisting Light and Darkness of Auschwitz-Birkenau
3:00	Caroline Lippitt (MacInnes)	The Saga of Inga Ulfsdóttir: Researching and Writing a Historical Graphic Novel
3:15	Tuesday McBride (Solomon)	Compliant Imprints: The Art of Silent Gender Roles
3:30	Seph Cartier (Miller, Laban, VanArsdalen)	KILLA-KILLA: A Superhero Musical
3:45	Natalie Altayeb (Noble)	From Intimacy to Empire: An Ecological Analysis of Feminicide in Puerto Rico and the United States

FORUM #3 – NORRIS 102

1:15	Lindsay Ratcliffe (Mesa)	Notes From My Ghost: Poems
1:30	Jocelyn Kincaid-Beal (Mesa, Brown)	Using Body Horror to Explore Bodily Expectations, Anxieties, Desires Through Poetry
1:45	Ashanti McKnight (Roberts)	Reading Black Girls: Building "The Black Girl Atlas"
2:00	Shay Athayde (Chase)	Ordering the Artifacts: Curating Albion's Indigenous History in the Archaeology Laboratory
2:15	Naima Davenport (Brown)	Anti-Racism and Decentering Whiteness Through Literary Analysis and Personal Reflection
2:30	Tori Gierach (Melzer)	The Impact of Live-Action Tween Television on Perceptions of Gender and Interpersonal Relationships
2:45	Tyland Martin (McCaskill)	Do Black Male Mentoring Programs Work? A Comprehensive Analysis of Outcomes
3:00	Brinley McCaig (Melzer)	The Invisible Orange Jumpsuit: The Experiences of Daughters of Incarcerated Fathers
3:15	Vanessa Rigney (Elischberger, Cahill, Hill)	Attitudes of Bisexual, Gay, and Lesbian People Toward Transgender Individuals and Anti-Trans Legislation
3:30	Cloud Rimer (Harnish, Wylie)	Manoomin Monitoring and Interpretation
3:45	Connor DeEros (Riedel)	Pilgrimage and Power: Competing Authorities in Crusader Jerusalem, 1099-1187

FORUM #4 – NORRIS 104

1:15	Natalie Altayeb (Saville)	Disrupting the Gut: Host-Microbe Interactions Following Enteric Bacterial Exposure in *Drosophila melanogaster*
1:30	Delana Jaiyesimi (Cahill)	Mussels and Other Aquatic Macroinvertebrates in Michigan Mnomen (Wild Rice) Beds
1:45	Catherine VanderWeg (Cervantes)	eccDNA in Vegetatively Growing *T. thermophila*
2:00	Enkhtushig Enkhbat (Clark)	Topological Data Analysis of Crypto Markets: Persistence of Volatility
2:15	Bayasgalan Gantulga (Adamczyk)	The Hidden Price of Lactose Intolerance: Economic Impacts and Burdens on Society
2:30	Oyu Lkhagvajav (Adamczyk)	How Education Helps Reduce Poverty in Rural East Asia: The Impact on Income Mobility
2:45	Jayshon Russ (McCaskill)	Movement as Medicine: Promoting Accessible Physical Activities for Community Wellness
3:00	Tia Sriprom (Cho)	Towards the Safety of Autonomous Vehicles: Measuring Friction for Roadway Contaminants
3:15	James Grey (McCaskill, Soriano)	"Black Conservatives" Are Not Real!
3:30	Ivan Green (McCaskill)	Succeeding Through Youth Programs

POSTER SESSION

SHAHEEN ATRIUM, 4-5 P.M.

Riley Adams, Dahalia Aguilar-Tabares, Natalie Altayeb, Bonnie Lord, Margo Gilbert, Jack Wylie (Wilch, Day)	Bins for Brits – Increasing Recycling on Campus
Oyunbileg Adiyabaatar (Uddin)	Assessing the Economic Contributions of Legal Immigration to the U.S. Economy and Labor Markets Over the Last Two Decades
Nico Alfahed (Harnish)	Social Network Analysis in a Rural Zambian Community Following Development-Induced Displacement
Jakhia Alfred (Visco, McCaskill)	Disciplinary Policy and Academic Proficiency: Evaluating the Impact of Suspension Practices in Public Schools
Zoey Bennett (Albertson)	The Neuroscience of Beliefs: A Complex Adaptive Systems Approach to Beliefs
Rachel Bieler, Cooper Manuilow (Saville)	Using Comparative Genomics to Inform Efforts to Conserve the Puerto Rican Parrot
Brooklyn Blakemore, Chelsea Post (Saville)	Using Comparative Genomics to Inform Efforts to Conserve the Puerto Rican Parrot
Anna Cochrane (Madhavan-Brown)	Psychological Assessment Library – Review and Demonstration
Elliot Cooper, Catherine VanderWeg (Saville)	Using Comparative Genomics to Inform Efforts to Conserve the Puerto Rican Parrot
Ruth Dessie (Dillon)	The Effect of Combined Stretch and Slow-Velocity Low-Intensity Resistance Exercise Training on Cardiovascular and Muscular Health: A Case Study
Abigail Dombrowski, Gabriel Patnode (Zito)	Before and After: Analyzing Students' Expectations of the Writing Center
Susanna Doss (Chase, Henke)	Unpacking Arrowheads: Teaching Michigan's Indigenous History
Cadence Easterwood (Madhavan-Brown, McCaskill)	Housing and Identity: A Look Into the Effects of Deindustrialization on a Small Community
DeBraya Edwards (Shanton, Franzen, McCaskill)	"Beyond the Visual": An Artistic Analysis of Race and Gender
Autumn Eles, Ashley Manansala, Julian Sandoval (Harris)	Towards the Enantioselective Alkylation of Phenylketones and Benzaldehydes Using a Novel Aminoborane Catalyst
Jenny Enkhbold (Li)	TikTok's U.S. Ban: Examining Market Reactions, User Behavior, and Economic Shifts
Margo Gilbert (Cahill)	Influences of Abiotic Factors on Biodiversity of Invertebrates in Kalamazoo River Mnomen Beds
Chloe Lkhamsuren, Kyra Shouldice (Lyons-Sobaski)	Characterization of Microsatellite Genetic Markers for *Sabatia angularis*
Jay Martinez, Justin Montgomery (Cahill)	Biodiversity of Invertebrates in the Kalamazoo River
Jose Martinez (McCaskill)	"The Final Hour": Lauryn Hill's Requiem to Conscious Hip Hop
Noah McCollum, Demetrius Smith (Saville)	Annotation of Oxidative Stress Response Pathway Genes in Several *Drosophila* Species
Brooke McNab, Iris Patel (Saville)	Annotation of Oxidative Stress Response Pathway Genes in Several *Drosophila* Species
Alina O'Farrell, Isabella Treglia (Saville)	Annotation of Oxidative Stress Response Pathway Genes in Several *Drosophila* Species
Bryn Osborne, Taiya Williams (Saville)	Using Comparative Genomics to Inform Efforts to Conserve the Puerto Rican Parrot
Iris Patel (Streu)	Progress Toward the Development of Nanobodies Related to Moonlighting Activity of *S. epidermidis* GAPDH via Directed Evolution

CONTINUED ➤

POSTER SESSION CONTINUED

Nathan Penfield (Marengoni)	A Shape Sorting Robot Using Computer Vision and Robot Kinematics
Alye Perryman (Albertson)	The Science of Goal-Directed Behavior: A Systems Model Integrating Attention and Motivation in Neurodiverse Populations
Kaelyn Ruiter (Zellner)	Comparisons of Lunar Glass Samples from the Apollo and Chang'e Landing Sites
Livia Sprouse (Mortimer, Knowlden)	Math Attitudes in Elementary Schools
Kashish Tank (Francis, Wieth)	Mental Rotation and Divergent Thinking Predict Mathematical Convergent Creativity but Mental Rotation and Inattention Predict Beliefs About Math Competence
Enkhjin Tumurbaatar (Uddin)	Association Between Minimum Wage and Key Economic Variables Across U.S. States
Madison Weedon (Godfrey)	Equine Kinesiology Taping: How Kinesiology Tape Impacts Tissue Protection, Circulation, and Pain in Performance Horses
Matthew Westra (Garner, Betz, Rabquer)	The Prevalence of Muscular Asymmetries in Recreational Weightlifters and Athletes


Adams


Aguilar-Tabares


Altayeb


Gilbert


Lord


Wylie

Riley Adams '27
Major: Earth Science
Hometown: Concord, Michigan

Dahalia Aguilar-Tabares '26
Majors: Environmental Studies, History
Hometown: Dallas, Texas

Natalie Altayeb '26
Majors: Biochemistry, Spanish
Hometown: Novi, Michigan

Margo Gilbert '26
Major: Environmental Science
Hometown: Ortonville, Michigan

Bonnie Lord '26
Major: Environmental Science
Hometown: Alma, Michigan

Jack Wylie '29
Major: Earth and Environment
Hometown: Albion, Michigan

Bins for Brits: Increasing Recycling on Campus
Faculty Sponsors: Thomas Wilch, Monica Day

The Bins for Brits project began during a Center for Sustainability and the Environment (CSE) introductory course (ESP 101) and is being carried forward by CSE members and interns. The project was initiated to address a critical recycling challenge at the college: 88% of students surveyed report finding campus recycling too difficult or inconvenient. Furthermore, contamination from improper disposal renders many recycling bins unusable, which means recyclable materials go to landfills and impose additional costs on the Albion College Grounds Department. This project addresses infrastructure and education gaps. We are offering individual recycling containers to students for their living spaces to help address the convenience barrier. The recycling containers are accompanied by multiple educational materials: infographics, flyers, and a QR code that includes a comprehensive guide to recycling on campus-all designed to clarify the college's single-stream recycling system. Distribution of bins occurs through CSE's biannual Green Day event, tabling in the Kellogg Center, and through collaboration with Community Living. Our long-term goal is to establish a model for promoting campus-wide environmental initiatives while educating students, promoting environmental leadership, and promoting community engagement.

Sponsored by: Center for Sustainability and the Environment

Oyunbileg Adiyabaatar '27
Major: Finance
Hometown: Ulaanbaatar, Mongolia

Assessing the Economic Contributions of Legal Immigration to the U.S. Economy and Labor Markets Over the Last Two Decades: What Strategies Can Maximize Its Economic Benefits
Faculty Sponsor: Azhar Uddin

In the United States, legal immigration has played a crucial role in shaping the country's economy and labor markets, yet its full economic potential remains underexplored. This research will investigate how legal immigration contributes to job creation, innovation, and economic growth, focusing on key sectors such as technology and agriculture. Over the course of 8 weeks, I will analyze data on immigrant labor force participation, wage trends, and business development, using statistical methods and case studies to assess the economic impact. The findings will inform policy recommendations aimed at maximizing the benefits of legal immigration while addressing concerns related to job displacement and wage suppression. By providing actionable insights, this research will offer valuable perspectives for policymakers, business leaders, and economists, highlighting how strategic policy changes can further strengthen the U.S. economy and labor market.

Sponsored by: FURSCA


Al-Saffar


Brearley


DiNapoli


Fillion


Gauvreau


Jorgensen


Stahl


Taylor

Daniah Al-Saffar '28
Major: Accounting (CPA), Sports Communications
Hometown: Baghdad, Iraq

Lynsey Brearley '28
Major: Accounting, Finance
Hometown: Algonac, Michigan

Andrea Di Napoli '26
Major: Business Engineering
Hometown: Paris, France

Hugo Fillion '26
Major: Business Engineering
Hometown: Paris, France

Thomas Gauvreau '26
Major: Business Engineering
Hometown: Paris, France

Chase Jorgensen '27
Major: Accounting, Finance
Hometown: Albion, Michigan

Carter Stahl '27
Major: Economics & Management
Hometown: Winter Springs, Florida

Simone Taylor '27
Majors: Business, Communication Studies
Hometown: Bronx, New York

Business Model: MindConnect
Faculty Sponsor: Vicki Baker, Catherine Bruneteaux-Swann, Roy Mathews

Mindconnect is a business-to-business platform that connects universities, independent engineers, and industrial companies to speed up the process of turning ideas into industrial-ready products. Unlike consumer-focused platforms, it is designed primarily for institutions and corporations that need advanced CAD tools, and access to technical talent. Universities and factories purchase licenses or subscriptions to give students and engineers access to design software, competitions, certifications, and industrialization support. Companies then in turn use the platform to discover innovative solutions, sponsor challenges, and partner with engineers to prototype and commercialize products, in hopes of becoming more effective. Revenue is generated through tier-leveled subscriptions, certifications, and sponsorship. By creating a centralized system where technical talent and industry demand meet, the platform strengthens collaboration between young engineers and the market, while working towards generating scalable B2B revenue.

Nico Alfahed '26
Majors: Psychological Science, Anthropology/Sociology
Hometown: St.Paul, Minnesota

Social Network Analysis in a Rural Zambian Community Following Development-Induced Displacement
Faculty Sponsor: Allison Harnish

In the late 1950s, the construction of Kariba Dam on the Zambezi River flooded around 60,000 Gwembe Tonga people out of their homes, drowning their villages, fields, and ancestral shrines. Since then, researchers associated with the Gwembe Tonga Research Project (GTRP) have been studying the long-term impacts of this displacement. In 2022, one of the resettled Gwembe Tonga communities started participating in an NSF-sponsored study of the relationship between social networks and wealth inequality. As part of my aethods in Anthropology tutorial, I was given the opportunity to assist with data entry using a custom FileMaker program. The survey data I am inputting will be integrated into a study of over 50 communities in more than 35 different countries, where researchers are asking how much a homestead's economic security ultimately depends on the wealth of those they know. For this rural Zambian community, who one knows is intrinsically linked with the history of development-induced displacement.

Jakhia Alfred '26
Major: Political Science
Hometown: Milwaukee, Wisconsin

Disciplinary Policy and Academic Proficiency: Evaluating the Impact of Suspension Practices in Public Schools
Faculty Sponsors: Eddie Visco, Ari McCaskill

This research examines how disciplinary decisions made by local boards of education, particularly suspension guidelines, affect student proficiency in reading and math on state assessments. Exclusionary discipline removes students from instructional time, raising concerns about its broader academic consequences across elementary settings.

Through analysis of district policy, suspension data, and publicly available proficiency results, this research evaluates the relationship between discipline practices and student achievement. Volunteer experience within an elementary school provides contextual insight into how these policies influence classroom learning and student engagement.

Findings suggest that suspension-heavy approaches may widen instructional gaps without addressing underlying academic and behavioral needs. In response, this project proposes Restorative Pathways After School (RPAS), an alternative-to-suspension model combining academic tutoring, restorative practices, and behavioral skill-building. The model is designed to be scalable across elementary schools to improve proficiency outcomes and overall school climate.

Sponsored by James L. Curtis Institute for Social Change

Natalie Altayeb '26
Majors: Biochemistry, Spanish
Hometown: Novi, Michigan

From Intimacy to Empire: An Ecological Analysis of Feminicide in Puerto Rico and the United States
Faculty Sponsor: Marcie Noble

Puerto Rico, though small in geographic size, reflects layered identities shaped by centuries of colonial governance, resistance, migration, and cultural negotiation. As a United States territory since 1898, it continues to grapple with contested political status, national identity, and enduring structural inequalities. During the summer of 2025, I conducted field-based research on feminicide and state accountability in Puerto Rico, drawing on semi-structured interviews, archival analysis, and ethnographic observation. While conducting this research, multiple feminicides occurred on the island, intensifying public protests and exposing persistent tensions between community advocacy efforts and institutional response. I observed the effects of structural violence firsthand: uneven access to legal resources, chronic underfunding of domestic violence shelters, bureaucratic fragmentation, and the discursive framing of gender-based violence in media and public policy. Using the ecological model as a guiding framework, and drawing from scholarship in interpersonal, gender, and media communication, I examine how individual, relational, community, and structural dynamics interact to normalize violence, render certain victims statistically and socially invisible, and constrain the parameters of what is recognized as justice. By conceptualizing law, media, and everyday discourse as communicative infrastructures that either sustain or disrupt feminicide, this study contributes to communication studies scholarship on how violence is narrated, legitimized, obscured, and resisted. Ultimately, this work calls for a reframing of accountability that moves beyond individualized blame toward systemic transformation.

Sponsored by: WSCA, Universidad de Sagrado Corazón, University of Puerto Rico, St. Jude Children's Research Hospital, Going Abroad, CIE

Natalie Altayeb '26
Majors: Biochemistry, Spanish
Hometown: Novi, Michigan

Disrupting the Gut: Host-Microbe Interactions Following Enteric Bacterial Exposure in Drosophila melanogaster
Faculty Sponsor: Ken Saville

The gut microbiome plays a central role in host physiology, influencing immunity, metabolism, and susceptibility to disease. Disruptions to these microbial communities, whether caused by pathogens, diet, or environmental stressors, can lead to cascading effects on health. *Drosophila melanogaster* provides a powerful model for studying host–microbe interactions due to its tractable genetics, short lifespan, and conservation of innate immune pathways. This research investigated the physiological and microbial consequences of enteric bacterial exposure in D. melanogaster. Flies were orally exposed to *Escherichia coli* K-12, and subsequent effects on gut integrity, microbial composition, and host fitness were evaluated. Physiological outcomes were assessed using Smurf assays to measure gut barrier dysfunction and microbial competition assays to evaluate interspecies interactions and host survival. Molecular methods, including DNA extraction, PCR validation, and 16S rRNA sequencing, were optimized

to track colonization and microbial community shifts. Exposure to *E. coli* produced measurable physiological stress, including reduced barrier integrity and alterations in microbiome composition. These findings underscore the value of *D. melanogaster* as a tractable system for dissecting conserved mechanisms linking pathogenic and commensal microbes to host physiology. By demonstrating that even a nonpathogenic *E. coli* strain can influence gut homeostasis, this work contributes to a broader understanding of infection dynamics, dysbiosis, and host-microbe ecology across taxa.

Sponsored by: FURSCA, Albion Biology Department, PCR Biosystems

Hannah Arledge '26
Major: Psychological Science
Hometown: Fowlerville, Michigan

Harmonious and Obsessive Passion as Predictors of Expectations of Success
Faculty Sponsors: Andrew Christopher, Eric Hill, Eddie Visco

This study examined how different forms of passion shape whether individuals believe their efforts will lead to success in activities they genuinely care about. Passion is not experienced in the same way. For some, it reflects a balanced, self-directed engagement that fits well within other areas of life. For others, it feels more pressured and rigid, often tied closely to self-worth. Because effort alone does not guarantee confidence in outcomes, this study also considered work ethic as a related motivational factor.

Two hundred undergraduate students completed self-report measures assessing harmonious passion, obsessive passion, expectations for success, work ethic, and age. Hierarchical multiple regression analyses were conducted to determine whether each type of passion uniquely predicted expectations for success after accounting for work ethic and age. Harmonious passion emerged as a positive predictor of expectations for success, whereas obsessive passion emerged as a negative predictor. A stronger work ethic was also associated with higher expectations for success; however, work ethic did not explain the relationship between passion and expectations. The overall model accounted for a meaningful proportion of variance in expectations for success.

These findings suggest that passion is not uniformly beneficial. Instead, how passion is experienced matters. A more balanced form of passion appears to strengthen beliefs that effort will pay off, whereas a more pressure-driven form may undermine those beliefs, even when individuals are working just as hard.

Shay Athayde '26
Majors: Anthropology, History
Hometown: Walled Lake, Michigan

Ordering the Artifacts: Curating Albion's Indigenous History in the Archaeology Laboratory
Faculty Sponsor: Bradley Chase

This project explores the history, documentation, and ethical stewardship of Indigenous projectile points in the Albion College Archaeology Lab. Over the summer, I worked with a portion of projectile points or arrowheads that have been kept in the Anthropology Department's Archaeology Lab. In total, there are approximately 760 projectile points; 362 of these projectile points had writing on them, and that is where I focused my research. In the beginning, my advisor and I wanted to compare the projectile points with writing on them to a notebook from an amateur archaeologist, G.A. Schultz, that had listed over 1,7000 projectile points he acquired around Calhoun County. I created a spreadsheet to analyze the projectile points and compare them to what was written down in Schultz's journal. At the end of my research, my advisor and I concluded that our collection was not in any way related to the collection of projectile points Schultz collected and wrote down in his notebook. From this, we can assume that our collection was not taken from a grave or a funerary site but rather left over tools from the past. As a part of my departmental thesis, I am further developing a lab manual I started during my summer research to instruct and help anyone who is working with the collection. This project, in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA), is a part of the work towards ethical curation and respecting the objects along with the people who created them.

Baker

Payton Baker '26
Major: Biochemistry
Hometown: East Lansing, Michigan

Tejal Richardson '26
Major: Biochemistry
Hometown: Saginaw, Michigan

Richardson

Progress Towards the Synthesis of a Light Activated BCR-ABL Inhibitor
Faculty Sponsor: Craig Streu

Asciminib is a therapeutic agent designed to inhibit BCR-ABL, an abnormal tyrosine kinase produced by a cancer-causing gene that drives uncontrolled cell proliferation in chronic myeloid leukemia (CML). Azo compounds contain a characteristic nitrogen—nitrogen double bond and are known for their photo-switchable behavior, meaning they can reversibly change between trans and cis configurations when exposed to ultraviolet (UV) light. Because a drug's biological activity depends heavily on its three-dimensional structure and its ability to bind selectively to a target enzyme, controlling molecular shape can regulate function. We propose incorporating an azo linkage into the Asciminib structure to create a light-responsive derivative. This modification would allow external control over the drug's active and inactive forms, potentially improving treatment precision and reducing systemic side effects associated with targeting BCR-ABL in CML patients.

Sponsored by: FURSCA, Chemistry Summer Research Fund


Barron


Boualleague

Ivan Barron ’26
Majors: Fine Arts
Hometown: Dallas, Texas

Yasmine Bouallegue ’26
Major: Business Engineering
Hometown: Paris, France


Cardoso


Casteñeda

Beatriz Cardoso ’26
Major: Business Engineering
Hometown: Paris, France

Haileystar Castañeda ’26
Majors: Economics & Management, Music
Hometown: Houston, Texas


Facih


Sakho

Solène Facih ’26
Major: Business Engineering
Hometown: Paris, France

Niouma Sakho ’26
Major: Business Engineering
Hometown: Paris, France


Staley


Thompson

Brenna Staley ’26
Major: Economics & Management
Hometown: North Muskegon, Michigan

Papa Yaw Thompson ’26
Major: Political Science
Hometown: Accra, Ghana

Grocer Link Solutions
Faculty Sponsors: Vicki Baker, Catherine Bruneteaux-Swann, Roy Mathews

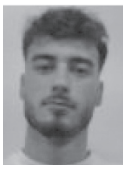
Grocer Link Solutions is a smart plug-and-play application extension for grocery retailers that transforms the in-app shopping experience. Using A.I., it seamlessly integrates with a store’s existing app to create personalized grocery lists, recommend recipes, and streamline checkout—based on real-time inventory. Marketing is based on pushing partner products and using A.I. to track inventory and food waste. GrocerLink Solutions helps grocers boost loyalty and basket size while making shopping simpler, smarter, and faster for consumers.


Bennett


Briatte

Manus Bennett ’26
Major: Finance
Hometown: Marlette, Michigan

Alex Briatte ’26
Major: Business Engineering
Hometown: Paris, France


Gautier


Kotas

Clément Gautier ’26
Major: Business Engineering
Hometown: Paris, France

Alex Kotas ’28
Majors: Business, Political Science
Hometown: Albion, Michigan


Mellier


Oztruk

Axelle Mellier ’26
Major: Business Engineering
Hometown: Paris, France

Aziz Oztruk ’26
Major: Business Engineering
Hometown: Paris, France


Ravalex


Lucas

Vincent Ravalec ’26
Major: Business Engineering
Hometown: Paris, France

Lucas Szymanski ’27
Major: Mathematics (Actuarial Science)
Hometown: Howell, Michigan

NeuroShield
Faculty Sponsors: Vicki Baker, Catherine Bruneteaux-Swann, Roy Matthews

NeuroShield is a smart helmet integrated with EEG sensors and AI technology to help prevent concussions and analyze individual athletes’ brain and health data. This smart helmet will help detect and prevent concussion risks in helmet sports in real time. The helmet will work in real time during the game providing and sending instant information and alerts to athletic and health staff. We aim to protect players’ brain health and prevent further damage to athletes’ brains.

Zoey Bennett ’28
Major: Psychological Sciences
Hometown: Plainwell, Michigan

The Neuroscience of Beliefs: A Complex Adaptive Systems Approach to Beliefs
Faculty Sponsor: Roger Albertson

Beliefs are often categorized as either rational (socially standard) or irrational (socially non-standard), with superstitious beliefs typically dismissed as cognitive dysfunction. This project challenges this binary by proposing that socially non-standard beliefs emerge from normally functioning neural architecture. We present a five-component complex adaptive systems model integrating striatal reward learning, anterior cingulate cortex prediction monitoring, prefrontal cortex attention allocation, amygdala salience evaluation, and hippocampal memory encoding.

Through synthesis of neuroimaging research, prediction error processing, emotional memory encoding, and phenomenological investigation, we illustrate how beliefs form through self-reinforcing feedback loops between these components. What appears “irrational” at the conscious level often reflects accurate subconscious pattern detection paired with fabricated explanations for why the pattern works. The underlying mechanisms of predictive modeling and error detection operate properly while generating beliefs that violate social norms.

These beliefs can produce measurable benefits: an athlete’s lucky socks may induce relaxation and flow states through placebo-like effects, improving performance regardless of the socks’ physical properties. From a neuroscience perspective, such beliefs may optimize cognitive function through confidence modulation and anxiety reduction. Beyond conventional neuroscience frameworks, we propose that belief-related phenomena like manifestation and intuition may involve processes not fully explained by current materialist science. While attention redirection and behavioral changes provide partial explanations, some outcomes warrant openness to mechanisms (such as quantum-level processes) that current scientific paradigms have yet to characterize. This model integrates established neural mechanisms with acknowledgment of phenomena deserving continued empirical inquiry.

Jillian Bentley '26
Majors: Theatre, History
Hometown: Brownstown, Michigan

The Birth of the Modern American Stage Manager
Faculty Sponsors: Kiah Kayser, Stephanie Henderson, Christopher Riedel

A theatrical stage manager provides organization, preparedness, and coordination to professional theatre as essential as the actors themselves. Without a stage manager's unique problem-solving and organizational abilities, many productions would fall flat, or never make it to opening in the first place. But unfortunately, the history of stage management has been woefully understudied. By examining stage managers' handbooks, promptbooks, paperwork, and other documents, I analyze how developing technologies, production styles, and labor relations of the 20th century changed the responsibilities of the stage manager to mirror what we are familiar with today. The roles and definitions of stage management have changed throughout time, but modern stage managers can look directly at the 1930s and 1940s to see the birth of their profession as they know it today. Understanding this development helps both stage managers and others to gain a deeper understanding and appreciation for the profession.

Bieler

Rachel Bieler '27
Major: Biology
Hometown: Albion, Michigan

Cooper Manuilow '27
Major: Biology
Hometown: Port Huron, Michigan

Manuilow

Using Comparative Genomics to Inform Efforts to Conserve the Puerto Rican Parrot
Faculty Sponsor: Ken Saville

The Genomics Education Partnership (GEP) is a consortium of educators, scientists, and students using course based research experiences (CUREs) as an innovative approach to teach students about genetics and genomics, while involving them in an authentic research experience. One GEP project is focused on the conservation of the Puerto Rican parrot, *Amazona vittata*, which was declared to be critically endangered in 1967. While a captive breeding program has brought the species back from the brink of extinction, much work is needed to bring the wild population to a healthy status. One of the biggest issues for survival and successful reproduction is the viability of eggs. The wrong egg shell composition can lead to eggs being lost because of infection, breakage, or due to the inability of chicks to hatch. The parrot genome has recently been sequenced, but the location and structure of all of the genes in the genome, a process called gene annotation, is still a work in progress. Previous work has identified 1512 genes whose protein products are expressed in the avian uterus and therefore may play a role in eggshell development. The role of GEP students is to precisely characterize each of these genes in the parrot genome, using the chicken genome as a reference. Once critical genes are annotated, mutations that may be detrimental to egg viability can be identified. This knowledge can then inform breeding programs, allowing the artificial selection of healthy genes, leading to increased egg viability and a healthy parrot population.

Brandon Blake '26
Majors: Mathematics, Music Performance
Hometown: Holland, Michigan

Sergei Prokofiev: Piano Concerto No. 3 in C major, Op. 26
Faculty Sponsors: David Abbott, Ji Hyun Kim

Sergei Prokofiev was one of the foremost Russian composers during the 20th century, known for his ballets, operas, symphonies, and works for piano. His Piano Concerto No. 3 is one of his most celebrated pieces because of its approachable modern harmonies and technical virtuosity. The concerto balances rhythmic and percussive piano writing with sardonic and lyrical melodies across three movements, showcasing Prokofiev's modern experimentation within classical forms. Premiered in 1921, the piece was met with international acclaim and remains a staple in piano concerto repertoire.
As a winner of the Albion College Concerto and Aria Competition, I have been selected to present the concerto's first movement with piano accompaniment for the Elkin R. Isaac Symposium. On Sunday, April 19th, at 4:00 p.m., I will be giving a performance of the first movement in Goodrich Chapel with the Albion College Symphony Orchestra, directed by Dr. Ji Hyun Kim. I will also give a complete performance of the concerto with two pianos at my senior recital on Sunday, April 26th, at 1:00 p.m.

Blakemore

Brooklyn Blakemore '28
Major: Psychological Science
Hometown: Cape Coral, Florida

Chelsea Post '26
Major: Biology
Hometown: Riverview, Michigan

Post

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Faculty Sponsor: Ken Saville

The Genomics Education Partnership (GEP) is a consortium of educators, scientists, and students using course-based research experiences (CUREs) as an innovative approach to teach students about genetics and genomics, while involving them in an authentic research experience. One GEP project is focused on the conservation of the Puerto Rican parrot, *Amazona vittata*, which was declared to be critically endangered in 1967. While a captive breeding program has brought the species back from the brink of extinction, much work is needed to bring the wild population to a healthy status. One of the biggest issues for survival and successful reproduction is the viability of eggs. The wrong eggshell composition can lead to eggs being lost because of infection, breakage, or the inability of chicks to hatch. The parrot genome has recently been sequenced, but the location and structure of all of the genes in the genome, a process called gene annotation, is still a work in progress. Previous work has identified 1512 genes whose protein products are expressed in the avian uterus and therefore may play a role in eggshell development. The role of GEP students is to precisely characterize each of these genes in the parrot genome, using the chicken genome as a reference. Once critical genes are annotated, mutations that may be detrimental to egg viability can be identified. This knowledge can then inform breeding programs, allowing the artificial selection of healthy genes and leading to increased egg viability and a healthy parrot population.

Raylene Bosier ’26
Majors: Philosophy, Psychological Science
Hometown: Delton, Michigan

The Principles of Beauty and Aesthetics: A Philosophical Approach
Faculty Sponsor: Jeremy Kirby

Our experiences with great works of art seem paradoxically both subjective and objective. How can one reconcile the subjective experience and at once account objectively for genius in great art? Immanuel Kant provides a way forward by maintaining that while the experience is subjective, there are certain parameters for its enjoyment that are objectively satisfied. In this presentation I will provide an interpretation of Kant’s view as well as a critical evaluation thereof.

Larissa Botega ’27
Majors: Economics, Computer Science
Hometown: Joinville, Santa Catarina, Brazil

Beyond the Classroom: Ensuring Equity in Experiential Learning for All Students
Faculty Sponsor: Vicki Baker

Experiential learning (EL) is a high-impact educational practice that enhances student learning, professional development, and career readiness. However, neurodiverse students, students with disabilities, and international students often face numerous barriers to the participation of EL created by issues of inaccessibility, culture, and institutional systems. In this regard, this research seeks to interrogate such challenges in an attempt to propose an inclusive framework of experiential learning that will guarantee equal opportunity for participation by all students. Using a mixed-methods approach, the research will include surveys and interviews with students, faculty, and administrators to understand in-depth some of the key accessibility barriers, institutional challenges, and best practices. In addition, a comparative policy analysis will be conducted against institutions identified as having model accessibility programs. These findings will enable the proposal to formulate evidence-based recommendations for the improvement of EL accessibility and provide insight into Albion College’s vision of “experiential learning for all.”

Sponsored by: FURSCA

Seph Cartier ’26
Major: Theatre
Hometown: East Tawas, Michigan

KILLA-KILLA: A Superhero Musical
Faculty Sponsors: Ashley Miller, Nicholas Laban, Meghan VanArsdalen

Superheroes are at the forefront of media and can oftentimes feel overdone or tired conceptually. KILLA-KILLA attempts to deconstruct what a superhero story is using the framing of a musical and queer worldview of systemic racism, classism, homophobia, and the overwhelming violence that comes with each of those. The story follows a black vigilante under a Ronald Reagan mask fighting crime by cleaning the streets of criminals with his ghostly mentor until he’s set astray by the presence of a third party, all the while he must learn what he values in a relationship, in friendship, and in justice itself.

Haileystar Castañeda
Majors: Economics & Management, Music
Hometown: Houston, Texas

How Mexican Food Can Alleviate Metabolic Disorders’ Symptoms
Faculty Sponsor: Christopher Rohlman

Diet has a major impact on our health, and vice versa, but maintaining a connection to your culture can be another important factor in overall health and diet. I believe there is no reason you should have to completely sacrifice your culture to prioritize your health. My research project takes the form of a cookbook comprised of traditional Mexican recipes that adhere to or have been modified to follow the dietary restrictions of metabolic disorders (e.g., Diabetes, Chronic Kidney Disease, Celiac Disease, Hypertension). When diagnosed with metabolic disorders, diet is one of the biggest topics but unfortunately, cultural foods are not taken into consideration or are vilified due to misconceptions. Through my research, I have laid out how people can consume Mexican food without causing further harm to their health.

Trinity Castle-Pollard ’26
Majors: English (Creative Writing), History
Hometown: Montrose, Michigan

The Past Pushes You Forward
Faculty Sponsor: Danit Brown

My creative writing departmental thesis consists of ten ghost stories, focusing on themes of grief, not just for those who have died, but also for the things and people that are lost in the process of becoming. My goal of this work was to grow as a writer, and to experiment with ways stories can vary from one another while still being tied together thematically. Through the process of creating these works, I have gained a better ability to plan and execute a project of this scale, and a greater understanding of how a story can grow over the course of numerous rounds of extensive revision, along with a more thorough understanding of the themes I find, and do not find, compelling.

Megan Chipman ’26
Major: English (Elementary Education)
Hometown: Saranac, Michigan

Adolescents, Literature, And The Grief Process
Faculty Sponsor: Jess Roberts

The Young Adult (YA) genre is filled with books that can be utilized as tools to help us navigate the grief process, no matter how old we are. But, not many kids like to read. My project aims to increase student accessibility to novels about grief by removing the barriers that prevent them from sitting down to read them. I began by analyzing ten YA grief novels, interviewing with staff at a grief center, and taking a closer look at my own experience with loss in high school. Then I worked with staff at my former high school to make a collection of novels available to students.

Sponsored by: FURSCA


Clark

Connor Clark ’26
Major: Environmental Science
Hometown: White Lake, Michigan

Margo Gilbert ’26
Major: Environmental Science
Hometown: Ortonville, Michigan


Gilbert

Beata Karwaczka ’26
Majors: Political Science, Psychological Science
Hometown: Schereville, Indiana

Emma Kastl ’26
Major: Environmental Science
Hometown: Rochester, Michigan


Karwaczka

Amani Williams ’26
Major: Biology
Hometown: Sterling Heights, Michigan

Tracking Sustainability at Albion College
Faculty Sponsor: Monica Day, Thom Wilch


Kastl


Williams

In an effort to better understand sustainability on our campus and how Albion contributes to broader global sustainability goals, we partnered with Albion College’s Center for Sustainability and the Environment through ESP 318: Sustainability Projects and worked alongside interns to complete the College’s Sustainability Tracking, Assessment & Rating System (STARS) report. STARS, developed by the Association for the Advancement of Sustainability in Higher Education, is a nationally recognized framework that colleges and universities use to measure and evaluate their sustainability efforts across academics, operations, diversity and inclusion, investments, dining, and institutional planning. It is important as it provides clear benchmarks, encourages transparency, and helps institutions identify strengths and areas for growth.

We gathered information across campus to understand how sustainability is practiced in daily operations and student life. We saw sustainability in action at Albion such as in efforts to increase accessible recycling bins, compostable and reusable containers in the dining halls, expanding the student garden as a hands-on learning and food access space, organizing campus thrift sales to promote reuse and waste reduction, and interdisciplinary courses on sustainability efforts.

The assessment helped identify opportunities for growth, including increasing awareness and accessibility of sustainability resources for students. Through this project, we came to understand sustainability at Albion not just as individual initiatives, but as a collaborative, campus-wide effort that aligns local and global sustainability goals. Completing the STARS report gave Albion a clearer picture of current standings and future sustainability initiatives.

Sponsored by: Center for Sustainability and the Environment, AmeriCorps

Anna Cochrane ’26
Major: Psychological Science
Hometown: Westerville, Ohio

Psychological Assessment Library – Review and Demonstration
Faculty Sponsor: Shanti Madhavan-Brown

Everyone has been tested at some point in their life. Infants have to pass certain assessments before being allowed to leave the hospital. Most people are familiar with the exams we take in school or the standardized tests that are part of a college application (e.g., the SAT). However, there are also published tests aimed at answering specific questions about our behavior. A small library of assessments in the psychology department at Albion College holds many different examples of these tools.

With materials that span over a century in age, this project aims to examine the many ways humans have attempted to quantify the seemingly unquantifiable. Psychological assessments have been, and continue to be used in a multitude of disciplines, such as education, human resources, clinical psychology, and the armed forces. For this project, we reviewed several psychological tests and summarized their history, format, and ties to current assessment methods. Some of the assessments reviewed included the Rorschach Ink Blot Test, the Stanford-Binet Intelligence Scale, and the Wonderlic Personnel Test. This poster presentation and demonstration will provide a lens into the mindset of past generations of psychologists and help us understand how the field of assessment has evolved.


Cooper

Elliot Cooper ’27
Major: Biology
Hometown: Dallas, Texas

Catherine VanderWeg ’26
Major: Biology
Hometown: Portage, Michigan


VanderWeg

Using Comparative Genomics to Inform Efforts to Conserve the Puerto Rican Parrot
Faculty Sponsor: Ken Saville

The Genomics Education Partnership (GEP) is a consortium of educators, scientists, and students using course based research experiences (CUREs) as an innovative approach to teach students about genetics and genomics, while involving them in an authentic research experience. One GEP project is focused on the conservation of the Puerto Rican parrot, *Amazona vittata*, which was declared to be critically endangered in 1967. While a captive breeding program has brought the species back from the brink of extinction, much work is needed to bring the wild population to a healthy status. One of the biggest issues for survival and successful reproduction is the viability of eggs. The wrong egg shell composition can lead to eggs being lost because of infection, breakage, or due to the inability of chicks to hatch. The parrot genome has recently been sequenced, but the location and structure of all of the genes in the genome, a process called gene annotation, is still a work in progress. Previous work has identified 1512 genes whose protein products are expressed in the avian uterus and therefore may play a role in eggshell development. The role of GEP students is to precisely characterize each of these genes in the parrot genome, using the chicken genome as a reference. Once critical genes are annotated, mutations that may be detrimental to egg viability can be identified. This knowledge can then inform breeding programs, allowing the artificial selection of healthy genes, leading to increased egg viability and a healthy parrot population.

Naima Davenport '27
Major: English (Creative Writing)
Hometown: Dallas, Texas

Anti-Racism and Decentering Whiteness through Literary Analysis and Personal Reflection
Faculty Sponsor: Lauren Brown

The goal behind creating "Start" is to draw inspiration from acclaimed authors Kiese Laymon and Ibram X Kendi in order to write my own body of essay-based stories about my personal dealings with racism, Blackness, misogynoir, identity, and womanhood. The aim of writing these stories is to work through my own experiences while also educating an audience outside of myself. Eventually, I plan to publish these works so that maybe these experiences will become less common. My study has changed drastically since its beginning but the outcome remains the same: educating the public and working through my own personal dealings with these subjects.

Sponsored by: FURSCA

Connor DeEros '26
Majors: History, Business
Hometown: Houston, Texas

Pilgrimage and Power: Competing Authorities in Crusader Jerusalem, 1099-1187
Faculty Sponsor: Christopher Riedel

Following the Siege of Jerusalem in 1099, Latin authorities were forced to transform a conquered city into both the symbolic and functional capital of the Crusader Kingdoms. Over the course of the twelfth century, the reorganization of holy sites, the expansion of royal, ecclesiastical, and military institutions, and the maturation of urban infrastructure reveal that pilgrimage was not merely sustained by Frankish rule, but deliberately employed as a tool of cooperation and rivalry through which these authorities sought to legitimize and stabilize their control over Jerusalem. Drawing on institutional documentation, land records, contemporary chronicles, and pilgrim accounts, this study examines how the management of sacred spaces and supporting urban infrastructure pieces together the strategic construction of Jerusalem from 1099-1187.

Ruth Dessie '26
Major: Kinesiology
Hometown: Dallas, Texas

The Effect of Combined Stretch and Slow-Velocity Low-Intensity Resistance Exercise Training on Cardiovascular and Muscular Health: A Case Study
Faculty Sponsor: Katherine Dillon

Aging is associated with hypertension and physical disability, which exacerbates cardiovascular disease and fall-related mortality risk. Stretch training (ST) and traditional resistance training (RT) improves blood pressure (BP) and aortic stiffness (carotid-femoral pulse wave velocity (cfPWV), respectively. ST reduces muscular strength when combined with RT. Slow-velocity low-intensity resistance exercise training (SVLIRET) improves muscular mass greater than RT, which may ameliorate muscular strength losses due to ST. Therefore, this case study aimed to identify patterns of improvement on cardiovascular (cfPWV; brachial and aortic BP) and physical ability (muscular strength and flexibility) parameters following ST alone or combined with SVLIRET in an older adult. The participant (age:71) completed 4 weeks of ST followed by 4 weeks of ST+SVLIRET. Assessments of aortic stiffness, brachial and aortic systolic BP, hamstring flexibility, and muscular strength (leg press (LP), leg extension (LE), leg curl (LC), and calf raise (CR)) were conducted at pre-, mid-, and post-intervention. No meaningful changes were observed in cfPWV or brachial and aortic BP. Hamstring flexibility improved following ST and was maintained during SVLIRET (right: pre: 2cm, mid: 3cm, post: 4cm; left: pre: 2cm, mid: 3cm, post: 3cm). Muscular strength increased during combined ST+SVLIRET (LP (pre, mid, post: 90, 90, 120lbs), LE (pre, mid, post: 45, 40, 55lbs), LC (pre, mid, post: 40, 35, 50lbs), or CR (pre, mid, post: 75, 80, 90lbs). These findings suggest that ST+SVLIRET may provide modest improvements in muscular strength and flexibility, supporting strategies to reduce physical disability and promote improved quality of life in older adults.

Abigail Dombrowski '26
Majors: History, Mathematics
Hometown: Grand Rapids, Michigan

Burial & Exodus: An Examination of Breslau's 20th Century Jewish Community
Faculty Sponsor: Jocelyn McWhirter

Prior to World War II, Breslau, Germany's had been one of the oldest and largest Jewish centers in the entire country. Now known as Wroclaw, Poland, its Jewish community may be as small as 300 people. In sync with a growing movement throughout the city to remember, commemorate, and reestablish a Jewish community, this project analyzes a sample of the Jewish population from the early 20th century, as collected from cemetery plots in Wrocław. I aim to better understand the lives, migrations, and journeys of Breslau's Jews through maps, data visualization, and genealogical research. I intend to bring life and remembrance to this community forgotten by time.

Sponsored by: FURSCA

Dombrowski

Abigail Dombrowski '26
Major: History, Mathematics
Hometown: Grand Rapids, Michigan

Gabriel Patnode '28
Majors: History, Education
Hometown: Phoenix, New York

Patnode

Before and After: Analyzing Students' Expectations of the Writing Center
Faculty Sponsor: Angela Zito

The Albion College Writing Center is a fairly new addition to student resources on campus, having reopened in 2023. Since then, the campus community has garnered their own ideas of what the Writing Center is, what writing consultants do, and how consultants contribute to the academic community at Albion. This project aims to assess those ideas by comparing writers' perceptions of the Writing Center before and after a consultation. Using data collected from surveys and interviews, we present a broader understanding of students' expectations of the Writing Center, and how those expectations compare to experiences. Ultimately, through analysis of writers' experiences, our team aims to help the Writing Center adapt to the needs of the students utilizing it.

Susanna Doss '26
Major: Social Studies (Secondary Education)
Hometown: Lincoln Park, Michigan

Unpacking Arrowheads: Teaching Michigan's Indigenous History
Faculty Sponsors: Bradley Chase, Suellyn Henke

This project aimed to increase access to Michigan's Indigenous history through hands-on, artifact-based learning focused on archaeological projectile points. Using materials from the Albion College Anthropology Department, I developed educational resources that bridge archaeology and public education. Over six weeks, I worked in Albion College's Innovation Lab to scan and 3D model projectile points, creating digital files and replicas suitable for classroom use. These replicas were integrated into an interactive, standards-aligned lesson plan for grades 3–6 that emphasized artifact identification, inquiry-based learning, and cultural understanding in alignment with Michigan K–12 Social Studies Standards.

Sponsored by: FURSCA

Cadence Easterwood '26
Major: Psychological Science
Hometown: Albion, Michigan

Housing and Identity: A Look Into the Effects of Deindustrialization on a Small Community
Faculty Sponsors: Shanti Madhavan-Brown, Ari McCaskill

Since the early 21st century, Michigan cities have experienced significant deindustrialization, primarily due to rapid changes in the automotive and manufacturing sectors. Detroit, Saginaw, and Flint are often identified as epicenters of this economic decline. While some research has addressed the secondary effects of inadequate infrastructure resulting from economic downturns, very little has considered the psychological impact of labor identity loss among individuals displaced by deindustrialization. Smaller Michigan communities, which historically served as subsidiaries of the "Big Three" (General Motors, Ford, and Chrysler) through tool-and-die manufacturing, are often overlooked. The resulting decline has accelerated the deterioration of rural industrial towns such as Albion, Michigan. Industrial divestment, combined with the globalization of labor, has affected these communities not only economically but also their communal identity. In addition to widespread demolition, remaining residents face a dual crisis involving income, agency, and self-concept. This project examines the individual and collective effects of deindustrialization, as well as the economic and political displacement experienced by residents in small-town America. The analysis draws on literature concerning neighboring cities and Albion, observations from community council meetings, interviews with community members, and anecdotal evidence from a long-term resident. Topics include the influence of deindustrialization on race, class, and gender in relation to participation in local democratic processes. This poster presentation synthesizes these findings and offers recommendations for the future direction of community engagement in infrastructure projects within Albion, Michigan.

Sponsored by: Build Albion Fellows

DeBraya Edwards '26
Majors: The History of Humanities, Communications
Hometown: Detroit, Michigan

"Beyond the Visual" An Artistic Analysis of Race and Gender
Faculty Sponsors: Kyle Shanton, Trisha Franzen, Ari McCaskill

This project examines historically situated representations of marginalized experiences across the late eighteenth, early nineteenth, and early twenty-first centuries. Focusing on narratives that are often overlooked, it analyzes how dominant social groups have constructed and contested the identities of historically marginalized individuals. In particular, the study traces the origins and persistence of stereotypes that frame Black women as more "masculine" or "less feminine," stereotypes rooted in the dehumanization. By connecting these historical foundations to contemporary perceptions, the project deepens our understanding of how racialized and gendered stereotypes continue to shape social attitudes and lived experiences today.

Eles

Autumn Eles '26
Major: Biology
Hometown: Houghton, Michigan

Manansala

Ashley Manansala '28
Major: Biochemistry
Hometown: Camarillo, California

Sandoval

Julian Sandoval '27
Major: Biochemistry
Hometown: Chicago, Illinois

Towards the Enantioselective Alkylation of Phenylketones and Benzaldehydes Using a Novel Aminoborane Catalyst
Faculty Sponsor: Clifford Harris

Catalytic asymmetric synthesis remains an important goal for chemists since chiral compounds are valuable in a range of consumer products. Unfortunately, many methods are limited by the toxicity and expense of heavy metals, harsh reaction conditions, or complexity of catalyst synthesis. Stereoselective construction of secondary and tertiary alcohols remains a difficult and highly sought-after transformation. Research in our group is focused on development of an efficient, one-pot, heavy metal-free, enantioselective alkylation of phenylketones and benzaldehydes using a novel aminoborane catalyst. Here we report our initial preparation and characterization of the catalyst, and the results of our first reactions including solvent effects, order of addition, and time of reaction.

Sponsored by: Chemistry Summer Research Fund

Autumn Eles '26
Major: Biology
Hometown: Houghton, Michigan

Empowering Young Patients: Illustrating Chronic Illness Through Graphic Medicine
Faculty Sponsors: Bradley Rabquer, Krista Quesenberry

Graphic medicine refers to the field of sequential art (like comics) integrating with healthcare narratives. Works within this field often use plain language and clear visuals to promote health literacy—the degree of understanding that a patient, caretaker, or peer has about a healthcare issue. Chronic and long-term diseases affect many children, and using comics to teach a child about diagnosis and treatment may increase comprehension, compassion, and advocacy. In this project, I explore the field of educational graphic medicine for children, describe the potential benefits of using comics as a teaching tool for children with chronic illnesses, and present an example short educational graphic novel about Type 1 Diabetes.

Sponsored by: FURSCA

Enkhtushig Enkhbat '26
Majors: Mathematics, Physics
Hometown: Ulaanbaatar, Mongolia

Topological Data Analysis of Crypto Markets: Persistence of Volatility
Faculty Sponsor: Timothy Clark

The cryptocurrency market is often ingrained with extreme volatility and sudden crashes that makes it challenging to apply traditional statistical analysis. In this research, we've applied Topological Data Analysis (TDA) methods to identify if the cryptomarket, more specifically Bitcoin, exhibits the same early warning signals (EWS) for market crashes as prior researchers have found in traditional markets. We used methods such as persistent homology from TDA to explore the underlying topological structures in historical Bitcoin price data from 2015 to 2025.

The method used in the project was reproducing the results from past research in traditional financial markets, and applying it to the Bitcoin data. This involved constructing the simplicial complexes and calculating the persistence landscapes to understand the stability of the market features over time. Consequently, the L norms of these landscapes are graphed and crossmatched with the known crashes of Bitcoin, to identify if the volatility in the graphs matched with the crashes on the calendar. Through this project, we aimed to understand if the cryptomarket possessed similar patterns as the traditional financial markets or if its decentralized nature created difference in their behaviours. Understanding this would give us a wider perspective on the dynamics of such markets and help develop predictive tools for these markets.

Sponsored by: FURSCA

Jenny Enkhbold '27
Major: Economics
Hometown: Ulaanbaatar, Mongolia

TikTok's U.S. Ban: Examining Market Reactions, User Behavior, and Economic Shifts
Faculty Sponsor: Zhen Li

TikTok is one of the most widely used social media platforms in the United States, with over 170 million users. As discussions of banning the app intensified between 2020 and early 2025, it created uncertainty for users, investors, and digital businesses. This project examines how those regulatory developments affected financial markets and user behavior.

I analyzed stock price data for TikTok's main competitors and key partners connected through Project Texas, using a five-day event window to calculate abnormal returns around major announcements. I also examined U.S. monthly download data during TikTok's brief removal in January 2025 to evaluate potential user migration.

The results show that markets reacted more clearly than users did. Stock movements reflected investor expectations about competition, while shifts in app downloads were more temporary. Overall, this research demonstrates how policy uncertainty can influence digital platforms, investor behavior, and market dynamics.

Sponsored by: FURSCA

Heidi Faramelli '26
Majors: English (Creative Writing), Communication Studies
Hometown: Angola, Indiana

Through My Lens: A Novel-Writing Journey
Faculty Sponsor: Danit Brown

My honors thesis is an original romance novel titled *Through My Lens*. It centers on Cassie and Xander, childhood best friends and budding filmmakers who bond over a shared love of romantic comedies. After a fight and four years not speaking to one another, they're forced together at their mutual friends' wedding in northern Michigan, where they must decide whether to reconcile and finally give in to the romantic feelings that have been growing between them for longer than they'd like to admit.

Writing has always been a passion of mine, and this creative honors thesis has been an incredible opportunity to develop my craft and gain experience writing the kinds of novels I hope to write and publish after college. During this presentation, I'm excited to share what I've learned about the process of writing a novel, from making decisions about craft (e.g., perspective and organization), to discoveries about process (e.g., finding the time to write and revise such a huge project while in college).

Carly Fraser '26
Majors: Political Science, History
Hometown: Redford, Michigan

Diabetes and Colonialism
Faculty Sponsor: Craig Streu

Since World War II, Native Americans have been diagnosed with Type 2 diabetes at a disproportionately high rate. At the same time, there has been a concomitant increase in obesity, which is a contributing factor to Type 2 diabetes.There are a host of unique historical and systemic explanations that have been proposed for this change. For example, it has been proposed that dietary changes resulting from forced relocations are a major contributing factor. This presentation evaluates the available evidence about the cause of these changes in health outcomes and highlights some of the public health practices that have been initiated to support these communities and reverse current trends.

Tommy Frias '26
Majors: Finance, Philosophy
Hometown: Houston, Texas

Laws of Nature and the Paradox of Free Will
Faculty Sponsors: Jeremy Kirby

Everything that happens seems to be a consequence of the laws of nature and events of the remote past. Neither the laws of nature nor the events of the remote past are up to us. So, it seems that whatever happens is a consequence of matters that are not up to us. The question becomes: How can we have free will when we live in a world governed by laws of nature?

The debate over free will can be framed in terms of natural laws and whether they leave room for genuine choice. One philosopher argues that freedom does not require breaking the laws of nature or altering the past. Even if events unfold in only one actual way, it can still be true—when speaking appropriately—that a person could have done otherwise without any real violation of those laws. This allows for responsibility within a fully lawful, causal world. Another philosopher rejects this idea, insisting that if the past and the laws together fix every future action, then no alternatives ever truly exist. On this view, determinism eliminates freedom entirely. Their disagreement hinges less on behavior than on how we should understand possibility, power, and what it means to say someone "could have done otherwise."

Caleb Galvan '26
Major: Biology
Hometown: St. Louis, Missouri

Affliction of Freedom
Faculty Sponsor: Ari McCaskill, Emmeline Solomon

Caleb Galvan's Curtis Institute Capstone, "*Affliction of Freedom*," is shaped by his own lived experience as a first-generation Mexican American. Anti-immigrant discrimination is ingrained within the current political climate. This body of work interrogates the complexity of intersectional Latino identity. His work includes social critique and implicates the hypocrisy of the United States historic push-pull relationship with South America in the currently heightened cultural bias against Latino immigrants and undocumented people. Galvan's work employs intaglio, woodblock, and linoleum printmaking processes on mulberry paper. The five unique prints in this series explore the experiences of many immigrants and undocumented people. In one of the five prints, he utilizes rich traditional motifs from Mesoamerican Mexican cultural heritage, such as the Eagle (Cuauhtli), juxtaposed with the American Eagle, illustrating the historical and continued conflict on the border between the United States and Mexico. In another print in this series, Galvan uses motifs like skeleton imagery (in reference to historical prints like Posada's Cavaleras, or the cultural practices of Dia de los Muertos) in conjunction with his botanical knowledge to depict the ecosystem of the Rio Grande. He also uses catholic iconography to speak to both his personal experience being raised Catholic and to level a cultural critique about the hypocrisy of believing in the doctrine of Christ while also supporting the violent actions of the State. The goal of his work is to heighten awareness of his people and provide an artistic, contextual analysis of the suffering of undocumented people living in America.

Sponsored by: James L. Curtis Institute for Social Change

Bayasgalan Gantulga '26
Majors: Economics, Biology
Hometown: Ulaanbaatar, Mongolia

The Hidden Price of Lactose Intolerance: Economic Impacts and Burdens on Society
Faculty Sponsor: Caroline Adamczyk

Lactose intolerance affects a large portion of the United States population and occurs at higher rates among several racial and ethnic minority groups, yet its economic consequences remain largely understudied. While research has extensively examined the biological mechanisms of lactose intolerance, less attention has been given to how this condition may influence everyday food costs and contribute to disparities in nutrition affordability. My goal is to better understand the hidden economic burden associated with lactose intolerance by examining how dietary substitution toward lactose-free and plant-based milk alternatives may affect household spending. For this project, I developed a simulated economic model using the 2021–2022 National Health and Nutrition Examination Survey (NHANES) demographic dataset to estimate monthly milk expenditures across households. By modeling the economic implications of a biologically rooted dietary condition, this project aims to connect public health, economics, and health equity, contributing to a broader understanding of how physiological differences may shape financial access to everyday nutrition.

Sponsored by: FURSCA

Tori Gierach '26
Majors: Psychological Science, Sociology
Hometown: Germantown, Wisconsin

The Impact of Live-Action Tween Television on Perceptions of Gender and Interpersonal Relationships
Faculty Sponsor: Scott Melzer

The present study aims to analyze how popular live-action television shows viewed during Generation Z's pre- and early-adolescent years (ages 9-12) impacted their long-term perceptions of gender and relationships. Previous research has largely overlooked how tween-oriented media might impact individuals' understandings of relationships and gendered roles. Using a grounded theory method, I conducted semi-structured interviews with twelve Albion College students, asking them to reflect on their experiences watching these shows during their tween years. The findings suggest that the shows convey a delicate dichotomy of gendered expectations, especially for girls and women, while also offering valuable models of sibling and family interactions. Understanding how early media exposure affects long-term ways of thinking enables parents and educators to be more mindful of the media content they allow children to consume.

Margo Gilbert '26
Major: Environmental Science
Hometown: Ortonville, Michigan

Influences of Abiotic Factors on Biodiversity of Invertebrates in Kalamazoo River Mnomen Beds
Faculty Sponsor: Abigail Cahill

Mnomen (wild rice) is an essential food source for Indigenous people in the Great Lakes region, including the Nottawaseppi Huron Band of the Potawatomi (NHBP). Our

collaboration with the NHBP fuses Indigenous knowledge and Western science to assess relationships between aquatic macroinvertebrates and mnomen. We use birch bark collectors (wigwasmkok) deployed in mnomen beds to collect samples of invertebrates in two different studies. 1) Along the Kalamazoo River are mnomen beds of varying sizes. Our goal was to understand the effects of abiotic factors in the mnomen beds on macroinvertebrate biodiversity. We hypothesized that larger beds host more diverse communities than smaller beds. Samples were collected in June-July of 2023 from four different-sized beds to examine the effects of bed size and water depth on community composition, species diversity, and abundance. 2) Samples from 2025 test if other variables, primarily water velocity changes caused by mnomen, influenced macroinvertebrate diversity across the beds. The hypothesis was that higher diversity occurs at the upstream edge and middle of beds in response to immediate velocity changes. Wigwasmkok were deployed in real and artificial beds, constructed from wood and cotton ribbon, to assess how bed structure influences community diversity. We concluded that mnomen bed size does not strongly influence macroinvertebrate diversity and richness, and there was no significant difference in species diversity or abundance between real and artificial beds. Determining the impacts of abiotic factors on biodiversity provides insights into community relationships within the river, which will influence conservation efforts for mnomen.

Leonardo Gomez '26
Major: Studio Art
Hometown: Dallas, Texas

Autism and Me: Neurodiverse Conditions Through Art
Faculty Sponsor: Michael Dixon

During FURSCA, I created a series of seven oil self-portraits exploring my lived experience with Autism. This body of work marked a significant turning point in both my artistic development and my understanding of neurodiversity. While I had previously addressed themes of isolation rooted in my Asperger diagnosis, this project expanded my focus to include concepts such as masking and monotropism, examining how these characteristics shape perception, behavior, and identity.

By centering each painting on self-portraiture, I emphasized the inseparability of autism from my sense of self. The project allowed me to investigate how visual elements—composition, color, and expression—can communicate internal states that are often misunderstood or unseen. This experience ultimately redirected my artistic trajectory toward portraiture more broadly. As portrait artists are traditionally valued for their ability to capture the character of the sitter, I aim to extend that responsibility to include the nuanced representation of neurodivergent identities.

The technical growth and conceptual clarity developed through FURSCA have directly informed my current practice, including portraits of individuals with diverse neurodivergent conditions. Without this foundational experience, I would not have developed the skill, confidence, or critical understanding necessary to pursue this ongoing body of work.

Sponsored by: FURSCA

Ivan Green '26
Major: English (Education)
Hometown: Albion, Michigan

Succeeding Through Youth Programs
Faculty Sponsor: Ari McCaskill

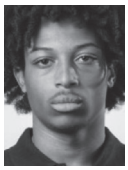
Youth development programs play a vital role in preparing young people for success both on and off the court. This capstone project explores how participation in structured youth programs, specifically 4-H and Playright Sports Academy, supports long-term personal, academic, and professional growth. By examining program structures, participant experiences, and existing youth development research, this project highlights how these organizations equip youth with essential skills that extend far beyond childhood.

Playright Sports Academy places a strong emphasis on athletic skill development with a particular focus on basketball fundamentals, discipline, teamwork, and leadership. Through structured training, mentorship, and competitive play, participants develop not only physical abilities but also perseverance, goal setting skills, and confidence. In addition to athletic training, Playright integrates academic support that encourages strong study habits, accountability, and the importance of education as a foundation for future success. This balanced approach reinforces the idea that achievement in sports and academics are interconnected.

Similarly, 4-H promotes hands-on learning, civic engagement, and leadership development, allowing youth to apply real-world skills in meaningful ways. Together, these programs provide supportive environments where young people are challenged to excel, build character, and develop a strong work ethic.

The findings of this project suggest that youth programs combining athletic training with academic and personal development have a lasting impact on participants' ability to succeed in school, careers, and life. By highlighting the role of 4-H and Playright Sports Academy, this capstone underscores the importance of holistic youth development programs in shaping confident, disciplined, and successful individuals.

Sponsored by Build Albion Fellows



James Grey '26
Major: Ethnic Studies
Hometown: Chicago, Illinois

"Black Conservatives" Are Not Real!
Faculty Sponsors: Ari McCaskill, Lucia Soriano

Black conservatives are not real. Conservatism in America is inherent to whiteness and is not meant for Black people. To be conservative is to be both averse to change and to hold traditional values. Traditions are beliefs and customs that we assign value and meaning to, which are passed down through generations. America is a country that values racism and specifically Anti-Blackness. In a country that is built on anti-Blackness and racism, we must ask ourselves and these "Black Conservatives," "Conservatives of what?" We don't live in a society where Black people are able to self-actualize. Why would an educated Black person conserve any of America's traditions or values? Conservative views and values put the majority of Black Americans at a social, economic, and mental disadvantage.

If one is educated enough to understand the history of America, history shows that a Black person identifying themself as a conservative is a contradiction. Black

Americans are the most progressive people in the world. The space that Black people allow "Black Conservatives" to hold in Black communities is dangerous."Black Conservatives" more often than not act as agents of white supremacy through policy, practice, and worldview. "Black Conservatives" prefix Black in front of the label of conservatism in attempts to benefit from Black and non-Black communities. White supremacists and their rhetoric that comes from conservative ideologies have no space in Black communities. "Black Conservatives" are agents and endorsers of anti-intellectualism. They embrace ignorance. "Black Conservatives" are white supremacists in disguise.

Sponsored by: James L. Curtis Institute for Social Change

Grace Halstead '26
Major: Geology
Hometown: Mason, Michigan

Stratigraphy, Paleoenvironments, and Correlation of the Permian Phosphoria Rock Complex, Southwest Montana
Faculty Sponsor: Madeline Marshall

The Permian Phosphoria Rock Complex (PRC) records highly variable shallow marine paleoenvironments in Montana during the lead-up to the Permian–Triassic mass extinction. The PRC is an economically important phosphate and critical mineral deposit, and in MT is dominated by the Retort, Tosi, and Shedhorn members. This study correlates stratigraphic sections from three localities in MT that parallel the northwestern coastline of the Phosphoria Basin. Evaluating this region in contrast to the well-studied PRC of neighboring ID and WY is integral to reconstructing this unique paleo-upwelling system. During the Permian, these localities' proximity to the well-defined northwestern shoreline yielded distinct deposits from the nearby ID and WY PRC. Western localities exhibit a discrete succession of facies with sharp transitions, while more eastern exposures reveal multiple alternating facies changes between cherts and sandstones. This suggests that siliceous sedimentary sources of these different facies would have been laterally closer together in the east, with the interfingered facies produced by rapid cyclic sea-level or environmental fluctuations. These complex facies trends allow us to reconstruct spatiotemporal variability in water energy and paleoecology across the northern margins of the PRC. Ongoing interpretation will focus on combining these stratigraphic observations with petrographic analysis of thin sections to more accurately characterize lithologies, diagenesis, and fossil content. Since deposition extends conformably up to the end-Permian, evaluating the impacts of global environmental stresses on this paleo-upwelling system will enhance our understanding of responses of life and environments to a warming world.

Sponsored by: David B. Jones Foundation

Ben Harkness '26
Major: Music Performance
Hometown: Eaton Rapids, Michigan

Changing Perspectives: Philosophical and Theological Approaches to Music in Renaissance Europe
Faculty Sponsor: David Abbott

Music has been, and continues to be, a key element of Christian worship. Its primary function is not solely aesthetic, however, with the presentation of music having distinct spiritual and theological implications. During the Late Middle Ages and Renaissance, meaning was conveyed primarily through musical symbolism. Composers often used secular tunes in pursuit of creating recognizable images for their congregations. However, by the 16th century, Renaissance scholars and ecclesiastics began to emphasize the rhetorical power of music. What had previously been acceptable in musical composition was now beginning to be seen as undesirable and even offensive to the ears of the church, prompting reform and the creation of new musical genres and practices in the period of the Reformation.

Sponsored by: FURSCA

Abigail Hoskey '27
Major: Music Education
Hometown: Saginaw, Michigan

Flowers Grow in the Ashes: A Musical Composition Reflecting on the Coexisting Light and Darkness of Auschwitz-Birkenau
Faculty Sponsor: Matthew Clarke

Auschwitz-Birkenau was the largest death camp in Europe during the Holocaust, with over one million people murdered there. However, the view of the camp today is not what one would typically expect. It was sunny outside, the water glistening, the flowers blooming, and the birds flying. If a person did not know the horrors of that place, it could be described as beautiful. Based on these observations and Holocaust survivor Halina Birenbaum's quotation, "Even if evil triumphs at times, goodness does not cease to exist," this percussive composition reflects on the coexistence of light and darkness and how light will always be able to shine through the darkest of times.

Hutchinson

Logan Hutchinson '26
Major: Biochemistry
Hometown: Scotts, Michigan

Sliwinski

Olivia Sliwinski '28
Major: Biochemistry
Hometown: North Royalton, Ohio

Progress Towards the Synthesis of a Novel Photoswitchable Antibiotic
Faculty Sponsor: Craig Streu

In 1947, the first case of antibiotic resistance was observed for penicillin. Since then, resistance has become such a problem that experts predict a coming post-antibiotic world where antibiotics no longer work. A promising solution is the development of compounds that can be selectively activated in the infected tissue using light, reducing the potential for systemic toxicity. Gram-negative bacteria are particularly difficult to target given their unique cellular structure. Azo-stilbenes are an emerging class of molecules in the scientific community for their use as reversible photo-activatable therapeutics. In fact, some of the most notable early successes in the field of photopharmaceuticals have been with antibiotics. We have designed a target molecule to be a light-activatable, Gram-negative selective antibiotic.

Sponsored by: Chemistry Summer Research Fund

Delana Jaiyesimi '26
Major: Biology (Neuroscience)
Hometown: Bingham Farms, Michigan

Mussels and Other Aquatic Macroinvertebrates in Michigan Mnomen (Wild Rice) Beds
Faculty Sponsor: Abigail Cahill

Mnomen, or wild rice of the genus Zizania, has provided physical and spiritual sustenance to the Anishinaabe peoples for hundreds of years. Once widespread in Michigan, today, Mnomen has been nearly eradicated due to years of colonial development. Mnomen's ecological role, although understudied, is akin to an 'ecosystem engineer,' impacting many facets of its environment. Macroinvertebrates, small, spineless organisms that live in these freshwater river ecosystems, are excellent indicators of the health of the ecosystems around them. Additionally, threatened unionid mussels play a critical role in maintaining clean water by acting as natural water filters. In collaboration with the Nottawaseppi Huron Band of the Potawatomi (NHBP), we investigated whether Mnomen beds supported aquatic macroinvertebrate populations and used said organisms as bioindicators of river health. We sampled two Michigan river systems documented to support two different Mnomen species (*Z. aquatica* and *Z. palustris*), and compared macroinvertebrate populations in these natural Mnomen beds with those in artificial beds. Macroinvertebrates were collected using culturally co-designed and eco-friendly birchbark traps (Wigwasmkok), and after 14 days, were then analyzed using dichotomous keys, diversity metrics, and non-metric multidimensional scaling. Overall biodiversity was higher in *Z. aquatica* beds, while mussels were more common in *Z. palustrus* beds. Drawing on years of previous students' research and a new relationship cemented in trust with NHBP, we set out to explore and determine the relationship between Mnomen beds and macroinvertebrate populations, spearheading conservation efforts for Mnomen and advancing biological understanding of freshwater river systems.

Sponsored by: Phi Beta Kappa Norman J. Pauling Fellowship

Jocelyn Kincaid-Beal '26
Major: English (Professional Writing)
Hometown: Ann Arbor, Michigan

Using Body Horror to Explore Bodily Expectations, Anxieties, Desires Through Poetry
Faculty Sponsors: Helena Mesa, Lauren Brown

This poetry collection explores what it means to inhabit and be perceived in a body through the lens of body horror. Body horror is a subgenre where the human body is a source of fear, anxiety, or disgust. It most often revolves around graphic depictions of the transformation of bodies, through infection, mutation, mutilation, fusion, surgery, animalization, and more. If not a transformation, body horror introduces us to bodies that are beyond our comprehension and understanding of what a body should look like.

Through body horror, we can examine personal anxieties and desires about the body, challenge the way bodies are expected to look and behave, think critically about how bodies are policed, and illuminate the struggles of living in one's body that often go unacknowledged. Thematically, the poems in this collection explore gender expression and performance, gender roles and expectations, sexual violence and rape culture, mental illness and self harm, creation and reproduction, and the monstrous and bizarre. This collection uses surrealism and magical realism to imagine the body in different ways, in response to both inner desires and societal pressures.

With a mix of lyric and narrative poems, exploration of forms such as the pantoum and ghazal, and use of poetic devices such as imagery, allusion, and juxtaposition, this collection provides diverse ways of thinking about and looking at the body.

Sponsored by: FURSCA

Payton Landry '26
Major: Psychological Science
Hometown: Grand Blanc, Michigan

Proactive Safety Measures Regarding Active Shooters at Albion College
Faculty Sponsor: Mareike Wieth

As of December 13th, 2025, there had been 75 school shootings that year alone, including 43 incidents on college campuses. Since the Columbine tragedy in 1999, over 400 school shootings have occurred nationwide, affecting more than 370,000 students, highlighting the urgent need for effective prevention strategies throughout our school systems. While much of the existing research focuses on K-12 settings, colleges and universities face unique challenges related to firearm policy and preparedness strategies. This qualitative study seeks to explore how Albion College students, staff, and faculty perceive proactive safety measures designed to prevent mass shootings at the college level. Particular attention is given to the history and impact of campus shootings, federal and state policy, mental health initiatives at higher institutions, and what existing safety initiatives already exist at Albion College. Data were collected through semi-structured interviews including students, staff, and faculty of Albion College. Deductive and inductive analyses of the interview transcripts were performed. Deductive analyses showed that participants consistently talk about a need for increased mental health support and a need for greater promotion of Albion College safety protocols. Inductive analysis showed a consistent desire for more conversations and training related to active shooter safety. By centering voices of campus community members, this study aims to contribute to a deeper understanding of how proactive safety measures are perceived and how institutions like Albion College can continue to enhance preparedness while supporting safety and well being of their students, staff, and faculty.

Annika Lindstrom '26
Majors: Kinesiology (Exercise Science), Psychological Science
Hometown: Antioch, Illinois

Perceived Coping Ability and Kinesiophobia After Injury in the Context of Psychological Trauma and Resilience
Faculty Sponsors: Heather Betz, Andrea Francis, Katherine Dillon

Physical injury and pain are extremely common and come with many possible psychological responses. Although defensive reactions are in our best interest due to human evolutionary threat detection and survival instincts, they can develop at unnecessary intensities and frequencies that can alter physical functionality. One manifestation of this is kinesiophobia, an irrational fear of physical movement caused by a sense of vulnerability to pain/reinjury. Kinesiophobia can lead to fear-avoidant behaviors, overall lower physical activity levels, prolonged rehabilitation, and

possible chronic pain development. Physically traumatic musculoskeletal injury is one example of a potentially psychological traumatic event (PTE; an event that is disruptive, uncontrollable, unexpected, and negative in nature). Seemingly, the most empirically backed definition of resilience is a stable trajectory of healthy functioning over time in response to a PTE. Higher perceived coping ability for these types of events has shown to be a crucial factor regarding development of kinesiophobia after injury, as well as the ability to flexibly adapt to the constantly changing stressors following a PTE, which is the proposed psychological mechanism allowing most people to fall into a long term resilient trajectory. This study examined the relationship between perceived ability to cope with trauma, kinesiophobia, and PTSD symptom severity following musculoskeletal injury. Exploring the relationship between common psychological reactions to injury and factors related to the mechanism of resilience to potential trauma opens up an avenue for a new understanding of the human reaction to injury and may help inform efforts to prevent development of chronic pain.

Caroline Lippitt '26
Majors: Psychology, History
Hometown: Commerce, Michigan

The Saga of Inga Ulfsdóttir: Researching and Writing a Historical Graphic Novel
Faculty Sponsor: Ian MacInnes

Media depicting the Viking Age is often exaggerated, clichéd, historically inaccurate, and sometimes deeply problematic. In order to counter popular culture's inaccurate depictions of the Vikings, I have created a fully written and edited script for a historical fiction graphic novel depicting the story of a Norwegian woman in the 990's CE. My graphic novel focuses primarily on the struggles and experiences of Norsewomen, as well as portraying the complexities of identity within this culture. In order to counter and deconstruct the prevailing ideas about Vikings in popular culture, this piece of historical fiction presents a much more grounded and historically accurate version of the Viking Age that is also a compelling piece of narrative fiction. Over the course of this project, I researched and scripted my graphic novel and created detailed sketches for the visual elements of the project, which I plan to complete in the future so that the fully finished graphic novel can be published. I chose to use a graphic novel format because the visual element and presence of images best helps challenge our popular culture's depictions of the Viking world. Ideally, I hope that my graphic novel will change the average reader's perception of the Viking Age when they read it, allowing them to think more critically about Viking-related media that they encounter in the future.

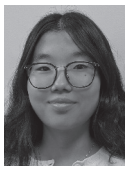
Sponsored by: FURSCA, Albion College Experiential Learning

Oyu Lkhagvajav '28
Majors: Mathematics, Economics & Management
Hometown: Ulaanbaatar, Mongolia

How Education Helps Reduce Poverty in Rural East Asia: The Impact on Income Mobility
Faculty Sponsors: Caroline Adamczyk

Access to quality education is widely regarded as a critical pathway for reducing poverty and fostering economic growth, yet significant disparities in educational access persist between urban and rural areas, hindering long-term income mobility. This research investigates the relationship between educational attainment and economic development across five East Asian nations, emphasizing that while expanding educational access is essential, it is not a standalone solution for poverty alleviation. The result underscores the necessity for comprehensive policy interventions that address structural barriers, gender gaps, and geographic inequalities, providing valuable insights for policymakers aiming to promote sustainable and inclusive growth in rural communities.

Sponsored by: FURSCA



Lkhamsuren

Chloe Lkhamsuren '28
Majors: Biology, Psychological Science
Hometown: Ulaanbaatar, Mongolia

Shouldice

Kyra Shouldice '27
Major: Biology
Hometown: Indian River, Michigan

Characterization of Microsatellite Genetic Markers for Sabatia angularis
Faculty Sponsor: Sheila Lyons-Sobaski

Sabatia angularis (Rosepink) is a wildflower whose northernmost populations in Michigan are increasingly threatened by habitat fragmentation and ecological degradation. In Michigan, most populations are found in wetland habitats near Lake Michigan. These isolated populations at the northernmost edge of the species range may be experiencing reduced genetic diversity due to inbreeding and random effects of genetic drift. However, no species-specific microsatellite markers currently exist to assess these risks. This project aims to identify microsatellite markers for *S. angularis* by screening 20 species-specific primer sets. We used PCR to amplify the DNA and agarose electrophoresis to confirm amplification and optimize PCR conditions. We used the Beckman-Coulter CEQ 8000 to assess the quality of the PCR product. The CEQ 8000 is a genetic analyzer that uses capillary electrophoresis to provide fine-scale fragment analysis of the PCR product, ultimately determining allele sizes. For each primer set, we will report the number of alleles, the allele size ranges, as well as the observed and expected heterozygosity. These genetic markers will be used to evaluate whether Michigan populations retain sufficient genetic variation to remain viable long-term. Developing these markers will provide foundational genomic resources for the species and support future conservation.

Sponsored by: Faculty Development Committee Grant

Bonnie Lord '26
Major: Environmental Science
Hometown: Alma, Michigan

Exploring Runoff Management Prioritization for Albion College's Campus via GIS
Faculty Sponsor: Joe Lee-Cullin

Urban runoff is an important part of managing the environmental impact of anthropogenic environments like Albion College's campus. Every drop of oil, gasoline, fertilizer, windshield wiper fluid, spilled coffee and more follows a direct channel through city stormwater infrastructure before reaching the Kalamazoo River mere meters from campus. Using tools acquired from a background in Geographic Information Systems (GIS), this project aims to create a map of runoff hotspots: low areas surrounded by impermeable surfaces associated with storm drains and

gutters. With this map and associated data available, future hydrology-focused sustainability projects can be more effectively proposed and implemented, either in student research or in future management priorities executed by the Grounds Department. With a combination of structured and unstructured data, this project will provide a jumping-off point for Albion College's future hydrologists.

Bonnie Lord, '26
Major: Environmental Science
Hometown: Alma, Michigan

River Stories: The Kalamazoo River in Watercolor
Faculty Sponsors: Joe Lee-Cullin, Allison Harnish, Jordan Revenaugh

The Kalamazoo River is a sixth order stream in southwest Michigan that drains to lake Michigan. With a complex history including one of the largest inland oil spills in U.S. history, pollution resulting in several Superfund sites, and socially and economically enforced segregation, the Kalamazoo River has been at the center of several statewide issues in Michigan. In Albion, Michigan, this importance increases tenfold. The north and south branches of the headwaters meet in Albion, and recreation, drinking water quality, and research have all stemmed from its presence in the city's landscape. However, without a career dedicated to the history, science or maintenance of the Kalamazoo River, understanding something everyone in the Albion community seems to have a relationship with becomes a relatively intimidating task. In a series of written features centering the stories of the Kalamazoo River's greatest advocates and Albion's most dedicated citizens, this project captures an inter-generational, intersectional and deeply human-centered snapshot of the river's history. Accompanying these in-depth pieces, a large-scale watercolor illustration of stories from across the landscape they center, culminating in a unique piece of artwork to display the relationship between the Kalamazoo River and Albion's community. Each character, represented as a creature native to the river's local ecosystem, inspires curiosity leading the viewer to interact with the digitally published written work documenting their stories.

Sponsored by: The Foundation for Undergraduate Research, Scholarship, and Creative Activity, FURSCA, Earth & Environment Taylor Research Fund

Ian MacDonald
Majors: Biochemistry, Music
Hometown: Ann Arbor, Michigan

Synthesis of a Novel Photoswitchable BCR-ABL1 Tyrosine Kinase Inhibitor
Faculty Sponsor: Craig Streu

Chronic Myeloid Leukemia (CML) is a bone marrow-derived blood cancer affecting roughly 9,500 individuals annually. It is driven by uncontrolled cellular proliferation caused by the translocation of chromosomes 9 and 22, known as the Philadelphia chromosome. This event produces the oncogenic BCR-ABL1 fusion protein, leading to the formation of the BCR-ABL1 mutant protein. The development of the first-generation BCR-ABL1 inhibitor significantly reduced mortality in patients with this mutation. The second-generation inhibitors were later designed to address further mutations within the protein sequence and structure of BCR-ABL1. However, both generations target the active site without discretion, affecting not only malignant cells but also healthy cells. This lack of specificity contributes to adverse effects including nausea, hair loss, edema, and bleeding. The objective was to develop photoswitchable derivatives of BCR-ABL1 inhibitors, allowing for the specific activation of the target molecules via light. By incorporating light sensitive bonds, these compounds can be selectively activated using specific wavelengths of light, improving precision in targeting cancerous cells while minimizing general drug toxicity. This presentation details the synthetic pathway employed to synthesize these novel photoswitchable inhibitors and evaluates their photokinetic properties, and specific therapeutic potential.

Sponsored by: FURSCA

Tyland Martin '26
Major: Psychological Science
Hometown: Albion, Michigan

Do Black Male Mentoring Programs Work? A Comprehensive Analysis of Outcomes
Faculty Sponsor: Ari McCaskill

Black urban male mentoring programs are fairly common in the United States, with an implied goal to provide socioemotional support, improve knowledge access and skills, while empowering low-income, vulnerable black male youth. Embedded within these program goals are overall participant improvements in educational performance, emotional intelligence, and confidence building. These essential life skills, often associated with post-program success, are often woven into mentoring programs, but are absent from many Black male youth participants' daily lives. In my research, many scholars and practitioners cite the less-than-stellar outcomes of these programs. The lack of fiscal and human capital resources most often interferes with creating a sustainable mentoring model. Additionally, stigmatization of Black male youth produces an implicit belief that approaches supporting these populations for a deficit-based model. Moreover, the lack of a holistic approach that centers on the aforementioned, which I believe would be the genesis of a sustainable and beneficial programmatic approach, must be interrogated further. In my research, I will identify the precipitating factors that preclude achieving broader success within these types of programs. I will examine contributing factors to the instability of these programs, such as community and family ties, economics, and social pressures. The objective of my research is to find an explanation of why Black urban male mentoring programs historically have had limited impact and success amongst low-income, urban Black male youth. My research aims to illustrate the complexity of youth programming while providing a potential multifaceted solution that improves outcomes.

Sponsored by Build Albion Fellows

Martinez

Jay Martinez '29
Major: Biology
Hometown: Chicago, Illinois

Montgomery

Justin Montgomery '28
Major: Biology
Hometown: Mitchellville, Maryland

Biodiversity of Invertebrates in the Kalamazoo River
Faculty Sponsor: Abigail Cahill

Understanding the relationship between the Mnomen (wild rice) beds and invertebrate biodiversity within the Kalamazoo River

provides possible insight into the ways humans can increase invertebrate biodiversity and overall system health. Between the months of May and June, 3-D printed containers (wigwasmkok), developed by other students, were placed in both natural and artificial Mnomen beds. In July, the containers were collected, and the contents were preserved in alcohol for sorting. We identified macroinvertebrates, sorting based on taxa to determine community composition, species richness, and diversity in the river. The organisms found among the leaves and detritus inside the containers were then referenced against a list of known species to occupy the river. The data was placed in the program R so that the relationships within the data could be understood. In addition to what was expected to be found, there were also a couple reoccurring organisms in both the real and the fake Mnomen beds that are introduced species of interest in Michigan. Additionally, the diversity of the artificial Mnomen beds was determined to be greater than the real Mnomen beds, possibly because of differences in water level. Understanding these interconnected aspects of a water system could reveal things about its overall health, and the native wild Mnomen that grows in the Kalamazoo River may directly relate to its biodiversity.

Sponsored by: Phi Beta Kappa Norman J. Pauling Fellowship

Jose Martinez '26
Majors: Communication Studies, Ethnic Studies
Hometown: Detroit, Michigan

"The Final Hour": Lauryn Hill's Requiem to Conscience Hip Hop
Faculty Sponsor: Ari McCaskill

In 1998, Grammy award winner Lauryn Hill and Christopher Martin wrote "The Final Hour," which was featured on her solo debut album, "The Miseducation of Lauryn Hill," a nod to Carter G. Woodson's 1933 magnum opus to aid in redirecting the collective consciousness of Black people in America. I believe that similar to Woodson's aims with the Greatest Generation, Lauryn was attempting to stoke the attention of Black Gen X'ers whose attention had shifted away from civil rights and collective action to hyper-capitalism, hyper-sexuality, the objectification of Black womanhood, and materialism. She masterfully articulated this from the beginning of the track in setting up the listener to —"Treat this like my thesis, well-written topic, broken into pieces..." This paper will dissect, compare, and contrast the lyrics in a systematic and applied manner. Viewing the song via a 21st-century lens, I investigate how might its message be beneficial to my generation, Gen Z, in heightening awareness while centering Black identity on values beyond the superficial and materialistic.

Sponsored by James L. Curtis Institute for Social Change

Tuesday McBride '26
Major: Studio Art
Hometown: Saginaw, Michigan

Compliant Imprints: The Art of Silent Gender Roles
Faculty Sponsor: Emmeline Solomon

As an artist engaged in gender discourse and multiracial feminism, I believe it is vital to begin with childhood, where foundational habits and beliefs are often instilled. This project aims to provoke critical reflection on the often-overlooked ways society conditions AFAB (assigned female at birth) individuals from a young age. By centering gendered objects in the artwork, I hope to spark conversations about how deeply ingrained and normalized these expectations have become. The visual approach challenges the quiet but pervasive pressures faced by women and AFAB individuals, urging viewers to question the systems that sustain them. Seeking to explore the art of existing outside the box and of feeling out of place without fully understanding why. This series illustrates hidden moments of this bittersweet identity during the adolescence of a non-gender-conforming existence. This project uses printmaking to examine queer feminist themes through my childhood experiences. It highlights the subtle, everyday abuses and societal pressures that AFAB children endure, and interrogates how these experiences are normalized to the extent that non-conformity often results in criticism or exclusion. The objective is to underscore how these covert forms of control and gendered expectations shape AFAB individuals as they grow, perpetuating broader systems of inequality. Linoleum block printing serves as the primary technique for this project, chosen for its thematic resonance with ideas of pressure and resistance.

Sponsored by: FURSCA

Brinley McCaig '26
Major: Anthropology/Sociology
Hometown: Ann Arbor, Michigan

The Invisible Orange Jumpsuit: The Experiences of Daughters of Incarcerated Fathers
Faculty Sponsor: Scott Melzer

On any given day in the United States, there are about 685,000 parents who are in jail or prison, disproportionately African American and Hispanic/Latino men. As a result, over 2.7 million children are serving a "silent sentence" along with their incarcerated parents. Existing research on incarcerated fathers focuses foremost on their own adverse experiences as parents, followed by those of their sons. My research examines daughters' experiences of having an incarcerated father. Using a symbolic interactionist framework, I analyzed how daughters' lives are impacted, including how they are seen by others, how they see themselves, and how they view and experience their incarcerated fathers. I examined these daughters' first-hand experiences and stories using a grounded theory method to analyze qualitative documents such as documentaries, interviews, and podcasts. My findings reveal similar patterns to studies of sons of incarcerated fathers, including an array of negative impacts such as shame, stigma, and mental and emotional health issues. Daughters of incarcerated fathers also uniquely felt that losing the parent they saw as their protector harmed their physical and mental wellbeing, and they were subject to more parentification than sons of incarcerated fathers. Beyond addressing systemic racial and ethnic inequities due to mass incarceration, it is important for policymakers to reform the ways that fathers and daughters are able to form and maintain their relationships.

McCollum

Noah McCollum '28
Major: Biology
Hometown: Jackson, Michigan

Demetrius Smith '25
Major: Biochemistry
Hometown: Woonsocket, Rhode Island

Smith

Annotation of Oxidative Stress Response Pathway Genes in Several Drosophila Species
Faculty Sponsor: Ken Saville

The Genomics Education Partnership (GEP) consists of a consortium of educators, scientists and students using course based research experiences (CUREs) in genomics as an innovative approach to teach students about genetics and genomics, while involving them in an authentic research experience. In one GEP project, the Pathways project, students investigate the co-evolution of genes involved in a complex biological network, where genes and proteins interact through gene regulation and biochemical activity to control critical physiological outcomes. The current focus is on the insulin signaling pathway, a highly evolutionarily conserved pathway which functions as an important regulator of glucose metabolism as well as overall cellular growth and organismal survival. Often, when studying evolutionary conservation, the focus is on individual genes. However, for complex metabolic pathways, the evolution of individual components is dependent on the relationship of all of the components of the pathway. To understand the co-evolution of members of the insulin pathway, GEP students work to annotate relevant genes from newly sequenced *Drosophila* genomes. Annotation refers to identifying the important components of each gene, including transcription start sites, protein coding regions, and introns and exons. Often this involves annotating several versions (isoforms) of each gene. As part of the Introduction to Bioinformatics course, we used a comparative genomics approach using the GEP gene annotation protocol to construct final gene models for several insulin pathway genes from several newly sequenced Drosophila species. Our results will contribute to the overall Pathways project, providing new insights into how complex biological systems evolve.

Sponsored by: FURSCA, Research Corporation

Ashanti McKnight '28
Majors: English, International Studies
Hometown: Hudsonville, Michigan

Reading Black Girls: Building "The Black Girl Atlas"
Faculty Sponsor: Jess Roberts

This project explores the beautiful diversity of Black narratives in contemporary literature by examining thirteen literary works by Black women. I seek to understand the ways in which Black authors and voices are not just writers, but historians, vessels, and atlases who create important bridges to the past and future that are crucial in building a more racially equitable world. Their work centers Black children and introduces their readers to the oppressive systems that influence our lives. To make these stories more accessible and to showcase how each author utilizes her skills to speak to larger themes, I am working to develop a social platform called "The Black Girl Atlas," inspired by author Renée Watson's book of poetry titled *Black Girl You Are Atlas*, which explores Black womanhood and identity. I strive to bring visibility to their work, artistry, ideas, and to learn from them, as well as investigate the many ways these ideas connect to the larger context within the world we live in.

Sponsored by: FURSCA

McNab

Brooke McNab '27
Majors: Biology, Psychological Sciences
Hometown: Clarkston, Michigan

Iris Patel '27
Major: Biology
Hometown: Saginaw, Michigan

Patel

Annotation of Oxidative Stress Response Pathway Genes in Several Drosophila Species
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The Genomics Education Partnership (GEP) consists of a consortium of educators, scientists and students using course based research experiences (CUREs) in genomics as an innovative approach to teach students about genetics and genomics, while involving them in an authentic research experience. In one GEP project, the Pathways project, students investigate the co-evolution of genes involved in a complex biological network, where genes and proteins interact through gene regulation and biochemical activity to control critical physiological outcomes. The current focus is on the insulin signaling pathway, a highly evolutionarily conserved pathway which functions as an important regulator of glucose metabolism as well as overall cellular growth and organismal survival. Often, when studying evolutionary conservation, the focus is on individual genes. However, for complex metabolic pathways, the evolution of individual components is dependent on the relationship of all of the components of the pathway. To understand the co-evolution of members of the insulin pathway, GEP students work to annotate relevant genes from newly sequenced *Drosophila* genomes. Annotation refers to identifying the important componets of each gene, including transcription start sites, protein coding regions, and introns and exons. Often this involves annotating several versions (isoforms) of each gene. As part of the Introduction to Bioinformatics course, we used a comparative genomics approach using the GEP gene annotation protocol to construct final gene models for several insulin pathway genes from several newly sequenced *Drosophila* species. Our results will contribute to the overall Pathways project, providing new insights into how complex biological systems evolve.

Lydia Meissner '28
Majors: Geology, Biology
Hometown: Farmington Hills, Michigan

Environmental Stress and Faunal Turnover of Brachiopods and Bivalves in the Permian Phosphoria Rock Complex, Idaho
Faculty Sponsor: Madeline Marshall

The Meade Peak (MP) Member of the Permian Phosphoria Rock Complex (PRC) hosts economically important phosphate deposits in Idaho. It records a range of nutrient-rich and low-diversity paleoenvironments, and age dating suggests that the upper MP may coincide with the Guadalupian-Lopingian boundary (GLB) biotic crisis. The MP is primarily composed of phosphatic mudstones and phosphorites, with rare carbonate and chert beds. These facies host a variety of macrofossils, dominated by brachiopods and bivalves, with subsidiary fish, gastropods,

and ammonites. This study uses recently collected hand samples and previously published fossil occurrence data from over 40 localities to investigate spatiotemporal trends in MP fossils and to assess potential drivers of paleoecological change. These data suggest that the temporary faunal turnover near the top of the MP was driven by environmental stress such as anoxia, acidification, and/or higher temperatures, either locally or throughout the entire Phosphoria Basin, possibly caused by the same volcanic eruptions that led to the GLB biotic crisis. Further assessment of spatial data reveals that these trends are only observed in the MP depocenter of southeastern Idaho and northern Utah, supporting the hypothesis of local environmental stress. While brachiopods are typically resilient to stress, their sessile habits may have allowed facultatively mobile bivalves to thrive during periods of higher stress, potentially due to low oxygen or high temperatures.

Sponsored by: David B. Jones Foundation

Karsen Mellado '26
Major: Psychological Science
Hometown: Waterford, Michigan

Perceived Hireability in Different Professional Fields and Mental Health Stigma
Faculty Sponsors: Andrew Christopher, Eric Hill, Edward Visco

A lot of people struggle with mental illness and the stigma that surrounds it. This stigma can create barriers to professional opportunities. The present study investigated the effect of mental health stigma on perceived hireability in different professional fields. One hundred six Albion College students were asked to read a scenario describing a fictitious person named Alex, who was either a lawyer or a therapist. Half of the sample read that Alex has recently dealt with an undisclosed mental illness. Participants then filled out some surveys measuring their perceptions of Alex's hireability, likability, empathy, and conscientiousness, as well as the participants' own levels of mental illness stigma. It was hypothesized that participants would rate Alex as less hireable if they had a mental illness, regardless of professional field, but therapists with a mental illness would be rated more favorably than lawyers with a mental illness. Factorial analyses of variance suggested that there was no significant difference in perceived hireability in relation to profession or mental illness status. Results were discussed in the context of methodological differences from previous studies, particularly with respect to specifying the mental illness that a target person had.

Anungoo Mendsaikhan '29
Majors: Music, Biology (Pre-Med)
Hometown: Ulaanbaatar, Mongolia

Fritz Kreisler: Praeludium and Allegro in the Style of Pugnani
Faculty Sponsor: Ji Hyun Kim

Praeludium and Allegro (in the Style of Pugnani) for Solo Violin and Orchestra by Fritz Kreisler is one of the most celebrated virtuoso works in the violin repertoire. Kreisler (1875–1962) was an Austrian violinist and composer known for his warm tone, expressive phrasing, and charming short character pieces. He originally published this work as if it had been written by an 18th-century Italian baroque composer Gaetano Pugnani, but later it was revealed that Kreisler had composed it himself. By writing "in the style of" Pugnani, Kreisler blended Baroque elegance with Romantic passion and brilliance, creating a piece that feels both grand and dramatic. The work opens with a bold and improvisatory prelude, followed by a strong allegro filled with rapid runs, chords, lyrical lines, and technical passages that highlight the performer's virtuosity.

As one of the two winners of this year's Concerto & Aria Competition, I will be performing this work with the Albion College Symphony Orchestra in Goodrich Chapel, on Sunday, April 19, at 4:00 PM.

Brendan Mulcahy '26
Major: History
Hometown: Parma, Michigan

Civil War Uniforms: What They Reveal About Confederate Society
Faculty Sponsor: Marcy Sacks

The Civil War is one of the most studied topics in U.S. History. Nevertheless, there are still more questions worth asking. My project explores the relationship between Confederate military uniforms and the cultural values, economic limitations, and social hierarchy of the South during the Civil War. The poorly fit, cotton uniforms of common soldiers reflected both the Confederacy's agricultural economy and the lower-class status of most enlisted men. In contrast, officers wore tailored and ornately- decorated uniforms that highlighted their elite position. Clothing shortages and the failure of the commutation system revealed the South's weak industrial base and increased its dependence on local communities, especially women. Women's roles were essential to outfitting troops, as letters from soldiers and civilians illustrate the strain these shortages placed on families. Meanwhile, the Union's standardized, industrially-produced uniforms, worn equally by Black and white soldiers, symbolized a more democratic and industrial society. Ultimately, Confederate uniforms serve as material evidence of the South's economic constraints, social hierarchy, and ideological commitments.

Ernest Njoroge '26
Major: Biochemistry
Hometown: Nairobi, Kenya

Development of Photoreversible Azo-Stilbene GLP-1 Agonist for Diabetes Treatment
Faculty Sponsor: Craig Streu

This research focuses on the organic synthesis of photosensitive molecules designed for targeted treatments. Azo-stilbene, a compound recognized since the 1930s for its light-responsive properties, is now attracting increasing interest for applications in medicine. By adding light-sensitive azo groups to physiologically active molecules that resemble azo-stilbenes but lack light sensitivity, we are able to preserve their key functionalities. Light-responsive engineered azo molecules are useful for the reduction of off-target toxicity and targeted drug activation in only tissue areas that are illuminated. We suggest using these technologies for the manufacture of an azo GLP-1 agonist for diabetes.

O'Farrell

Alina O'Farrell '26
Major: Biology
Hometown: Indianapolis, Indiana

Treglia

Isabella Treglia '26
Major: Biology
Hometown: Chelsea, Michigan

Annotation of Oxidative Stress Response Pathway Genes in Several Drosophila Species
Faculty Sponsor: Ken Saville

The Genomics Education Partnership (GEP) consists of a consortium of educators, scientists and students using course-based research experiences (CUREs) in genomics as an innovative approach to teach students about genetics and genomics, while involving them in an authentic research experience. In one GEP project, the Pathways project, students investigate the co-evolution of genes involved in a complex biological network, where genes and proteins interact through gene regulation and biochemical activity to control critical physiological outcomes. The current focus is on the insulin signaling pathway, a highly evolutionarily conserved pathway that functions as an important regulator of glucose metabolism as well as overall cellular growth and organismal survival. Often, when studying evolutionary conservation, the focus is on individual genes. However, for complex metabolic pathways, the evolution of individual components is dependent on the relationship of all of the components of the pathway. To understand the co-evolution of members of the insulin pathway, GEP students work to annotate relevant genes from newly sequenced *Drosophila* genomes. Annotation refers to identifying the important components of each gene, including transcription start sites, protein coding regions, and introns and exons. Often this involves annotating several versions (isoforms) of each gene. As part of the Introduction to Bioinformatics course, we used a comparative genomics approach using the GEP gene annotation protocol to construct final gene models for several insulin pathway genes from several newly sequenced *Drosophila* species. Our results will contribute to the overall Pathways project, providing new insights into how complex biological systems evolve.

Bryn Osborne '26
Majors: Biology, Environmental Science
Hometown: East Peoria, Illinois

A Home in the Heat: Investigating the Benefits of Heat Shields on the Thermal Microclimates of Bird Nest Boxes
Faculty Sponsor: Joanna Sblendorio

Rising global temperatures pose significant threats to biodiversity, with cavity nesting birds especially at risk due to a decline of naturally occurring cavities in their preferred habitats. Nest boxes are commonly utilized as a conservation tool to supplement nesting cavities, but come with additional risk of elevated internal temperatures that exceed those of natural cavities, potentially influencing survival of nestlings. Various methods to lower the internal temperatures of nest boxes have been proposed, but the heat shield (a second layer of material installed above the roof to deflect solar radiation) is poorly studied despite availability on the commercial market. My project seeks to test the effectiveness of heat shields made of aluminum, plywood, and plastic. During the summer breeding season, I fitted both occupied and unoccupied nest boxes with heat shields and used thermal monitors to determine if the addition of heat shields altered internal microclimates.

Sponsored by: FURSCA

Osborne

Bryn Osborne '26
Majors: Biology, Environmental Science
Hometown: East Peoria, Illinois

Williams

Taiya Williams '28
Major: Biology
Hometown: Detroit, Michigan

Using Comparative Genomics to Inform Efforts to Conserve the Puerto Rican Parrot
Faculty Sponsor: Ken Saville

The Genomics Education Partnership (GEP) is a consortium of educators, scientists and students using course based research experiences (CUREs) as an innovative approach to teach students about genetics and genomics, while involving them in an authentic research experience. One GEP project is focused on the conservation of the Puerto Rican parrot, *Amazona vittata*, which was declared to be critically endangered in 1967. While a captive breeding program has brought the species back from the brink of extinction, much work is needed to bring the wild population to a healthy status. One of the biggest issues for survival and successful reproduction is the viability of eggs. The wrong egg shell composition can lead to eggs being lost because of infection, breakage, or due to the inability of chicks to hatch. The parrot genome has recently been sequenced, but the location and structure of all of the genes in the genome, a process called gene annotation, is still a work in progress. Previous work has identified 1512 genes whose protein products are expressed in the avian uterus and therefore may play a role in eggshell development. The role of GEP students is to precisely characterize each of these genes in the parrot genome, using the chicken genome as a reference. Once critical genes are annotated, mutations that may be detrimental to egg viability can be identified. This knowledge can then inform breeding programs, allowing the artificial selection of healthy genes, leading to increased egg viability and a healthy parrot population.

Iris Patel '27
Major: Biology
Hometown: Saginaw, Michigan

Progress Toward the Development of Nanobodies Related to Moonlighting Activity of S. epidermidis GAPDH via Directed Evolution
Faculty Sponsor: Craig Streu

Antibiotic resistance is a major global health challenge, with resistant mechanisms continually emerging and spreading across populations worldwide. This ongoing evolution is compromising our current treatment options for common infectious diseases and necessitating new strategies for developing antimicrobial compounds. One promising alternative for new antibiotic development is targeting virulence factors, which offers several advantages over traditional antibiotics. One advantage includes targeting pathogenic bacteria in preference to commensal bacteria. Moonlighting proteins have been identified as key contributors to bacterial virulence. These multifunctional proteins are able to perform multiple independent functions in different cell compartments. When functioning as

virulence factors, moonlighting proteins participate in highly conserved metabolic pathways and elicit relatively muted responses from the immune system. Their evolutionary conservation, evasion of immune response and critical role in pathogenesis suggest that moonlighting proteins may make excellent targets for therapeutic development. One strategy for targeting moonlighting proteins involves the use of nanobodies. Nanobodies are single-domain fragments derived from camelid antibodies that combine advantageous properties of both small molecules and monoclonal antibodies. Compared to traditional antibodies, nanobodies are easier to produce cheaply in bulk and maintain excellent thermal and pH stability, making them an appealing agent for creating new antibiotics. Additionally, integrating surface display technologies with directed evolution techniques enables the rapid generation and optimization of nanobodies, facilitating rapid drug discovery to counter new resistance mechanisms. This poster outlines progress toward the expression and purification of the moonlighting protein GAPDH from *S. epidermidis* for use in the directed evolution of next-generation antibiotics.

Sponsored by: FURSCA

Nathan Penfield '28
Major: Computer Science
Hometown: Charlotte, Michigan

A Shape Sorting Robot Using Computer Vision and Robot Kinematics
Faculty Sponsor: Mauricio Marengoni

During this project, I designed a system capable of recognizing and sorting shapes using industry-relevant tools such as computer vision and robotic kinematics. Using a classic children's shape sorting toy, the robot can identify different shaped blocks such as circles, triangles, or squares, and place them in the corresponding slots on the container. Although this game is simple for humans, it offers great challenges to computers. Some challenges for the computer include interpreting visual data to understand and classify the blocks and their locations. The computer must also direct the robot on how to maneuver to grab and place the blocks correctly.

Sponsored by: FURSCA

Alye Perryman '29
Major: Biology
Hometown: Ras Al Khaimah, United Arab Emirates

The Science of Goal-Directed Behavior: A Systems Model Integrating Attention and Motivation in Neurodiverse Populations.
Faculty Sponsor: Roger Albertson

The neural pathways behind attention and motivation are critical components of executive function. ADHD, depression, and schizophrenia each present with overlapping symptoms of avolition and distractibility, yet their underlying biological mechanisms differ in ways that current theoretical frameworks do not fully capture.

This project synthesizes neurobiological literature to propose a comparative framework for understanding how ADHD, depression, and schizophrenia disrupt attention and motivation. While all three conditions share common disruptions in dopaminergic reward circuitry and default mode network function, they diverge in meaningful ways. Using the ventral attention network and its role as a circuit breaker for attentional control as a central model, we map how neurobiological deficits disrupt the coordination between motivational drive and sustained attention across all three conditions. Rather than treating overlapping symptoms as equivalent, this framework distinguishes between common brain circuitry and the distinct ways each condition disrupts it.

This approach carries both diagnostic and therapeutic implications, suggesting that effective treatment may require identifying where in the attention-motivation system the breakdown occurs, rather than targeting surface-level symptoms alone.

Lindsay Ratcliffe '26
Majors: English (Creative Writing), Political Science
Hometown: Flat Rock, Michigan

Notes From My Ghost: Poems
Faculty Sponsor: Helena Mesa

Notes From My Ghost is a collection of poems that examines my life with Progeria, a rare aging disorder. I share experiences that have shaped who I am and how I interact with the world around me. While Progeria is a medical diagnosis, people tend to forget that a diagnosis like this affects your relationships and how others perceive you.

In these poems I discuss some of the negative sides of Progeria, such as my thoughts on death and dealing with anxiety. I also share experiences that have helped me remain positive and happy throughout my life. Additionally, I write in various poetic forms. Some, like the pantoum, are more lyrical and have abstract themes. While others, such as my one-sentence and plain-language poems, are more concrete and allow for clear understanding. I write plain-spoken poetry in the hope it makes what I want to say clear: having a disease like Progeria can be awful at times, but it also teaches you to see and look for the good in the world.

Sponsored by: FURSCA

Vanessa Rigney '26
Majors: Psychological Science; Women's, Gender, and Sexuality Studies
Hometown: Albany, New York

Attitudes of Bisexual, Gay, and Lesbian People toward Transgender Individuals and Anti-Trans Legislation
Faculty Sponsor: Holger Elischberger, Abigail Cahill, Eric Hill

In 2025 alone, a deluge of 616 anti-LGBTQ+ bills were introduced in the U.S. These bills are detrimental to transgender people's well-being, for instance, by limiting access to gender-affirming healthcare. Pushing back against this threat requires a broad coalition of voters. Although sexual minorities (e.g., gay, lesbian, and bisexual) are often viewed as "natural allies," there is debate within the LGBTQ+ community about whether the "T" belongs under the same umbrella as the "LGB." The current study therefore aims to understand the attitudes of bisexual, gay, and lesbian U.S. residents towards transgender people, as well as gauge support for anti-transgender legislation. As expected, negative attitudes toward transgender people on a 1 to 5 scale were significantly lower in sexual minority participants than heterosexuals. Support for anti-trans legislation was at

the neutral mid-point for heterosexual and significantly lower for sexual minority participants. Finally, although participants reported that anti-trans legislation has made them generally feel more positively toward trans people; that shift was stronger in sexual minority than heterosexual participants. Findings are discussed with respect to their implications for intraminority solidarity and potential for opposition to harmful legislation.

Sponsored by: Faculty Development Committee Grant

Cloud Rimer '26
Majors: Anthropology, History
Hometown: St. Thomas, U.S. Virgin Islands

Manoomin Monitoring and Interpretation
Faculty Sponsors: Allison Harnish, Laura Wylie

This project set in motion methods of monitoring the wild rice (manoomin) found at the Whitehouse Nature Center (WNC), with respect to native traditions and beliefs. We utilized-and modified when needed-Tonya Kjerland's "*Wild Rice Monitoring Handbook*" and the "*Medicine Wheel Framework for Wild Rice Restoration*" from Cassandra Reed-VanDam. We also created a ten-minute interpretive program for WNC employees to use to educate and engage visitors. Throughout, we collaborated, sought input, and reported our progress to the Nottawaseppi Huron Band of the Potawatomi's Environment Department.

Sponsored by: FURSCA

Kaelyn Ruiter '26
Majors: Physics, Chemistry
Hometown: Livonia, Michigan

Comparisons of Lunar Glass Samples from the Apollo and Chang'e Landing Sites
Faculty Sponsor: Nicolle Zellner

Lunar impact glasses are formed when an object collides with the Moon and melts the surface (regolith) into small glass pieces. Studying lunar impact glasses illuminates facts about the impact history of the Moon, and by proxy, the impact history of Earth. Between 1969 and 1972, American-led missions to the Moon brought back regolith samples containing lunar impact glasses found at the Apollo landing sites. Details on glass composition, size, shape, and age of specific glasses have been previously reported. Recently, in 2020 and 2024, the Chinese Chang'e-5 and Chang'e-6 missions, respectively, also brought back regolith containing glass samples, including from the far side of the Moon, and data (e.g.,composition, size) have been reported. This project compares characteristics of impact glasses found at the Apollo and Chang'e landing sites to determine patterns in shape, size, and composition in glasses collected at different locations on the Moon.

Sponsored by: NASA

Kaelyn Ruiter '26
Majors: Physics, Chemistry
Hometown: Livonia, Michigan

Line Identification of M-Star Spectra at Mt. Wilson Observatory
Faculty Sponsor: Nicolle Zellner

M-type stars, older, smaller, and redder than our Sun, have low-enough temperatures that certain molecules can exist in their atmospheres. Spectroscopy - analyzing spectral lines (or wavelengths) - is the analytical technique used to identify these molecules. At Mount Wilson Observatory in California, a historic facility known for its discovery of galaxies outside of the Milky Way and the expansion of the universe, I measured the wavelengths of light given out by these stars and used them to identify atoms and molecules within their atmosphere. My work showed that there are atoms and molecules that appear in all M-type stars, regardless of differences such as size and age.

Sponsored by: Albion College Physics Department

Jayshon Russ '26
Major: Kinesiology
Hometown: Albion, Michigan

Movement as Medicine: Promoting Accessible Physical Activities for Community Wellness
Faculty Sponsor: Ari McCaskill

This project explores the concept of "Movement as Medicine," promoting physical activity as a preventive and therapeutic tool for low-income, African American, senior population in urban communities. By examining the large urban centers of Harlem, NYC, and Chicago's West Side neighborhood and comparing the overall mortality and well-being of residents in the City of Albion, I hope to not only gain perspective on health outcomes, but also promote the benefits of aging in place healthily in Black rural communities. Focusing on African American seniors, ages 55 to 75, this project will highlight the benefits of increased mobility as that population ages. Grounded in the principles of kinesiology and public health, this project aims to identify accessible, culturally relevant, and sustainable physical activities absent or available in the aforementioned communities that contribute to physical and mental well-being. By reviewing qualitative and quantitative data, scholarly articles, and observing and collaborating with local organizations and health professionals, this capstone will highlight movement-based senior activity programs, resource guides, workshops, and events that encourage regular participation in physical activity. The ultimate goal is to empower the African American senior populations to view movement not only as exercise but as a form of therapeutic medicine.

Sponsored by: Build Albion Fellows

Schramm

Emma Schramm '27
Major: Biochemistry
Hometown: Kalamazoo, Michigan

Smith

Demetrius Smith '27
Major: Biochemistry
Hometown: Woonsocket, Rhode Island

A Study of Flaviviral RNA Polymerases
Faculty Sponsor: Chris Rohlman

Flaviviruses are arthropod-borne RNA viruses capable of infecting a wide range of vertebrate hosts, including humans. This viral family poses major public health concerns, causing hundreds of millions of infections each year, including Yellow Fever, Dengue, West Nile, Zika, and Powassan viruses. Studies indicate that flaviviral RNA genomes are chemically modified after transcription, and these epigenetic RNA modifications play an important role in regulating viral genome stability, replication, and transcriptional fidelity.

This project examines how naturally occurring RNA modifications influence the rate and accuracy of RNA synthesis carried out by the flaviviral RNA-dependent RNA polymerase (RdRp). First identified in Powassan, Ontario, in 1958, Powassan virus has emerged as an increasing concern in North America. Data from the Centers for Disease Control and Prevention show a steady rise in reported U.S. cases since 2011, with infections reaching their highest levels between 2016 and 2020.

To investigate RNA modification-dependent effects on replication, the viral NS5 protein will be expressed recombinantly in *Escherichia* coli and purified for in vitro analysis. The NS5 protein encodes the RdRp domain, which replicates independently of other viral functions. This purified polymerase will be used to establish a biochemical assay capable of measuring changes in transcription kinetics and accuracy in response to modified RNA templates.

This research aims to uncover molecular mechanisms that drive viral adaptation across species barriers. These findings will contribute to a deeper understanding of zoonotic transmission and may inform future strategies to limit the emergence and spread of RNA viruses in human populations.

Sponsored by: FURSCA, Research Corporation

Grace Sobaski '27
Major: Biology
Hometown: Albion, Michigan

Can Genetic Diversity Explain a Lack of Anti-Predator Response in Aquatic Isopods?
Faculty Sponsor: Abigail Cahill

Aquatic isopods are tiny invertebrates found in many fresh water ponds throughout North America working as detritivores. Not only are aquatic isopods crucial detritivores but also a large part of the diets of many predators ranging from fish to other invertebrates. Because of this many would assume that these aquatic isopods can avoid predators. This led to Iyengar et al. conducting a study on predator recognition in benthic macroinvertebrates at Graver Arboretum in Bath, Pennsylvania, across a span of six ponds. Unlike other invertebrates, the aquatic isopods did not avoid predators, whether or not they came from a pond with predatory fish. This led Iyengar et al. to question whether or not these Isopods were genetically similar, which might explain a lack of adaptation to predators.

This has now led to my current project asking if the isopods collected from these separate ponds are genetically similar. For this study I extracted DNA from clusters of individual isopods collected from each of the six ponds. I then took this DNA and ran an initial gel electrophoresis on each sample. If the gel was successful I then repeated this in PCR form. This PCR was then sequenced, and I used the DNA sequences for further analysis. I performed population genetic analyses to compare the genetic similarity of isopods from different ponds. This genetic similarity between ponds helps us to understand the predator-prey reaction of isopods from different ponds.

Maryam Sohail '27
Major: Biology
Hometown: Kohat, Pakistan

Investigating Global Trends in PCOS and Twin Pregnancies: Understanding the Role of Infertility Treatments
Faculty Sponsor: Ola Olapade

Polycystic Ovary Syndrome (PCOS) is one of the most common endocrine disorders affecting women of reproductive age and a leading cause of infertility worldwide, yet its diagnosis, treatment, and outcomes vary significantly across global regions. This literature-based review synthesizes findings from over 50 peer-reviewed studies across six continents to examine how differences in diagnostic criteria, healthcare access, and treatment availability influence reproductive outcomes in PCOS patients. Infertility in PCOS is typically managed using ovulation-inducing medications such as letrozole, clomiphene citrate, and metformin, which are widely accessible and represent first line therapies in most healthcare systems. However, access to advanced assisted reproduction technologies, particularly in vitro fertilization (IVF), remains uneven. In regions without access to IVF, many women undergo repeated cycles of basic treatment with limited success, prolonging infertility. In contrast, regions with access to IVF demonstrate higher pregnancy rates, but PCOS patients undergoing IVF often exhibit increased ovarian sensitivity, resulting in elevated twin and multiple pregnancy rates ranging from approximately 20% to 30%. Multiple pregnancies are associated with higher risk of miscarriage, preterm birth, and maternal complications compared to singleton pregnancies. These findings demonstrate that reproductive outcomes in PCOS are shaped not only by biological factors, but also by disparities in diagnostic practices, treatment access, and healthcare infrastructure worldwide. They underscore the need to critically evaluate current treatment approaches, and epidemiological patterns, as understanding these global differences is essential for improving clinical decision-making, reducing preventable risks, and promoting safer and more equitable reproductive healthcare for women with PCOS worldwide.

Sponsored by: FURSCA

Livia Sprouse '26
Major: Social Studies (PK-3 & 3-6 Education)
Hometown: Albion, Michigan

Math Attitudes in Elementary Schools
Faculty Sponsors: Jill Mortimer, Lindsey Knowlden

This study examined how participation in the BrainCorps after-school mathematics program influenced elementary students' attitudes toward mathematics. Mathematics attitude surveys were administered to students at the beginning and end of the BrainCorps program. Pre- and post-survey responses were analyzed to identify changes in students' confidence, enjoyment, and overall disposition toward mathematics. The study was conducted in a Title 1 school district where access to supplemental mathematics enrichment varied across schools, creating inequities in learning opportunities. This variation highlighted the importance of understanding how structured after-school interventions could support students who may otherwise have limited exposure to engaging mathematical experiences. The findings clarified how targeted enrichment through BrainCorps influenced students' relationships with mathematics. By identifying patterns in attitude development and the elements associated with positive change, the study contributed insight into how educators can design meaningful, engaging mathematical activities.

Tia Sriprom '27
Major: Engineering, Physics
Hometown: Dallas, Texas

Towards the Safety of Autonomous Vehicles: Measuring Friction for Roadway Contaminants
Faculty Sponsor: Demian Cho

Accurate characterization of the coefficient of friction between tires and roadway surfaces is essential for ensuring vehicle safety. These friction values can vary dramatically depending on surface conditions and the presence of foreign materials. Additionally, deposited particles and surface films can modify the interaction between the tire tread and pavement texture. Typical coefficient of friction between a tire and pavement is approximately 0.9 on dry asphalt, 0.6 on wet asphalt, and as low as 0.05 on icy surfaces. Continuous evaluation of tire-road friction has enabled improved prediction of vehicle behavior under changing surface conditions. During sudden, or extreme maneuvers, reduced traction can result in loss of control and unexpected incidents – particularly in atypical or edge case roadway scenarios caused by environmental factors, human actions, automated systems, infrastructure conditions, or combinations of these influences. In this study, we measure the coefficient of friction between the tire and surface with various different contaminants. A cement-coated plywood ramp simulates an inclined road, and a tire fragment is released to mimic skidding over contaminants. Video footage is analyzed in Java-based software to calculate each contaminant's coefficient of friction. This study investigates how the coefficient of friction associated with various atypical roadway contaminants affect tire traction. By incorporating edge case scenarios and utilizing low-cost, accessible materials, the research also advances engineering education through experiential learning and model-based inquiry.

Sponsored by: American Physical Society, National Mentoring Community Grant, Summer Research at Kettering University

Melanie Symons '26
Major: Biochemistry
Hometown: St. Charles, Michigan

Characterization of the Light Induced Bioactivity of Three Novel BCR-ABL Inhibitors
Faculty Sponsor: Craig Streu

There are many variations of enzymes that are found everywhere in the field of science. Fortunately, the human body is full of enzymes that catalyze reactions which are essential for life. A specific type of enzyme, kinases, play a key role in cell signaling. Kinase mutations can lead to uncontrolled cell growth and division, due to the enzyme being overactive. Chronic myeloid leukemia (CML) is a blood cancer that affects the bone marrow where the white blood cells are produced. One major cause of CML is a translocation of two chromosomes, creating the Philadelphia chromosome. This chromosome creates an active BCR-ABL fusion kinase that is implicated in cell division. There have been multiple BCR-ABL kinase inhibitors developed over the years that have shown to stop the spread of chronic myeloid leukemia. Although they are effective, these drugs elicit major side effects during treatment. One of the main causes of these side effects are off-target interactions. It may, therefore, be possible to reduce unwanted side effects from cancer treatment by targeted activation of the drug with UV light. Herein, I report the biological analysis of the azologue form of three validated BCR-ABL inhibitors and their light-initiated activity on chronic myeloid leukemia cells.

Sponsored by: FURSCA

Kashish Tank '27
Major: Psychological Science (Neuroscience)
Hometown: Nairobi, Kenya

Mental Rotation and Divergent Thinking Predict Mathematical Convergent Creativity but Mental Rotation and Inattention Predict Beliefs About Math Competence
Faculty Sponsors: Andrea Francis, Mareike Wieth

Increased mental rotation abilities, attention, and divergent thinking have all been associated with increased mathematics performance. However, early math education often emphasizes convergent thinking by focusing on single-solution math problems. This emphasis may lead students to undervalue the importance of divergent creativity and overemphasize the importance of memorization and attention when solving math problems. This study compares the roles of mental rotation, inattention, and divergent thinking in predicting math convergent creativity, measured with a number sequence task, as well as participants' math self-efficacy and anxiety. Results indicate that while mental rotation and divergent creativity predict performance on the number sequence task, mental rotation and inattention predict math self-efficacy and math anxiety. These findings suggest that students overestimate the role of attention in math abilities and underestimate the importance of divergent thinking.

Sponsored by: FURSCA

Camila Tapia '26
Major: Economics
Hometown: Katy, Texas

Evaluating the Environmental Impact of Immigrants in the United States Using Geospatial Analytics
Faculty Sponsor: Joe Lee-Cullin

Amid growing political and social debate, claims that immigration contributes to environmental degradation have become increasingly prominent in media narratives and policy discussions. This project evaluates these claims by examining the relationship between immigrant population growth and key environmental indicators across the United States. Using tract-level demographic data from 2000-2010 and 2010-2020, I conducted statistical and geospatial analyses to visualize spatial patterns and evaluate potential relationships with high immigrant population growth and environmental degradation. Additionally, Mann-Whitney U tests were used to compare forest loss between high- and low-growth tracts, and Chi-square tests assessed differences in rural-to-urban land change. Results indicate no significant relationship between immigrant population growth and forest loss in either decade. Likewise, rural-to-urban land conversion did not increase in high-immigrant growth areas and was, in the later decade, more common in low-growth tracts. Overall, these findings challenge narratives that directly link immigration to environmental degradation.

Sponsored by: FURSCA, E&E Taylor Research Fund

Ethan Thomas '27
Majors: History, General Music
Hometown: Brighton, Michigan

How the Experiences of Civil War Prisoners Both Weakened and Reinforced Their Support for the War
Faculty Sponsor: Marcy Sacks

Soldiers' attitudes towards war are often a fickle thing, specifically ones who endured the unique conditions of the American Civil War. Many volunteered under the banner of pride for one's country while others felt it was more of an obligation. The strength of their convictions to their side's cause varied but they went nonetheless. While often lost in the monotonous retelling, all too common with history was their basic identity of being human. They endured horrible conditions such as battles and weather during their service time. However, for a specific group of soldiers, prisoners of war, the conditions they were subject to were unlike any other. Many of them would reflect on why they were fighting and whether it was worth it while for others it strengthened their resolve to continue what they viewed as the right thing. For some, the experience of being a prisoner of war and dealing with the conditions they were subjected to reinforced their support for their side's cause, while for others, being a prisoner led them to a weakened commitment to the war effort.

Cameron Thompson '26
Majors: Psychological Science, Philosophy
Hometown: Grosse Pointe Park, Michigan

Architects of Action: How Contemporary Agent-Causal Accounts Solve the Paradox of Free Will
Faculty Sponsor: Jeremy Kirby

The enduring philosophical debate of free will hinges on quite the metaphysical paradox: how can people be morally responsible for their actions if events are predetermined consequences of prior causal events? On the other hand, how can these actions be undetermined without lapsing into the void of random causation? Contemporary agent-causal theories provide a compelling and sound solution to this paradox by positing that events are caused by agents themselves, rather than their desires, beliefs, or prior causal events. According to agent causation, individuals, people themselves, are the true architects of cause. This paper endeavors to further advocate for contemporary agent-causal accounts through textual analysis and emphasize how these accounts provide a robust philosophical foundation for understanding cause in a deterministically complex world.

Enkhjin Tumurbaatar '28
Majors: Mathematics, Economics and Management
Hometown: Ulaanbaatar, Mongolia

Association Between Minimum Wage and Key Economic Variables Across US States
Faculty Sponsor: Azhar Uddin

This research examines the association between minimum wage and key economic variables across all 50 U.S. states. Minimum wage policy is widely debated because it aims to improve worker living standards while raising concerns about possible side effects such as job loss and rising prices. This study analyzes state-level data over multiple years to study the association between minimum wage and s and unemployment rate, inflation, income inequality, and housing prices.

Using publicly available government economic data, the study compares the association between minimum wage and other key economic variables across states and over time.The goal is to provide a clearer, evidence-based picture of how minimum wage adjustments interact with broader economic indicators.

Sponsored by: FURSCA

Catherine VanderWeg '26
Major: Biology
Hometown: Portage, Michigan

eccDNA in Vegetatively Growing T. thermophila
Faculty Sponsor: Marcella Cervantes

Extrachromosomal circular DNA (eccDNA) is a circular piece of DNA found in humans, separate from the 46 linear chromosomes. eccDNA is found to be associated with many diseases in humans, including cancer. In cancer, eccDNA plays a role in oncogenesis and development of tumors. How eccDNA is formed, maintained, and functions is unknown. A model organism, *Tetrahymena thermophila*, is used to research eccDNA, with the hopes of having applications to human cells. In *T. thermophila*, eccDNA is formed during mating type selection and functions in DNA repair. The eccDNA contains mating types that have left the genome. The goal of this project is to successfully isolate, amplify, and sequence the eccDNA, and test conditions that produce the most abundance of eccDNA. After some troubleshooting, the eccDNA was able to be successfully isolated in progeny cells. eccDNA containing mating types II, IV, and V were successfully isolated consistently and sequencing showed that the eccDNA functions in DNA repair. One condition tested was the media cells were grown in, which shows no difference in eccDNA abundance. As the project continues, more conditions will be tested, such as starvation, DNA damage, and a variety of strains to identify where the eccDNA is most abundant. Whole circles will be isolated by removal of all linear DNA and circles will be sequenced to see if there are any other types of circles present in the genome.

Sponsored by: Faculty Development Committee Grant

Madison Weedon '26
Major: Kinesiology
Hometown: Paw Paw, Michigan

Equine Kinesiology Taping: How Kinesiology Tape Impacts Tissue Protection, Circulation, and Pain in Performance Horses
Faculty Sponsor: Maggie Godfrey

Equine kinesiology taping has become a popular therapy in the management of performance horses, promoting tissue protection, improving circulation, and alleviating pain. While its benefits are often discussed in the context of injury prevention and rehabilitation, there is still a need for more research to understand the full effects. The focus of my research is to understand how kinesiology tape influences tissue integrity and supports injury prevention by stabilizing muscle groups and joints without restricting movement. This study combines firsthand observations at the Nancy Held Equestrian Center and review of existing literature to explore how kinesiology taping might influence tissue integrity and support equine health. This work aims to contribute to the growing body of evidence supporting kinesiology taping as a non-invasive, adjunctive treatment that follows traditional therapeutic strategies for maintaining equine health and performance.

Sponsored by: Lisa & James Wilson Institute for Medicine

Matthew Westra '26
Major: Kinesiology
Hometown: Grand Rapids, Michigan

The Prevalence of Muscular Asymmetries in Recreational Weightlifters and Athletes
Faculty Sponsors: Collin Garner, Heather Betz, Brad Rabquer

Participation in sports and weight training often involves routine engagement in repetitive movement patterns. Sport-specific movements have been observed to cause muscular asymmetries as athletes' musculature adapt to the demands of their sports and/or positions. Research has suggested the presence of these asymmetries, whether bilateral or intralimb, put athletes at greater risk of injury. Similarly, although the bench press and squat involve bilaterally symmetrical movement patterns, studies incorporating biomechanical and electromyographic measures have found that asymmetrical muscle activation and/or force production favoring weightlifters' dominant sides is common when performing these exercises. Furthermore, research has observed that male weightlifters' training volumes neglected stabilizing musculature, which may put them at risk of developing intralimb asymmetries. These findings indicate a potential for long-term engagement in weightlifting to carry comparable risks for developing imbalances and their accompanying increases in injury risk. We hypothesize that athletes will have more prevalent bilateral asymmetries, but that recreational weightlifters will have more prevalent intralimb asymmetries due to the differing natures of their activities. Thus, this study aims to determine whether asymmetries that have been associated with injury risk are present in weightlifters and athletes by investigating the prevalence and severity of muscular asymmetries in each population, their associations with sport/position, injury history, and implementation of unilateral exercises, and then comparing findings between these populations. This information can further elucidate the factors influencing muscular asymmetries and injury risk in each population and provide insights that are immediately applicable to exercise programming.

Paige Williamson '26
Major: Biology
Hometown: Caledonia, Michigan

Microbiological and Biochemical Experiences With TransPharm Preclinical Solutions
Faculty Sponsor: Ola Olapade, Craig Streu, Vicki Baker

Working alongside TransPharm, a research facility focusing on preclinical infectious disease research, my project was focused on testing antibiotic resistance in regards to UTI infections in mice. A series of microbiological techniques, in vitro assays and in vivo models, were used over the course of my time at TransPharm. I tested a group of antibiotics for resistance against Escherichia coli in order to identify a minimal curative dose. When the antibiotics were tested in vitro against *Escherichia coli*, colistin sulfate showed the lowest minimum inhibitory concentration of 1 µg/mL. Colistin sulfate was administered to four groups of mice where mouse groups 3 and 4 received 15 mg/kg and 30 mg/kg and both experienced 0% mortality. Further work included taking samples from the TransPharm facility, specifically their animal housing areas, in order to determine a safer and more cost efficient antifungal/antibacterial disinfectant in place of Peridox. Three of the bacterial isolates (33.3%) were identified as *Staphylococcus warneri* from SST, C and F respectively. One species each of *Staphylococcus epidermidis* (11.1%) and *Microbacterium testaceum* (11.1%) were isolated from the floor (F); while *Moraxella osloensis* (11.1%) from BB; *Curtobacterium allii* (11.1%) from F; *Staphylococcus capitis* (11.1%) from SST and an isolate from C turned out to be unresolved. Continued work includes further testing on various surfaces and with different disinfectants to determine their effectiveness.

Sponsored by: AC3, EPIIC

Andrew Woods '26
Major: Chemistry
Hometown: Bay City, Michigan

Synthesis of an Analogue of a Validated Bruton's Tyrosine Kinase Inhibitor
Faculty Sponsor: Craig Streu

Cancer is one of the leading causes of death in the United States. Chronic Lymphocytic Leukemia (CLL) is a contributor to these deaths, specifically in adults. Bruton's Tyrosine Kinase (BTK) is part of the dysfunctional signaling pathway that contributes to CLL. Blocking BTK activity using small molecule inhibitors (SMI) leads to cell death in CLL cells. However, these SMIs can induce side effects by shutting off BTK in healthy tissues. Inactivation of the SMI in non-carcinogenic cells could reduce these side effects. By introducing a photoswitch into the molecule, certain wavelengths of light can reversibly activate the SMI by inducing a conformational change in the molecule. This project introduces a novel way to inhibit BTK that may reduce side effects by combining the photoswitching properties of an azologue with a known BTK covalent inhibitor.

Sponsored by: FURSCA, Chemistry Summer Research Fund

Alex Zoschke '26
Major: Chemistry
Hometown: Watervliet, Michigan

Synthesis & Testing of a Novel Photoswitchable BCR-ABL Inhibitor That Targets Drug-Resistant Mutations
Faculty Sponsor: Craig Streu

Chronic Myeloid Leukemia (CML) is a cancer of the blood that affects thousands of individuals worldwide. Over the last twenty-five years, survival rates for CML have increased significantly. Much of this increase is due to the development of tyrosine kinase inhibitors (TKI's), which were initially introduced into the market in 2001. To this day, TKI's continue to be an effective treatment for oncologists, but over the years multiple iterations of these treatments have been created to counter the many drug-resistant mutations that leukemic cells develop after long periods of exposure to previous TKI treatment. Even though modern TKI's remain effective, they are also less selective, which can lead to undesirable side effects. A way to avoid these symptoms would be to incorporate a photoswitch into the drug design that can alter the drug's geometry reversibly. Due to protein-ligand binding being driven by molecular shape and intermolecular forces, the introduction of a photoswitch that changes the geometric shape of the drug would be advantageous. A known photoswitch that has this property is the azo group. Azo's have the unique ability to switch from its trans to cis isomers after exposure to specific wavelengths of light. This enables reversible activation and deactivation of these drugs by photoswitching between their trans and cis isomers. This presentation outlines the successful synthesis, computational modeling, and photokinetic testing of a novel photoswitchable BCR-ABL inhibitor.

Sponsored by: Alumni Research Fund

About the Symposium

Albion College's Student Research Symposium is now in its fourth decade. The first symposium, held on April 20, 1990, involved seven students making presentations describing their research projects in the sciences. Three years later, a poster session was added. The program has been offered annually since its founding and this year features the work of 127 students recommended by their faculty/staff mentors. Representing a broad array of disciplines, the symposium has become the College's principal showcase for outstanding student research, scholarship, and creative activity.

The Elkin R. Isaac Endowment

The Elkin R. Isaac Endowment was created in 1991 by Albion College alumni in honor of their former teacher, coach, and mentor, Elkin R. "Ike" Isaac, '48. Isaac taught at Albion from 1952 to 1975 and coached basketball, track, and cross country. He led his teams to one Michigan Intercollegiate Athletic Association basketball title, six consecutive league championships in track, and three cross country championships. He also served as the College's athletic director and created Albion's "Earn, Learn, and Play" program and the "Albion Adventure Program." In 1975, Isaac joined the faculty at University of the Pacific and became athletic director in 1979. He retired there in 1984. He passed away in August 2013.

Proceeds from the endowment are used to sponsor the Elkin R. Isaac Student Research Symposium.

The Elkin R. Isaac Endowment Committee

Cedric W. Dempsey '54 (deceased)
Thomas G. Schwaderer '56
Leonard F. "Fritz" Shurmur '54 (deceased)
John R. Taylor '55 (deceased)

The 2026 Isaac Student Research Symposium Committee

Craig Bieler (Chemistry)
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Vanessa McCaffrey (Office of the Provost)
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Elizabeth Palmer, '10 (Library, Director of FURSCA)

Foundation for Undergraduate Research, Scholarship, and Creative Activity (FURSCA)

The Foundation for Undergraduate Research, Scholarship, and Creative Activity (FURSCA) was established to promote and support student research, original scholarship, and creative efforts in all disciplines. Through a number of programs taking place at all points in a student's career at Albion, FURSCA can help students pursue independent study in their areas of interest. Students work closely with a faculty mentor to develop and carry out research or scholarly creative projects. Participation in such projects provides valuable experience beyond the scope of classroom work, and enhances a student's preparedness for future employment or graduate studies. Some examples of FURSCA programs are listed below.

Research Grants—Students may apply for funds to support research or other creative projects. Students must work closely with a faculty advisor; however, projects are not limited to any particular discipline. Grants may be awarded to pay for supplies, printing costs, subject payments, software, or other costs associated with completion of the project.

Summer Research Fellowship Program—A select number of students may remain on campus during the summer to work on research or creative projects while earning a stipend. In addition to working closely with a faculty advisor, students participate in weekly seminars with other students in the program.

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