Scholars at the Capitol 2024

February 22, 2024
9:30 a.m. - 11:30 a.m.
Minnesota State Capitol Rotunda

MINNESOTA PRIVATE COLLEGES
Recognizing Undergraduate Research

Minnesota Private Colleges’ 2024 Scholars at the Capitol celebrates the scholarship of 27 students and the efforts of their research advisors. The breadth of the subject matter presented during Scholars at the Capitol represents the wide range of student learning that occurs every day at Minnesota Private Colleges.

Undergraduate research provides opportunities for students to explore the kinds of projects they will pursue later in their educational paths and careers.

Cover Illustration: Sara Ann Richardson
This abstract booklet is organized alphabetically by institution.
Effectuating the P3 Brain Response with Passive Counting Task

The P3 event-related potential (P3-ERP) is a well-known brain index that is reliably observed when participants respond to task-relevant stimuli presented infrequently (i.e., rare targets) compared to stimuli presented frequently (i.e., frequent nontargets). Most visual P3 studies use two-stimuli designs (i.e., targets vs. nontargets) requiring active motor responses (e.g., button presses). Although important, such designs may lack relevance to the myriad of stimuli presented in the complex, socially-rich settings that our brains typically encounter. Furthermore, the requirement of motor responses may limit its use in certain clinical populations where such responses are not possible. In our study, we incorporated a passive P3 paradigm requiring the counting of butterfly images that were embedded infrequently among facial images that differed along multiple dimensions: e.g., gender, race and age. Overall, the results of this study provided insight into the brain’s ability to recognize stimuli that are deemed task-relevant while also processing socially-relevant stimuli such as faces.

Keywords: Event-related potential, visual evoked potential, P3/P300
The Polygraph’s Impact on False Memories

Law enforcement use polygraphs (a.k.a., “lie detectors”) as an interrogation tactic to get the “truth” out of a suspect and determine if they committed a crime. However, this technique is known to have a highly coercive influence and may lead suspects to falsely confess to crimes they did not commit when facing polygraphic results indicating their responsibility. In a comprehensive review of known false confessions documented by the National Registry of Exonerations, we investigated the role of polygraph in inducing false confessions in 56 real-world cases of individuals who were convicted of crimes they did not commit. We focused on the possibility that inaccurate polygraph results can lead suspects to produce Persuaded False Confessions, in which suspects doubt the accuracy of their own memory when faced with supposedly scientific proof of their culpability. These results suggest that polygraphic interrogation can contribute to false confessions and may also lay the foundation for false memories in innocent suspects.

Keywords: False confession, polygraph, interrogation
The high abundance of Rhamnus cathartica in deciduous forest ecosystems contributes to the decline in regional biodiversity and goat grazing has been growing in popularity as a means of managing its spread. This research investigated the ratio of carbon to nitrogen in the invasive species, R. cathartica, before and after two sessions of goat grazing to determine if herbivory attack induces nutrient reallocation to metabolic pathways. Our results demonstrate R. cathartica responds to the first session of goat grazing by investing N in the photosynthetic pathway. This reinvestment in N early in the growing season, looks to deplete the plant of resources so that it is unable to effectively respond to another session of herbivory attack late in the growing season. The lower Chl levels at the end of the growing season suggest that successive grazing is anticipated to reduce R. cathartica’s phenological advantage over native species.

Keywords: Eastern buckthorn, goat grazing, Rhamnus cathartica, C:N ratio
Modeling Groundwater Contamination in Karst Aquifers

The goal of this project is to improve our ability to simulate how groundwater and contaminants move through karst landscapes, using numerical modeling. Karst landscapes occur where limestone bedrock has been fractured and dissolved, creating features like sinkholes and caves. Water moves rapidly through these landscapes, creating a high contamination risk for drinking water wells. Models are widely used in other aquifers to design well protection strategies but not in karst. However, recent advances are opening the possibility that karst systems could be simulated well enough to provide useful management insights. For this project, we worked on developing open-source, well-documented and reproducible code linking existing but currently disconnected model components, with an emphasis on creating training materials for future students. The tools developed will then be used to investigate three major anthropogenic contaminants: nitrate in agricultural settings, chloride in urban settings and heat in the context of geothermal wellfields.

Keywords: Groundwater, drinking water, karst, aquifers, numerical modeling, contamination
Reimagining Education: Interrogating the School-to-confinement Pathway Through Black Feminist Thought

The school-to-confinement pathway sheds light on the intricate interplay of racial, gender and socioeconomic disparities that converge to marginalize Black girls in their educational settings. Advocates for equitable education often attribute the disproportionate mistreatment of Black girls in schools to the exploitation and criminalization of Black femininity. This mistreatment commonly materializes in various forms of confinement, such as detention centers, out-of-school suspensions and electronic monitoring. While research indicates that patterns of exclusionary discipline yield similar outcomes for Black girls and boys, a closer examination through narrative-based research paints a more nuanced picture. To elucidate the diverse experiences encountered by Black girls within the realms of education and incarceration, I employ a Black feminist framework for interviews with students, educators, non-profit workers and policymakers. Insights from 20 interviews, participant observations and content analysis reveal a growing adoption of Black feminist principles in disrupting the school-to-confinement pathway. This involves prioritizing intersectionality, critically evaluating traditional pedagogical practices and advocating for liberating learning environments.

Keywords: School-to-prison nexus, black feminism, black girls
Our research team sought to investigate the geography of our schools and how it contributes to students’ feelings of safety on our campuses. Saint Ben’s and Saint John’s have a unique layout in that our campuses are separated by both gender and geography. Existing research has illustrated the importance of understanding the link between the spaces that people move through and sexual violence on college campuses. To investigate the implications of these concepts, we hosted seven focus groups consisting of 40 students from both Saint Ben’s and Saint John’s. We asked about their experiences on our campuses and how geography and gender have shaped them. We were able to articulate students’ feelings of safety through three themes: campus culture and environment, security and enforcement, and geography and transportation. These findings shed light on why and how students move through certain spaces on our campuses and how this directly affects both their physical safety, as well as their feelings of security.

Keywords: Sexual violence, safety on college campuses, rape culture, gender issues, sexual and physical geography
The Association Between Student-Mentor Relationships and College Students’ Motivation and Academic Success

A key component of academic success for college students is motivation. Research suggests that different aspects of college students’ lives can influence how motivated they are. One influence on students’ motivation is interpersonal relationships, specifically relationships with a mentor figure. Meaningful interactions with formal mentors have been shown to increase students’ academic motivation. Studies conducted on the mentoring of college students have found that having a mentor is associated with career benefits; however, there is little knowledge about the association between formal mentoring and the specific type of motivation college students experience because of this relationship. Additionally, there is little research indicating how students’ academic performance is associated with the presence of a mentor relationship. This study looks at aspects of student-mentor relationships, what motivates students to attend college, as well as a students’ academic performance, to see the association between student-mentor relationships and students’ motivation to attend college, along with overall academic performance.

Keywords: Motivation, college students, academic success, mentorship
Contaminants of Emerging Concern in Northeastern Minnesota Surface Waters

Recently, scientists have found small anthropogenically-sourced organic molecules in surface water. These molecules have unknown but potentially negative effects on aquatic and human health. Thus, we argue data regarding the presence and quantity of contaminants of emerging concern (CEC) should be widely available and easily collectible to empower local stakeholders in forming public policy. Currently, the discovery and quantification of these molecules in surface water is only possible through costly mass spectrometry analyses that are unavailable to the general public. This study is part of a larger project to design a low-cost platform for the quantification of CEC. Specifically, this study looks to design molecular aptamer beacons to be used in the specific detection of CEC found in surface waters of Northeast Minnesota. Our molecular aptamer beacons are DNA-based sensors that light up in the presence of a particular CEC, enabling anyone with a smartphone to analyze their water.

Keywords: Water, contaminants, chemistry, policy
Cross-race Friendships Among Black College Students

Many scholars have conveyed the importance of studying and understanding adolescents’ identity exploration and construction (Erikson et al., 1968). Friendships matter throughout all stages of life; those with friends generally do better than those without them (Hartup & Stevens, 1999). By early adolescence, friendships take on a larger role because of the importance of peers for individual well-being and development (Brechwald & Prinstein, 2011). Prior peer-relation research had progressed without much attention to race and ethnicity but with schools becoming more racially and ethnically diverse, research has started looking into the functions and psychosocial benefits of cross-race friendships (Graham et al., 2014). This study aims to expand upon the increasing knowledge on cross-race friendships and how racial socialization in the classroom, among parents and with peers relates to Black students’ racial identity development.

Keywords: Education, race, social psychology
Critical Race Theory (CRT) has been widely debated in the United States in recent history. In our study, we sought to investigate the efficacy of educating undergraduate students about CRT, specifically structural racism and intersectionality. We hypothesized that CRT education would significantly predict social justice-related beliefs and attitudes in students. Our sample consisted of a group of students who received classroom CRT instruction and a comparison group of students who did not receive CRT instruction at all. Between-group comparisons indicated that, despite both groups reporting similar levels of ethnocultural empathy, understanding of intersectionality, threat perceptions, belief in a just world, symbolic racism, attitudes and perceived behavioral control related to social justice, and intention to volunteer in organizations serving underrepresented groups, there were significant differences between the two groups on all of these measures at the end of the semester. Our findings suggest that CRT education is a significant predictor of higher levels of ethnocultural empathy and social justice behaviors, with additional findings.

Keywords: Critical Race Theory, social justice, empathy, structural racism, intersectionality, education
A team of over 120 students have been studying the Gram positive bacterium, Staphylococcus aureus, isolated from willing participants over the last seven years. Over 1,800 participants have been asked to complete a short survey and give a nasal swab. The swab is then deidentified and put through a series of culture tests including Gram staining, growth on blood agar and mannitol salt agar, and catalase, DNase, and coagulase enzymatic assays to look for the presence of S. aureus. Current carriage rates are around 25 percent, just slightly lower than the general observed rate of 30 percent. All S. aureus isolates undergo further characterization for methicillin resistance (MRSA) via Kirby-Bauer assay. Presence of virulence factors, including cytolysins and superantigens, are characterized through PCR and whole genome sequencing, in partnership with the Minnesota Department of Health.

Keywords: Bacteria, Staphylococcus aureus, virulence
Makenna Berger, Ryan Lee & Rachel Novak
Concordia University, St. Paul, Project Discipline: Science
Faculty Advisor: Dr. Mong-Lin Yang Ph.D.

Novel THP Ex Ovo Vessel as a Toxicology Testing Platform

The chorioallantoic membrane (CAM) is a highly vascularized system that can be used for tissue engineering, tumor grafts and toxicology testing. Culturing chick embryos ex ovo streamlines CAM access, yet prevailing inconsistencies in methods exist. Our investigation reveals that higher relative humidity (RH) and an egg-shaped culturing vessel (CV) significantly boost embryonic viability. In addition, we prove our novel THP ex ovo vessel to be a stable platform that ensures consistent, high embryonic viability for CAM manipulation. Last, our study developed methods for daily solvent application to the CAM without compromising embryonic viability, establishing a reliable approach for utilizing this novel vessel as a toxicology testing platform. This innovation presents potential public health advantages by providing a cost-effective, high-throughput tool for toxicology screenings.

Keywords: Chorioallantoic membrane, CAM, chicken embryo, ex ovo, relative humidity, culturing vessel, culturing methods, embryonic viability, THP
Sophia Smith
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Faculty Advisor: Dr. Darsa Donelan, Ph.D.

Installation of a Campus Radio Antenna Array for Radio Astronomy: Enhancing Exomoon Exploration Through Teamwork

This presentation highlights two narratives: both the captivating realm of celestial signals and the collaborative effort involved in establishing a sturdy radio antenna array on our college campus. Motivated by the curiosity to study cosmic mysteries and distant exomoons using radio signals, our goal took shape through a collaborative effort. This synergy played a crucial role in translating our scientific vision into reality. Beyond the basic mechanics, this endeavor accentuates the essential overlap between theoretical principles and practical execution. It represents the potential of interdisciplinary cooperation in expanding innovation knowledge boundaries. As the antenna array reaches skyward, it symbolizes not only our journey to unravel cosmic mysteries but also the unified spirit of our campus community. This presentation encapsulates the profound impact of teamwork, shaping the realm of radio astronomy and advancing exomoon exploration into a promising frontier.

Keywords: Physics, teamwork, radio astronomy, interdisciplinary, Jupiter, exomoon
Human vs. Animal Bone: Less-destructive Identification Using Scanning Electron Microscope and Artificial Intelligence

In the medico-legal field of forensic anthropology, correctly determining whether a bone came from a human or an animal is a vital step. Current best practices to differentiate human from animal on non-morphologically distinct bone fragments are destructive, requiring cross-sections or for the bone to be ground into powder. In an effort to create a less destructive procedure for bone fragment differentiation, I have been developing a method of bone cell analysis that utilizes a scanning electron microscope (SEM) to take images of the bone cell structures. However, manual classification of these images proves challenging to replicate or regulate. In response, this research also utilizes a machine learning algorithm to do this image classification based on observable characteristics in these SEM images. Preliminary results show up to an 88 percent accuracy rate for differentiation. This program, once fully developed, can open the door to a faster, easier and more ethically conscious way of human vs animal bone fragment differentiation.

Keywords: Biological anthropology, osteology, AI/machine learning, histomorphology
We create estimates of state-specific felony disenfranchisement broken down by gender using state-level data on correctional populations (prison, felony probation, parole, felony jail) alongside demographic life tables tailored to each post-sentence state’s disenfranchisement law. Improving upon previous scholarship, we account for gender variance in recidivism and mortality rates. Aligning with gendered state punishment patterns, we find that male disenfranchisement rates are higher in every state as compared to female rates of disenfranchisement. However, the portion of women disenfranchised post-sentence compared with all disenfranchised women is significantly higher than the corresponding male proportions. We attribute this difference to the longer life spans and generally lower reconviction rates of women; women reach post-sentence status sooner, leave it less often through reconviction and live longer than men. Further, states with the greatest discrepancy between male and female disenfranchisement rates only disenfranchise those currently in prison or jail, indicative of greater gender disparities in incarceration rates as compared to probation and parole rates.

Keywords: Crime, punishment, gender, policy, voting, elections, democracy
Cooperation can be observed across species and is shown to be a critical part of functioning social groups. Mice are social creatures, yet there is little evidence that they can work cooperatively. To study this, we designed an experiment using Feeding Experimentation Devices (FEDs) that trained mice to make concurrent operant responses to earn a food reward. We then examined whether oxytocin, a hormone linked to prosocial behavior, would modulate cooperative behavior and reward sharing. We found that mouse cooperative behaviors vary by biological sex and may be altered by intranasal oxytocin. Because dopamine signaling mediates reward behaviors, we sought to build a fiber photometry system for simultaneous dopamine monitoring during the cooperation task. Mice were stereotaxically injected with an AAV encoding the dLight1.3b dopamine sensor into the nucleus accumbens brain region. We have confirmed dopamine monitoring in freely behaving mice and are currently examining dopamine signaling in the cooperation task.

Keywords: Oxytocin, dopamine, cooperative behavior, fiber photometry
The Public’s Perception of Public Transit: A Case Study of Voter Referendums in Austin, Texas

Public transit has numerous benefits such as promoting economic development, increasing access to jobs, reducing traffic congestion and improving air quality. Yet, U.S. cities systematically underinvest in public transit. Existing research explains this phenomenon through urban planning and automobile infrastructure, yet little research has explored the effect of public perceptions of public transit on a city’s investment into it. Pulling from research on opposition to local housing developments, I theorize that U.S. cities underinvest in public transit because local interest groups see it as an addition to the welfare system. To test this, I conduct a case study of Austin, Texas, a city with a long history of placing referendums to fund public transit on the ballot. Focusing on a failed citywide vote in 2014 and an approved one in 2020, I triangulate primary and secondary sources to understand how changes in public perception among city residents led to a successful vote for large-scale investments into public transit in 2020.

Keywords: Public transit, voter referendum, investments
Social Media Overuse and Addiction: Development and Harmful Outcomes in Undergraduate College Students

This study explores the impact of social media addiction on college students, as well as how social media addiction can occur. The goal is to address the negative impact of social media, how addictive behaviors can be developed in this population and its implications for mental health. We expect to find those students who use social media for entertainment, coping and self-enhancement to be the most likely to develop higher scores of social media addiction. We also expect to find higher social media addiction scores to be significantly associated with lower self-reported sleep quality scores, lower self-efficacy scores and lower scores of overall mental well-being. To collect data, a survey containing validated measures of each of these variables was sent to recruited and consented undergraduate students of a small, Midwestern, private institution. As a key outcome, this study also looks to identify how social media addiction can be harmful to mental health across a variety of different college student demographics.

Keywords: Social networking sites (SNS), Social media addiction (SMA), motivation, perceived sleep quality, self-efficacy, overall mental well-being
VEGF and NRP-1 Neural Expression in CD-1 Mice Exposed in utero to Atrazine

Atrazine is a herbicide used for removal of weeds that has been found in water supplies with quantities higher than the U.S. EPA limit of 3 ppb. Among the known effects of atrazine include disruption to circadian rhythm. Circadian rhythm is known to control the expression of vascular endothelial growth factor (VEGF) and Neuropilin-1 (NRP-1), which are responsible for angiogenesis during embryonic development. Since defective or excessive growth of vasculature during development have been shown to impact neural function, understanding the effects of atrazine on VEGF and NRP-1 protein expressions is crucial. Utilizing an ELISA assay, the effect of in utero atrazine exposure at 0 ppb, 3 ppb, and 30 ppb on circadian rhythm expression of the neural proteins VEGF and NRP-1 were investigated.

Keywords: Atrazine, VEGF, NRP-1, circadian rhythm, angiogenesis
Understanding the Effects of Accessible Medically-tailored Food Boxes Containing Fruit and Vegetables on Cardiometabolic Markers in Immigrant Hispanic/Latine Individuals with Hypertension

The DASH diet recommends 8-10 servings of fruits and vegetables (F&V) to lower blood pressure. This project aims to measure the effect of improved access to culturally-appropriate F&V on cardiometabolic markers in Hispanic/Latine individuals with hypertension. Twenty patients received weekly food boxes containing 8-10 daily servings of F&V for 28 days. Pre- and post- measurements of blood pressure (BP), weight, waist circumference and skin carotenoid levels were collected. T-tests determined significance at p<0.05. Improved mean differences in systolic BP (3.4±7.3 mmHg; p<0.05), diastolic BP (3.0±5.6 mmHg; p<0.01) and waist circumference (-0.8±1.0 inches; p<0.01) were found. Weight (-1.5±4.6 lbs) and skin carotenoids (25.2±75.7) changed, however, results were not significant. Improved access to culturally-appropriate DASH diet interventions including F&V for hypertension supported significant changes in systolic BP, diastolic BP and waist circumference in the Hispanic/Latine community.

Keywords: DASH interventions, culturally-appropriate, food as medicine, Hispanic/Latine, Hypertension management
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Faculty Advisor: Dr. Kristine West, Ph.D.

Out and About: Impacts of Marriage Equality on Same-sex Couples

In 2015 the Obergefell v. Hodges ruling by the U.S. Supreme Court determined that same-sex marriage was guaranteed under the U.S. Constitution. This federal-level legalization of same-sex marriage heralds significant cultural shifts in the tolerance of Queer Americans and spurred many LGBTQ+ couples to transition from cohabitation to marriage. Prior to 2015, same-sex marriage was only legal in some states (starting with Massachusetts in 2003). Using data from the 2003-2021 American Time Use Survey (ATUS) we explore the impact of marriage equality laws at state and federal levels on couples’ time allocation. Using difference-in-differences methodology, we compare same-sex to opposite-sex couples allowing us to control for contemporaneous changes in time use unrelated to the marriage equality laws. We find that after Obergefell, same-sex couples were 9 percent more likely to spend time in public together. This is driven by changes amongst parents suggesting that the law may have had a particularly strong impact on families.

Keywords: LGBTQ+ Policy, LGBTQ+ Family Policy, Queer Economics, Intersectional Economics, Policy Evaluation
Chemical Analysis of Placental Encapsulations

The consumption of placental encapsulations has grown in popularity among new mothers. We analyzed eight placentas to assess the potential health effects of consuming concentrated placenta powder and to gauge the impact of COVID-19 history on placental composition. Placentas were analyzed for zinc, manganese, calcium, iron, copper and cadmium using ICP-OES. Hormones were extracted using the QuEChERS method. The concentrations of 17-hydroxyprogesterone, cortisone, estriol, estrone, progesterone, aldosterone, allopregnanolone, corticosterone, estradiol, oxytocin and testosterone were determined using LC-MS/MS. While the majority of elemental and hormonal concentrations were found to be negligible to human health, the majority of the placenta samples studied could cause a woman of average body weight to exceed the weekly tolerable intake of cadmium, assuming a common dosage of 6 capsules per day. This raises concerns of potential organ damage and cancer risk. We found no clear trend in elemental mass based on the history of COVID-19. Additional medical factors should be explored in future research.

Keywords: Placenta, analytical, human health, minerals, hormones
Physical Medicine and Rehabilitation: A Holistic Approach to Functional Recovery

This project utilizes a case study to give an overview of physical medicine and rehabilitation (PM&R). PM&R is a distinctive specialty that employs a collaborative and whole-patient approach to rehabilitate patients from a variety of disabling conditions. This case study showcases PM&R's unique approach to healthcare through collaboration of physicians and specialists. Ultimately, PM&R optimizes patient rehabilitation by examining patients' physical health, mental health and social determinants of health.

Keywords: Physical medicine and rehabilitation, rehabilitation, social determinants of health, physical health, mental health, disability
Love Your Oppression: Aldous Huxley and the Development of Metatopia

Metatopia is the concept of a dystopian or utopian world as it relates directly to the current world in which we live. It is an essential part of understanding the development of the dystopian genre and is a part of why dystopias are both so relatable and terrifying. They relate directly to the political, social and economic concerns of their authors and readers as well as helping us answer some deeper questions about the meaning and purpose of life. Aldous Huxley was a premiere author in the genre during the 20th century and studying his work can help us understand his fears about the future of Western Culture. I study his work from a New Historicist perspective to understand how his 20th-century British understanding of the world order relates to his literature and philosophy, as well as how we can use his ideas to avoid our own “World State.”

Keywords: History, dystopia, literature, Aldous Huxley, philosophy
The Need to Phase Out Fossil Fuels and Other Climate Change Solutions Based on Attendance of COP28

We traveled to Dubai, UAE to attend COP28 as official UN Observers. We will share an overview of the COP process and our thoughts on what policies and decisions were made by party members. It is apparent that in order to meet the 1.5 degree C threshold of warming there is urgency to phase out fossil fuels. This poster will share how that phase out will help meet this goal, the challenges for implementing this on a global scale and the other major climate change actions that will be necessary to meet the Paris Agreement pledges.

Keywords: Climate change, social justice, fossil fuels, environmental science, global policy, international cooperation
Light pollution, the effect of human-made light that escapes into unintended areas, is a common problem for astronomers who want to take data and images of distance and dim objects. One way to learn about the light pollution experienced at the University of St. Thomas is to analyze the composition of light using spectroscopy. Spectroscopy plots the intensity of light versus the wavelength to be able to distinguish what specific colors a light source is composed of. Using an 8-inch telescope along with an advanced, high-resolution spectrometer allowed us to see what a spectrum of the night-sky light pollution is on the St. Paul campus. After analyzing the data, we found that there was not a significant range of wavelengths that stood out significantly above the background noise. Our conclusion is therefore that spectroscopy is a viable good way to investigate astronomical objects while being surrounded by our campus light pollution.
Helen Moylan

University of St. Thomas, Project Discipline: Biology
Faculty Advisor: Dr. Jennifer Illig, Ph.D.

Toxicity Assessment of Oil Spill Affected Groundwater: Direct In Vitro Assessment and ToxCast-based Exposure-activity Ratios (EARs)

In 1979, a crude oil pipeline ruptured just outside of Bemidji, Minnesota. This rupture released almost 11,000 barrels of crude oil, partially into groundwater, creating a hydrocarbon plume. In 2018, water samples were collected from the hydrocarbon plume. Samples were assessed for interaction with human nuclear receptors (hNRs) and g-protein coupled receptors (GPCRs) using Attagene’s FACTORIAL™ platform. These assays indicated upregulation of several transcription factor (TF), NR and GPCR pathways. Upregulation levels were observed in samples taken at the start of the hydrocarbon plume. No or minor upregulation of these targets was observed in upgradient background wells. These results expand our understanding of molecular targets of oil-spill derived chemicals and favor the use of high-throughput data to assess effectiveness of remediation practices. Toxicity data from the CompTox Dashboard (https://comptox.epa.gov/dashboard/) will be evaluated using the ToxEval package to calculate exposure-activity ratios (EARs). This process will allow for prioritization of both affected molecular targets and chemical actors in this system.

Keywords: Crude oil pipeline rupture, hydrocarbon plume, environmental health
Thank you to everyone who supported scholars’ research projects and a special thanks to the Augsburg University team for their support of the Scholars at the Capitol event.

The Minnesota Private College Council represents 18 private nonprofit higher education institutions in Minnesota. The Council’s mission is to serve members’ shared needs and advocate for public policy that:

- **Meets the educational needs of students.**
- **Enhances private higher education.**
- **Strengthens Minnesota’s economic and civic fabric.**
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