



curca

**Center for Undergraduate
Research & Creative Activity**

FALL CELEBRATION

DECEMBER 13, 2024

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SCHEDULE

12:00-1:00 p.m.	Registrations and Poster Setup	Dower Lobby
1:00-1:30 p.m.	<p>Opening Ceremony</p> <p>Welcome Remarks- President Linda Thompson Welcome Remarks- Provost and Vice President William Salka Introduction to Student Keynote Poets- Dr. Leah Nielsen (English)</p> <p>Keynote Poet Tom Parent reading “Full Moon”</p> <p>This piece, Full Moon, is about his parents' failure to reconcile their differences in personality and tribulations after more than a decade after divorce. His mother's alcoholism and his father's steadfast attitude in unforgiveness are given a metaphorical meaning by comparing them to a werewolf's curse and how it affects a werewolf's personal life and family.</p> <p>Keynote Poet Courtney Berthiaume reading “Virtues from a Fragile Mind”</p> <p>In his autobiography, Benjamin Franklin recounts his pursuit of perfection. He drafted his 13 virtues as a sort of code to live by, with the intention of mastering each of these to become a perfect person. These virtues consisted of things like moderation, cleanliness, and justice, which represented the qualities he considered to be most valuable and worthy of perfecting. Through his endeavors, Franklin discovered the challenges of reaching perfection, coming to realize how unattainable that standard is. So, when Professor Filas gave us the assignment to write a forgery with our own 13 virtues, I took Franklin's realization to mean that perfection is a sort of social construct, and instead framed my virtues around healing and personal growth. Unlike Franklin, the goals I have for myself function on a much smaller, and ideally more attainable scale, but still represent the qualities I need to remind myself of. These are my 13 virtues.</p>	Dower 127
11:45-2:00 p.m.	Pizza Lunch	Dower 190

<p>1:45-3:45 p.m.</p>	<p>Oral Presentations</p> <p>1:45-1:57 Jamey Gusmano '25 Faculty Sponsors: Professors Tim Parshall and Lauren DiCarlo <i>Sustainable Landscape Restoration at Horace Mann Center</i></p> <p>2:00-2:12 Emma Kirkpatrick '24, Katrina Magoon '24 Faculty Sponsor: Professor Tim Parshall <i>Investigating the Effectiveness of Oil-Eating bacteria on Various Hydrocarbon-Based Vehicle Fluids</i></p> <p>2:15-2:27 Sophia Milko '25, Lindsey Dion '25 Faculty Sponsor: Professor Tim Parshall <i>An Analysis of Domestic Goats (Capra Hircus) as a Method of Invasive Plant Removal on the Westfield State University Campus</i></p> <p>2:30-2:42 Tyler Nagi '25, Sarah Hadlock '25 Faculty Sponsor: Professor Tim Parshall <i>How Urbanization/Suburbanization and Residential Development Impacts the Spread of Invasive Plant Species Near Wetlands</i></p> <p>2:45-2:57 Emma Brault '25, Zachary Dickinson '25 Faculty Sponsor: Professor Tim Parshall <i>Surveying Beaver Distribution and Activity at Bear Hole Reservoir</i></p> <p>3:00-3:12 Elizabeth Blais-Bennett '25 Faculty Sponsor: Professor Sonya Lawson <i>The Underdog of Romantic Music: Exploring the Romantic Clarinet</i></p>	<p>Dower 120</p>
<p>1:45-4:00 p.m.</p>	<p>Poster Presentations/Wall of Words</p> <p><u>1:45-2:45 ODD NUMBER posters</u> ENGL 243 "Writing Poetry" class ENGL 335 001 "Lyric Essay" class Professor Champoux class (HCC)</p> <p><u>3:00-4:00 EVEN NUMBER posters</u> ENGL 130 001 "Creative Writing" class ENGL 130 002 "Creative Writing" class</p> <p>First Year Journey The Westfield State Journey includes two areas: First Year Journey: Academic Inquiry and Wellbeing: Caring for the Holistic Self. In each of these areas, students select courses that match their interests. This area also includes a University Wide Requirement completed within the major. Through these courses students develop a foundation for academic, social, educational and personal success. Students acquire the skills and knowledge necessary to navigate academic inquiry and grow as healthy, self-aware, creative, curious and confident individuals. These courses include self-reflective practices as well as how to practice learning alongside an engaged community of learners.</p>	<p>Dower 134</p>
<p>2:30-3:30 p.m.</p>	<p>Persona Open Mic Join students and faculty for an open mic/poetry reading!</p>	<p>Dower 127</p>

OFFICE OF THE PRESIDENT

December 13, 2024

Dear Campus Community:

I am honored to support the wonderful work of the Center for Undergraduate Research and Creative Activity (CURCA) Committee for another year in celebrating learning and scholarship.

Showcasing the research projects of our faculty and students is a vital part of how we communicate and engage with our community. Our faculty consists of the brightest and most innovative individuals in higher education, and our students consistently rise to the challenges presented to them.

As well-reasoned, intelligent, and purposeful citizens, Westfield State University graduates are known for their contributions to businesses, government, education, nonprofits, and the social fabric of our communities. The CURCA presentation shows those who support our mission that our students' efforts yield relevant and purposeful research that benefits the whole of society.

As we continue to design programs that complement the future of education, CURCA builds momentum that will result in better health, wellness, and intellect of our region and beyond.

Congratulations to our presenters and best wishes to attendees as you explore this scholarly display.

Warmly,



Dr. Linda Thompson
President

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AN EDUCATION LEADER AND INNOVATOR SINCE 1839

OFFICE OF THE PROVOST

December 13, 2024

Dear Campus Community:

It is an honor and a privilege to acknowledge the fall celebration of the Center for Undergraduate Research and Creative Activity (CURCA). I commend Westfield State University undergraduate students and faculty members for engaging in this important tradition, presenting their work in the areas of research and creative activity.

At this event each semester, WSU students showcase their intellect and scholarship, putting the classroom knowledge they have gained to the test through research and creative avenues, both on campus and in experiential learning and internships. This critical involvement propels students to pursue advanced degrees and challenging careers.

The University's CURCA initiative takes the satisfaction and rewards of thoughtful analysis and creativity to a higher level, serving to advance educational attainment and as a springboard to new ideas. Congratulations to all of our students and faculty presenters and best wishes to attendees as you explore this wonderful scholarly display.

Sincerely,



William M. Salka
Provost

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PRESENTATIONS

PRESENTER(S) (by Department)

Poster
#

ART

Nicole Knoth '25, Kathleen Vezina-Morales '25, Destiny Beal '25, Riley Lowe '25, Christina Mathers '25, Jenna Pezanetti '25 50
Faculty Sponsor: Professor George Ramirez
Cafe Owned By, Branding Research Project

Ryan Adams-Lopez '25, Nicholas Bacopoulos '25, Aida Lema Portes '25, Robert Whyte '25, Brianna Bushey '25 48
Faculty Sponsor: Professor George Ramirez
Cafe Owned By, Branding Research Project

BIOLOGY

Tyler Gouvan '25, Victoria Kent '25, Travon Patterson '26 3
Faculty Sponsor: Professor David Christensen
Aquatic Macroinvertebrates as an Indicator of Health in Natural and Dam-Regulated Cold-Water Streams

Macroinvertebrates can be used to assess the health of an aquatic ecosystem, especially those belonging to three specific orders known as the EPT taxa— Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies). These groups in particular provide valuable insight into overall stream health, as the species in them are considered to be indicators of healthy cold-water ecosystems. We used EPT data to compare the health of a highly regulated and anthropogenically influenced stream, Little River, and a natural free-flowing stream, Sanderson Brook. These critical differences between the two affect numerous stream elements like water discharge, substrate, allochthonous inputs, canopy cover and algal growth; all of which can immensely influence the abundance of macroinvertebrates we encounter. We found greater stream discharge, more direct sunlight and larger substrate in the Little River, but more algal growth, allochthonous inputs, and heterogeneity in Sanderson Brook. While the average number of macroinvertebrates belonging to the EPT taxa was not statistically significant between the two streams, it maintains anecdotal relevance that speaks to the broader image we can paint of stream productivity and health.

Spencer Edwards '26, Nieshalie Gutierrez '25, Katherine Kane, '25, Melissa Souza '25 7
Faculty Sponsor: Professor Robin White
Therapeutic Hypothermia Treatment for Traumatic Brain Injuries

Traumatic brain injuries (TBI) are one of the major causes of death in the United States, with approximately a total of 2.8 million TBI-related ED visits, hospitalizations, and deaths. Therapeutic hypothermia (TH) aims to reduce and maintain a specific body temperature. This treatment option has previously shown beneficial evidence of reducing brain tissue death and decreasing inflammatory responses post-TBI. In previous studies, these benefits have provided neuroprotective effects and improved neurological recovery. This study evaluated the effectiveness of therapeutic hypothermia in *Drosophila melanogaster* after a moderate traumatic brain injury. An external method of cooling was

used to lower the body temperature of the fruit flies to 14°C. For the in-vivo experimentation, the negative geotaxis of the *Drosophila melanogaster* was measured post-TBI and TH. We hypothesized that the *Drosophila melanogaster* treated with immediate TH after a TBI would present with improved mobility. For the in-vitro experimentation method, wound confluences were measured using a Scratch Wound Assay. It was hypothesized that the cultured cells treated with cold media would improve the wound confluence rate.

Paige Davis '25, Marissa Feary '25, Remi Keane '25, Solomia Mikhalinchik '26

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Faculty Sponsor: Professor Robin White

Effects of Carprofen on Drosophila melanogaster and Cell Culture Post-Traumatic Brain Injury

A traumatic brain injury (TBI) can contribute to long-term neurological defects or even mortality. Traumatic brain injuries leave lifelong consequences due to lack of treatment; when a traumatic brain injury occurs, the brain becomes inflamed and the severity of inflammation can vary depending on the severity of the TBI. To help with the symptoms of a traumatic brain injury, non-steroidal anti-inflammatory drugs (NSAIDs) are known to regulate the amount of inflammation that occurs after a TBI. Using NSAIDs in this treatment of a TBI, the drug carprofen was used to test negative geotaxis in *Drosophila melanogaster* after a brain injury. It was expected that when a TBI was treated with carprofen, negative geotaxis would be performed better. This is due to carprofen's neuroprotective abilities which allows for improved cell proliferation and gliogenesis. Furthermore, Carprofen was used in cell culture in regards to the process of NSAIDs and wound healing. Using diluted treatments of carprofen, cells were plated with separate doses after creating wounds in culture medium. We hypothesized that the Scratch Wound Assay and cell culture would yield results that support the use of NSAIDs post-inflicted injury pre-culture. The goal of the research was that our findings indicate that the use of NSAIDs in early stages of TBI development had an effect on the negative geotaxis in *Drosophila melanogaster*. Ideally, carprofen significantly improves injured cells and *Drosophila melanogaster* versus without treatment.

Morgan Dority '26, Jaden Malaquias '25, Benjamin Nemchinsky '24

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Faculty Sponsor: Professor Robin White

Exploring Levoamphetamine as a Therapeutic Agent for Enhancing Neurorepair in Wounded Brain Cells and Traumatic Brain Injury with Drosophila Melanogaster

Traumatic brain injury (TBI) can lead to cognitive, physical, and emotional impairments, ranging from mild concussions to severe, extensive brain damage involving long-term disability. Our research investigates whether levoamphetamine affects recovery in *Drosophila* and C6 astrocytoma cells after TBI. Levoamphetamine, a stimulant that increases dopamine levels, is prescribed orally with a combination of dextroamphetamine under brand names like Adderall. Research has been conducted before using dextroamphetamine for TBI within *Drosophila* and cell culture but not many researchers have attempted to administrate levoamphetamine for a treatment solution. Levoamphetamine has been less studied for TBI treatment, so we will be aiming to fill this gap by testing levoamphetamine's potential as a treatment. By conducting this research, our group saw the effect levoamphetamine had on TBI. In *Drosophila*, we hypothesized that levoamphetamine-treated flies would show more movement post-TBI compared to a control group treated with methanol. To assess movement we used visualization to observe the flies directly after TBI. For C6 astrocytoma cells, we expected that levoamphetamine would promote greater wound closure over time, while methanol-treated cells would show minimal or no closure. Wound healing was monitored using Incucyte Analysis Software to track the cells behavior and capture images of the wound closure over time. This study seeks to determine the impact of levoamphetamine on TBI recovery and expand the current understanding of stimulant treatments for brain injury.

Faculty Sponsor: Professor Robin White

The Effects of Creatine Monohydrate on Traumatic Brain Injury in Drosophila melanogaster and Wound Healing in Cell Culture

Traumatic brain injuries (TBI) have increased over the past few decades, yet effective long-term treatments remain limited. Our study examined the impacts of creatine monohydrate on TBI in *Drosophila melanogaster* flies and wound closure in cell culture. Creatine monohydrate is a potential treatment for brain and cognitive-related disorders like TBIs. Research shows that boosting Creatine and phosphocreatine levels can improve energy metabolism and support brain function. Creatine has positive effects on cell cultures because it keeps cells healthy under stressful conditions, like wounds or TBI, by providing cells with more energy like ATP. This made creatine a plausible treatment for TBI and wound closure. A total of 60 flies were divided into 6 vials, 5 males and 5 females per vial. We followed the closed-head TBI protocol and assessed the climbing behaviors using the Negative Geotaxis Assay. Flies in the treatment group received varying dosages of creatine solution, while control flies received water in separate vials. Both groups received food and yeast. After 24 hours, a Negative Geotaxis Assay was conducted. C6 astrocytoma cells were grown and plated in a controlled environment with different dosages of creatine. After completing the WoundMaker protocol, creatine was added to the wells and analyzed using Incucyte imaging, capturing hourly for 42 hours. We hypothesized that creatine monohydrate will improve survival rate in fruit flies with TBI and wound closure in cell cultures.

Abigail Cogan '25

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Faculty Sponsor: Professor Jessica Stephens

Distorting Darwin: The Misuse of Evolutionary Theory in Eugenics

Eugenics is the idea that the human species can be improved through selectively breeding desired traits. This movement misused scientific concepts like evolution, natural selection, and selective breeding during the 1880s through the 1930s and had a significant impact on society. As part of my Evolution course, I researched the literature and history of the eugenics movement. Specifically, I investigated the misuse of the scientific theories in the American Eugenics Movement and how this resulted in sterilization laws, immigration laws, and laws governing marriage. These laws and misinformed ideas aimed to eliminate people with 'undesirable' traits, which ultimately targeted minoritized groups. In addition to the history of eugenics, I investigated how these ideologies are still seen today and the threat these ideas have to our society. As part of my research, I developed a website to inform individuals about eugenics, the misused incorporation of scientific theories, and the impacts this movement has on the world. Eugenics is important to learn about due to the misused incorporation of scientific theories and some individuals still incorporating aspects of these ideologies.

Ryan Moran '25, Emily Ottomaniello '26, Emma Magnani '25

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Faculty Sponsor: Professor David Christensen

Stream Morphology: Analysis of Morphological Differences in Natural and Artificially Flowing Streams

Exploring ecological variability between streams with natural and regulated discharge can elucidate our understanding of the health and productivity of waterways. In this study we evaluated morphological and biological variability between two streams. Sanderson Brook in Chester, MA is located in a 2,944 acre watershed where the brook experiences a natural flow pattern. The Little River in Westfield, MA is located in a 53,891 acre watershed where the river is regulated by Cobble Mountain Reservoir Dam, leading to a highly variable artificial flow pattern. The mean substrate size in Sanderson brook was 65.2 mm and the mean substrate size for the Little River was 90 mm. The Habitat Suitability Index (HSI) for Sanderson Brook indicated much more suitable habitat for brook trout, *Salvelinus fontinalis* than in the Little River. Highly variable daily stream flow in the Little River likely selected for larger and more homogenous substrate distribution and channel morphology. This homogeneity influenced the quality of brook trout habitat thus influencing trout abundance. Understanding how regulated stream flow

influences stream morphology, habitat quality and brook trout abundance is critical in properly managing anthropogenically influenced streams.

Abigail Burgess '27

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Faculty Sponsor: Professor Kimberly Berman

I'm Only Me When I'm With You: Biofilm Production and Growth Patterns of Soil Isolates in Varying Conditions

Biofilm is formed when bacteria produces a slimy film over itself that serves as a protectant from the environment around them and a binder to surfaces it may be living on. Biofilms often have niches, or specific jobs, within an ecosystem. Sometimes, biofilms can sometimes have antibiotic resistance properties. The goal of the semester's research project was to isolate a bacteria from a soil sample, and test for biofilm growth under various conditions. The bacteria that was used for selective media only was *Pseudomonas putida* and the bacteria that was tested for both selective media growth and biofilm production was *Arthrobacter*. As the semester progressed, traits such as mobility and growth patterns were tested for and observed. This was done by utilizing selective and differential media plates; MacConkey agar, mannitol salt agar, and phenylethyl blood agar. These plates have visible markers that indicate when bacteria has a certain trait or produces a certain substance. Researchers observed visual differences between known positive and negative controls on the media, compared it to the growth that they had for their isolates, and identified whether this was compliant with previous research. To test controls for the biofilm, because they were run in 96 well plates, and four controls were done. To ensure there were reliable biofilm results, thresholds were calculated from the media only (negative control) wells and all averages were compared against it. Biofilm formation tests indicated that *Arthrobacter* produces biofilm under microaerophilic conditions and control conditions, but not under room temperature conditions.

Kaitlyn Ford '25, Madelyne Libby-Toler '26

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Faculty Sponsor: Professor Kathryn Weglarz

CO₂-Driven Climate Change and Its Impact on Wing Melanization in the Cabbage White Butterfly

Significant changes in global ecosystems, including modifications to the phenotypic features of several creatures, have resulted from global warming, which have been fueled by rising CO₂ emissions since the Industrial Revolution. This study examines how the wing melanization of the cabbage white butterfly, *Pieris rapae*, is affected by rising temperatures. Pigmentation is essential for thermoregulation and camouflage in this species. Melanization levels were measured as the percentage of darkly colored wing area using historical specimens from museum collections. Melanization has significantly decreased in modern populations when compared to historical samples, according to statistical analysis, and this decrease has a negative correlation with rising mean annual temperatures. These results imply that the selective forces governing wing coloration have changed due to global warming, which may have an impact on *P. rapae*'s ecological interactions and fitness.

Inaam Alhalabi '24, Naba Algertani '25, Faiza Abdullah '25

1

Faculty Sponsor: Professor David Christensen

The Influence of Discharge Variability on Fish Community Structure in a Regulated and Natural Stream

This study compares the fish communities and ecological dynamics of the Little River, Westfield, MA that has variable discharge due to the influence of a dam, and Sanderson Brook, Blandford, MA which is free flowing. In the Little River, the dam creates a non-uniform flow with extreme daily fluctuation, contributing to lower fish density but greater species richness and diversity. Conversely, the natural, variable discharge in Sanderson Brook supports higher abundance of small fish species, especially in shallow margins. In both streams, multiple factors, such as discharge, habitat diversity, productivity, and morphology interact to shape the fish communities. In the Little River flow discharge regulation has created homogeneous morphology that has led to decrease productivity, fish, and macroinvertebrate abundance. However, in Sanderson brook, natural flow discharge promotes a

heterogeneous morphology, increased productivity, fish and macroinvertebrate abundance. This study highlights how both dam-regulated and natural stream ecosystems require tailored management approaches to sustain their distinct ecological communities and support biodiversity.

Andrew Mason '25, Juan Zamora Arenas '25, Summer Noonan '25

47

Faculty Sponsor: Professor David Christensen

Comparative Analysis of Water Quality in Flow-Regulated and Non-Flow-Regulated Streams

It has been demonstrated that dams and other human-engineered structures can negatively affect streams and watersheds. Comparing these characteristics between a flow-regulated stream, controlled by a dam and non flow-regulated stream expresses the anthropological impact.

In our study we examined the Little River (Westfield, MA), a discharge-regulated stream controlled by a dam, and compared it with Sanderson Brook (Blandford, MA), a natural free flowing stream. Factors that are potentially influenced by the dam include; water quality, pH, temperature (°C), dissolved oxygen (mg/L), and specific conductivity (uS). These variables were measured using a Hach Environmental Hydrolab MS5 Multiprobe and collected every two weeks over a six week period. Both streams exhibited water quality parameters within healthy ranges of typical cold water streams across the New England region. Though specific conductivity differed significantly, suggesting variations in dissolved ion levels that may be linked to flow regulation and discharge patterns. Little River exhibited a higher SpC (80.12µs) than Sanderson Brook (66.96µs) (p=0.0009). Although Little River and Sanderson Brook exhibit similarities in water quality; there are differences in the biological community - such as fish, macroinvertebrates, and algae. These differences highlight variations in habitat and productivity between the streams, pointing to ecological impacts beyond water chemistry. This is likely being influenced by discharge regulation and physical habitat differences. Our findings indicate that while flow regulation can impact water quality, it can also influence broader ecological dynamics, such as fish communities, macroinvertebrate populations, and algae growth.

Olivia Hart '24, Makenna Albee '25, Natalisha Harris '25, Valerie DeJesus '24

2

Faculty Sponsor: Professor David Christensen

Impacts of Artificial Flow Regimes on Stream Productivity

The purpose of this study was to examine how artificial stream discharge regimes impact overall stream productivity. We focused specifically on the effects of allochthonous and autochthonous inputs, canopy coverage, and large woody debris. Statistical analyses from this study suggest that artificial regimes have an impact on the overall productivity and ecological dynamics of the ecosystems of the Little River, Westfield MA, and Sanderson Brook, Blandford MA. We found that Sanderson Brook had greater means for allochthonous inputs, canopy coverage, and epilithic algae. These results suggest that productivity is more dynamic in streams with natural discharge regimes. Light and nutrient inputs differ between these two streams creating variability in productivity. Our results contribute to the understanding of how the presence of a modified stream flow along with human-induced alterations can have a long-term effect on the health of the ecosystems.

CHEMICAL AND PHYSICAL SCIENCES

Nate Deren '27, Desmond Marino '27, Nick Rimbold-Ellinger '28, Lainey VanVoorhis '27, Beckett Vigneux '27

59

Faculty Sponsor: Professor Tarin Weiss

It's Time: Converting Lawn Grass to Meadow at WSU

WSU's growing passion in the area of sustainability should include the aim to create a "greener", healthier campus landscape. A naturally growing meadow, versus maintaining lawn grass, provides a multitude of benefits to humans and the ecosystem. A lawn-to-meadow conversion supports sustainable practices, beautifies the campus, and decreases grounds' maintenance costs. To understand the best action toward this aim, twelve colleges that converted lawn to meadow were

investigated. We found that while differences existed in their conversion efforts and results, within one to 20 years they all reaped the benefits of reduced greenhouse gas emissions, improved ecosystem diversity, and lower lawn maintenance costs. WSU's soil texture, determined to be sandy loam via the ribbon and texture tests, has great potential to grow meadow plants. Conversations with WSU personnel from Grounds and the Environmental Science Department support this work and helped recommend a small conversion pilot area near Wilson's Greenhouses. Additional recommendations toward the conversion are also discussed.

Kade Vieira '28, Geoffrey Durante '27, Ellie Meltzer '28, Alistair Hoffer '27

61

Faculty Sponsor: Professor Tarin Weiss

Soil Stability: Lawn Grass vs. Meadows

Out of the 256 acres on Westfield State University campus, 80 acres is lawn grass. While lawn grass is attractive and convenient for recreational use by people, it has been found to not be very sustainable; it does not sequester carbon well, requires a lot of resources like water and fertilizer to maintain its appearance, and tends to lead to poorer soil stability. Meanwhile, meadows are adept at sequestering carbon, do not require much attention, and foster a healthier environment for soil. To evaluate trends in soil stability, four soil samples were collected around Westfield State University campus - soil from compacted grass, non-compacted grass, a garden, and an edge meadow. Additionally, a sample from an off-site meadow was collected. Slake tests were conducted in order to calculate the health of these soils (measured by soil stability). The results indicated that the soil stability in areas with lawn grass was statistically poorer than that of meadows. With confirmation that lawn grass leads to less stable soil, next steps to address this issue can be taken, such as looking toward meadows as an alternative on campus.

COMMUNICATION

Ariann LeCours '25, Jarrod Ledvina '25, Sean Jacobson '26, Rowan Gottshall '26

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Faculty Sponsor: Professor Shirley Acquah

Educating Westfield State University Students on the Importance of Implementing Healthy Handwashing

Hand washing is a common habit among WSU students, but are proper techniques being used to be considered effective? Common pathogens are creating a major health issue that causes respiratory and digestive issues, resulting from a lack of handwashing. Those who do not wash their hands are at an increased risk for viral illnesses. These illnesses can have negative impacts such as prolonged bed rest. The population most at risk for this issue would be college students. College students have been shown to have a low percentage of handwashing rate in other studies, at less than 60 percent. Travelers are also presented with a risk of diarrhea and respiratory infections as a result of poor hand hygiene. People who travel do not always wash their hands with soap or use hand sanitizer prior to eating a meal. An example is only 22.6 percent of people traveling to Thailand washed their hands prior to a meal 7 times a week. In Japan, college students are encouraged to study abroad, meaning that they are traveling and potentially not washing their hands. Thus, college students studying abroad are the most susceptible to this health issue. This health campaign aims to educate WSU students on the importance of implementing healthy hand-washing methods to prevent the spread of infectious diseases, especially with colder months approaching.

Samuel Horton '26

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Faculty Sponsor: Professor Sinuk Kang

For No One

Sometimes, you may find yourself alone. In these moments, you listen to your passions and your desires that fuel them.. I've realized that life will continue as it is, so there's always time. Stand firm in what you know you can do and what you're capable of, even if no one is there to guide you, listen to

you, or motivate you to take the next steps. By following your passions, you come to know yourself more deeply than most. I've taken matters into my own hands and begun to come into my own.

"For No One" is a piece that started as a video project assignment, and grew into an unexpected narrative. In it, I used the process of studying and practicing music as a metaphor for using the time that we have alone to take the next steps and achieve new heights. Never let your passions be waived by loneliness or uncertainty. Instead, use this time to acknowledge your existence and direct your creative desires to your future self.

I'm grateful for the opportunity to create this narrative montage project because it allowed me to produce something meaningful with my present-best self. When I put my effort into a project that aligns with my passion, I find myself committed to telling a story that feels significant and worth sharing. Something meaningful even if it's only 2 minutes and 9 seconds. Through this medium I devoted myself to my passion for musical storytelling and narrative direction. "For No One" started with a song that would fit a great general narrative that connects with me and feels easy for others to connect with as well.

Always follow your passions.

Sarah Bingham '25, Jaida Cochran '25, Brian Mercier '25, Gabriel Wakelin '25

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Faculty Sponsor: Professor Shirley Acquah

Promoting Awareness and Prevention of Back Injuries in Student Athletes at WSU

According to research, back injuries are a significant concern for all student athletes, as they impact athletic performance, activities of daily living, and overall health and well-being. Back injuries can happen to anyone at all ages and in any setting, but athletes have a higher risk of back injury with repeated back extension movements and the physical demands of the athlete's sport. It is also common for athletes to experience improper training techniques, excess training, and an inadequate recovery from team and individual workouts. Back injuries can range from mild pain such as muscle strains, to more severe cases of sciatica, intervertebral disc injuries, fractures, and more. All of which are capable of disrupting student-athletes' daily schedules and ability to participate in sport. It is essential that we educate and create awareness amongst student athletes about the importance of preventing back injuries in order to prioritize their health and optimize their athletic potential. It is common for student athletes to put their sports above their health, resulting in pushing through injuries and pain, which often leads to worsening an injury. This health campaign allows student athletes an opportunity to safely learn and practice proper training and exercise techniques. This aims to decrease the prevalence of back pain and encourages individuals to be proactive about injury prevention.

Thomas Arcelaschi '25, Alvin Yvon '25, Matthew Walsh '25, Jason Forward '25

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Faculty Sponsor: Professor Shirley Acquah

Raising Awareness and Educating WSU Commuters About the Adverse Effects of Ultra-Processed Foods

Extensive research suggests a large portion of college-aged individuals notoriously do not consume a well-rounded diet. A great quantity of the products this age group consumes consists of ultra-processed foods. These specific foods, which have increased in our society over more recent years are bioengineered products that the human body was not meant to consume. Numerous health issues such as obesity, diabetes, and cardiovascular diseases to name a few, have been directly linked to the overconsumption of ultra-processed foods. Leading factors such as stress stemming from academics, financial issues, along with limited time in a college student schedule play a large role in contributing to the consumption of a poor diet. This campaign hopes to generate both awareness and education for students who commute to Westfield State in hopes they can learn vital tips that will enhance their overall diet and limit their own personal consumption of ultra-processed foods.

Faculty Sponsor: Professor Shirley Acquah

Spreading Awareness and the Importance of Oral Hygiene in College Students

Several obstacles to proper oral hygiene care for college students include lack of available resources, cost, time, availability of dental clinicians, fear of treatment methods, and unease. Research suggests that first-year students often have limited knowledge of oral health importance, and struggle to find reliable oral care. Our campaign focuses on college students, especially first-year students who have high rates of poor oral care. Our campaign will encourage first-year students to attend an oral health educational workshop held on campus. We will hold educational seminars and campus activities on campus for students to learn about the importance of oral health.

ECONOMICS

Faculty Sponsor: Professor Hillary Sackett-Taylor

PAHO's NCD Prevention: Outcomes and Economics

Given the concerning rise in non-communicable diseases throughout America, it is critical to examine how well the Pan American Health Organization's (PAHO) preventive measures meet these issues. PAHO influences health outcomes and economic stability throughout the United States. Its Noncommunicable Diseases (NCD) Prevention Policy seeks to raise public health awareness, increase healthcare access, and support multi-level efforts to eliminate risk factors and health imbalances (Pan American Health Organization). This study examines the policy's precise goals, effectiveness, unexpected consequences, and the stakeholders most affected.

The research will utilize a combination of methods, analyzing quantitative data to determine how effectively the policy accomplishes its objectives and doing qualitative research to gain insights into stakeholder viewpoints and uncover any unintended consequences. While this policy has achieved progress in combating NCDs, strict regulations such as limiting salt and sugar in products may unintentionally place major financial difficulties on small food businesses, potentially leading to rationalization or closure. This could impact a variety of stakeholders, including healthcare providers who face increased demand for services, small business owners, consumers who face higher prices, government associations balancing public interests with economic implications, and insurance companies that must adjust to changes in claims and coverage (The Lancet Regional Health – Americas, 2023).

This project is going to conduct an extensive review of PAHO's NCD Prevention policy, providing insights into how it aligns with the economic interests and health outcomes of the American people. Recommendations for policy refinement and future research paths will be made to improve the effectiveness of health policy implementation and ensure that it fulfills the economic and health demands of the American people.

Faculty Sponsor: Professor Hillary Sackett-Taylor

The Economic Impact of the Expanded Child Tax Credit (CTC) Under the American Rescue Plan Act of 2021

The Child Tax Credit (CTC), particularly the expanded version under the American Rescue Plan Act of 2021, significantly impacted the economic well-being of Americans. This expansion provided \$3,000 per qualifying child aged 6-17 and \$3,600 per qualifying child under age 6. The cessation of payments in 2022 caused the child poverty rates to rise to 12.4%, underscoring the program's importance. The policy's primary goals were to reduce child poverty, support low-income and middle-class families, and stimulate the economy through increased consumer spending. Data shows it achieved these goals

effectively, reducing child poverty from 9.7% to 5.2% and lifting millions of children out of poverty. Families used the credit to cover essentials like food, rent, and utilities, improvising financial stability. Additionally, increased spending contributed to economic recovery during the pandemic.

However, the policy had unintended consequences. It was argued that it might discourage workforce participation among parents, though evidence showed minimal impact. The rollback of expanded benefits disproportionately affected low-income families, creating sudden financial gaps. Some economics suggested that increased spending might have contributed to inflationary pressures, though this is debated.

The primary beneficiaries were low-income families, particularly single-parent households and families of color, who saw significant poverty reductions. Concerns about sustainability and budgetary impacts posed challenges for the government and taxpayers. Based on the economic analysis, we plan to make policy recommendations that would ensure the Child Tax Credit will decrease poverty rates and stimulate the economy.

Jake Kirker '27

65

Faculty Sponsor: Professor Hillary Sackett-Taylor

Regulation of Misinformation and Customer Manipulation Regarding Artificial Intelligence

There is an abhorrent lack of regulation and policy regarding information and consumer protection (specifically regarding misinformation and manipulation) for Artificial Intelligence. California has recognized this deficit and has begun to enact policies through its AI Transparency Act (SB-942). The Act would require all people who create generative artificial intelligence systems that traffic over 1 million visitors monthly would have to supply users with an AI detection software that can inform the user if the product in question was sourced from the generative AI. There is a penalty of five thousand dollars if the provider violates the chapter, however it's unclear as to how many times a violation can occur—i.e. whether each user that does not have access to the AI detection software is considered a violation (which would constitute a fee for each user) or if it would all be considered a single violation (which would only result in a five thousand dollar fee). If companies aren't willing or able to make this detection software, they can contract a third party to produce the software, however there are strict requirements on how data from the software can be managed. Overall, the Act is a step in the right direction, but there are still areas that can be further improved by the time other states implement similar policies.

Madelyn Barry '26

22

Faculty Sponsor: Professor Hillary Sackett-Taylor

Educational Policy

Educational Policy

A current law that currently impacts the economic well-being of Americans is the Individuals with Disabilities Education Act. This federal law mandates that public schools provide a free, appropriate public education, known as FAPE, to children with disabilities, making sure that students with special needs are integrated into the educational system with the necessary support and services (U.S Dept. of Education). The policy goals and objectives are primarily making sure that students with disabilities have equal access to education, receive their specific and necessary services, promote inclusion, and are prepared for life after graduation. Research could suggest that because of a more inclusive environment, graduation rates for students with disabilities have gone up leading to more attending college and finding jobs. This is key, as this group of people are able to give back to the economy. Although the employment for people with disabilities has improved, it is still behind those without disabilities. The law's success in fully offering equal opportunities can vary, with some districts in the United States facing challenges due to a lack of funding and resources. The unintended consequences would be the strain on the school districts who are unable to find adequate resources, due to funding.

The primary stakeholders for this law would be the students and their families, teachers/school district and the taxpayers. While currently, there are alternatives to this policy created by the U.S Department of Education, I will be researching further alternatives beyond the United States. I will use economic and scientific data to make a solid educated recommendation for an alternative to this policy.

Madelyn Cote '27, Angelina Vartuli '28

17

Faculty Sponsor: Professor Hillary Sackett-Taylor

Social Security: Financial Aid and the Need for Private Retirement Plans

Social security is a policy that workers pay towards throughout their life, so during retirement they will have a source of income that prevents poverty. Retirees are able to receive financial support to afford their basic necessities and keep them above the poverty line. According to the U.S Census Bureau, in 2022, the poverty rate without social security was 9.2%, but with social security's benefits the rate was reduced to 0.5%. According to CBPP, 16.5 million people were brought out of poverty because of the social security benefits, and the Social Security Administration (SSA) mentions that social security accounts for 30% of income of all people 65 and older. Social security isn't meant to be the only source of income during retirement, rather to help cover the basic needs to stay out of poverty. Social security is only 40% of your pre-retirement salary (SSA), so other private retirement plans are encouraged to be used too. Since social security is guaranteed income when paid into, people lose incentive to save on their own, and may struggle to live their previous lifestyles, now only receiving enough money to cover necessities. Costs such as medical care aren't included, and may cause financial burdens on retirees still. Social security reduces incentives for people to work, and may cause early retirement when benefits are accessible too. People who pay into social security, live off of social security (retirees, disabled, survivors), those who qualify, and employers who must match their worker's payment to this fund are all affected by the policy of social security.

Using economic data, I will be analyzing alternative policies to make a recommendation of what policy will work best.

ENGLISH

Thomas Parent '25, Jacob Curley '25

35

Faculty Sponsor: Professor Vanessa Diana

'69 Occupation of Alcatraz Island

Our project goes into detail about the Native American occupation of Alcatraz from 1969 to 1971, who started it and who supported it as well as its tie into the novel There There by Tommy Orange.

Anderson Kim '26

38

Faculty Sponsor: Professor Vanessa Diana

Carlisle Indian Boarding School: The Effects on Indigenous People

In *The Moon in Two Windows*, Kiowa author N. Scott Momaday incorporates a story inspired by true events at the Carlisle Indian Boarding School. This presentation will explore the history of Carlisle, the experiences and the impact of the school on the children who attended at a young age, and the long-term lasting effects of those experiences on Native communities, continuing to impact them today.

Sophia Rebenciuc '27

4

Faculty Sponsor: Professor Vanessa Diana

Casinos of Indigenous Tribes

There are many casinos throughout the country, and many visitors are unaware that a great percentage of them were founded by Indigenous people. One example of a major casino in the Northeast is Connecticut's Mohegan Sun. Development investors collaborated with the Mohegan Tribe during the early nineties with hopes to get more recognition for the indigenous people and also funding for their needs. Casinos such as Mohegan Sun have not only improved the nation's economy

by creating thousands of jobs, but have also generated educational, social, or healthcare benefits for the Tribal members themselves. The casino funding also improved K-12 education by increasing the salary of teachers and improving school facilities. Tribal members with academic aspirations were also able to receive scholarships and grants to attend colleges and universities throughout the nation. Interestingly enough, even some of the local homeless were able to seek shelter through the housing programs sponsored by the casino. As for healthcare, those who were in need of vaccines, screenings, or disease prevention had much easier access to it. All of this funding is possible as it comes from the money that is gambled at the casinos. Other gambling proceeds are placed into a trust fund. Mohegan Sun is just one of over five hundred twenty five casinos across the United States that were founded by a Indigenous Tribe. Gambling at casinos became a popular activity since Indigenous Tribes were recognized as their own nation, and had less or little to no restriction on gambling. Over the years, many stereotypes have formed in relation to indigenous tribes and casinos. An example is that Indigenous people are “too reliant on their casinos”, and that “casinos have made them lazy”. People also assume “every part of land owned by a Tribe will be home to a casino”. These are all misinterpretations and distorted perceptions. Indigenous people overcame adversity and having their land stolen and they deserve to be compensated in some regard. Not to mention, they put their casino revenues to good use by paying for good causes and initiatives. From funding, to dream fulfillment indigenous casinos have earned their place in American society.

Sicilia Campbell ‘28

26

Faculty Sponsor: Professor Vanessa Diana

History at the Crossroads: Native American Boarding Schools

In the play "The Moon and Two Windows," Kiowa author N. Scott Momaday, wrote about the Native American boarding schools. This project will focus on why Native American history needs to be addressed in schools, which will highlight the past through historical research, the present, reflecting on current laws restricting information, and the future, including a curriculum developed by the National Native American Boarding School Healing Coalition for teachers to address these important topics.

Aaron Smart ‘27

30

Faculty Sponsor: Professor Vanessa Diana

Indigenous Art on Boarding Schools

In the screenplay *The Moon in Two Windows*, Kiowa/Cherokee playwright N. Scott Momaday delves into the history of the North American Boarding Schools and their forced assimilation tactics; in the novel *There There*, Cheyenne/Arapaho author Tommy Orange touches upon the effects these schools had on both traditional Indigenous arts and the modern day continuation on Indigenous art. This project will explore 19th century and contemporary Native American art that portrays the boarding school experience as examples of Indigenous survivance.

Isaiah Colon ‘26

58

Faculty Sponsor: Professor Vanessa Diana

King Philip’s Tragic Shadow to Native Americans Today

In the novel *There There* (2018), Cheyenne author Tommy Orange tells the story of the polarizing historical figure King Philip, who was pushed to war and met a tragic end at the hands of another Native American. This fate echoes the book's conclusion, where the poster will help show how one person's fate is still relevant to a group of people today.

Lia Steskla ‘27

31

Faculty Sponsor: Professor Vanessa Diana

Lies Of Native American Sovereignty

In her essay “The Council of Pecans” Robin Wall Kimmerer who is a part of the Potawatomi Nation of the Great Plains criticizes how historically the US have manipulated Native Americans throughout the

centuries, resulting in loss of legal and land rights. This presentation will go in depth on how Tribal Nations don't have true sovereignty as a result of the US's meddling.

Amber Greene '26, Myles Craft '26

36

Faculty Sponsor: Professor Vanessa Diana

Linking The Divide: Intergenerational Trauma and Substance Abuse Among Native Americans

In the novel 'There There' (2018), Cheyenne and Arapaho author Tommy Orange depicts generational trauma and substance abuse through the character Thomas Frank.

This presentation will explore the connection between substance abuse and intergenerational trauma among Native Americans.

Erin Dyckman '26, Bella Rucci '27, Olivia Hartling, Jamie Czikowsky '24

88

Faculty Sponsor: Professor Vanessa Diana

Mental Health Support Within Indigenous Communities

In the novel *There, There*, Cheyenne and Arapaho author Tommy Orange explores Native characters' unique experiences with addiction, mental illness, and belonging that can be felt universally; in the poetry collection *Nature Poem*, Kumeyaay author Tommy Pico dives into his character "Teebs" who attempts to compose a nature poem with seemingly clashing identities, the pain of that crisis, and his ultimate healing. This poster addresses aspects of mental health within Native communities, investigating their quest for mental wellness by comparing mainstream and Indigenous therapies.

Anderson Dallaire '25

63

Faculty Sponsor: Professor Vanessa Diana

Native American Names and Their Meaning

Contemporary Native American writers Tommy Orange (Cheyenne and Arapaho tribes) and Madeline Sayet (Mohegan tribe) both purposefully write about the meaning behind Native American names. This project will look closer into Native American naming traditions as well as why people's names are chosen and what these names mean across different tribes.

Jayzanna Jones '28

104

Faculty Sponsor: Professor Vanessa Diana

Thanksgiving: Beyond The Pumpkin Pie

Thanksgiving is often remembered as a peaceful holiday where Pilgrims and Native Americans came together for a feast in 1621. But the true story behind Thanksgiving is much more complicated and darker. While it's true that the Pilgrims and Wampanoag shared a meal, this moment of cooperation didn't last. The Pilgrims were struggling to survive in their new home, and they relied on the Wampanoag for help. But soon after, the relationship between the two groups became tense as the settlers continued to take over Native lands.

Madeline Pelak '25, Anthony Messoré '25

28

Faculty Sponsor: Professor Vanessa Diana

The Code That Won the War: Navajo Heroes of WW II

In her book, *No Parole Today*, Navajo author Laura Tohe notes that the Navajo language was utilized as a secret code in World War 2. This project explores the impact of the code in winning the war, who created it, and whether or not they received the recognition they deserved.

Ella St Hilaire '27

52

Faculty Sponsor: Professor Vanessa Diana

The Four Sacred Herbs and their Importance to Indigenous Cultures

In her book *Braiding Sweetgrass*, Potawatomi author Robin Wall Kimmerer describes the history and importance of one of the sacred herbs in Native cultures. This presentation will explore the relevance of the four sacred herbs in Indigenous American culture: Sage, Cedar, Sweetgrass, and Tobacco.

<p>Abigail Cogan '25 32 Faculty Sponsor: Professor Vanessa Diana <i>The Remains of Native Americans and Repatriation</i> In the play <i>Where We Belong</i>, Mohegan author Madeline Sayet included a scene about the storage and display of Native American sacred items and human remains in the British Museum. This project will research the institutions still holding onto these items and the goal of repatriation.</p>
<p>Alexander Denison '25 39 Faculty Sponsor: Professor Vanessa Diana <i>Traditions of Music in Native American Culture</i> In the historical fiction work <i>There There</i>, Tommy Orange (Cheyenne/Arapaho) references the importance of music in Native American culture. This project aims to inform how this music functions culturally, how musical traditions vary from tribe to tribe, and how native music has influenced modern Indigenous artists.</p>
<p>Hallie Gebo '25 37 Faculty Sponsor: Professor Vanessa Diana <i>Red and Missing: The Struggle for Missing and Murdered Indigenous Women (MMIW) Awareness</i> In the novel <i>There There</i> (2018), Cheyenne and Arapaho author Tommy Orange explores the struggles and experiences of Indigenous people in an Oakland setting. This presentation will examine the theme of Missing and Murdered Indigenous Women (MMIW) and the significance of the MMIW movement that is brought to light from the character Blue.</p>
<p>Alec Robertson '28 41 Faculty Sponsor: Professor Vanessa Diana <i>History in Action: The Occupations of Alcatraz Island</i> In his book <i>There, There</i>, Cheyenne and Arapaho author Tommy Orange's characters participate in the Occupation of Alcatraz Island in 1969. This presentation will explore the history of the island, the occupation itself, and its impact today on civil rights movements nationally and globally.</p>
<p>Jakob Traynor '28 102 Faculty Sponsor: Professor Vanessa Diana <i>Substance Abuse Within Native American Communities</i> In the Novel <i>There There</i> (2018), Author Tommy Orange, member of the Cheyenne and Arapaho Tribes, includes several instances of alcohol consumption and abuse throughout this multi character story. This presentation is to explore the negative effects, history, and steps being taken to help people with alcohol and substance abuse in Native American communities.</p>
<p>Julianna Decker '27, Nathan Brady '27 40 Faculty Sponsor: Professor Vanessa Diana <i>Substance and Alcohol Abuse in Native Americans</i> In the novel <i>There There</i> (2018), the author Tommy Orange includes a few characters from Native adolescents to adults who struggle with alcohol and substance abuse. This project dives deeper into the statistics of the Native people who struggle with alcohol and substances, what leads to those statistics, and what can be done to resolve this problem.</p>
<p>Naomi Brito '26 27 Faculty Sponsor: Professor Vanessa Diana <i>The Value of Veho: The Significance of Spiders in Native Culture</i> In the novel <i>There There</i> (2018) by Cheyenne author Tommy Orange, the significance of spiders in Cheyenne culture is a theme that is repeated throughout. This project will underline what spiders represent in different Native cultures, including the Cheyenne trickster spider Veho.</p>

Katelynn Fillion

25

Faculty Sponsor: Professor Vanessa Diana

Disparity of Discipline for Indigenous Students in Public Schools

In the play *A Moon in Two Windows* by N. Scott Momaday (Kiowa), Momaday depicts a story of the Indigenous boarding schools and the challenges that were placed upon the students there, including the harsh discipline that was enforced within. This project will explore the history of boarding schools and the negative experiences Indigenous students faced there, and compare them to the current experiences of the disparity of discipline Indigenous students face in school systems now.

Deisy Escobar '27

13

Faculty Sponsor: Professor Vanessa Diana

Debunking myths: Casinos & Native American tribes

In *Where we belong* (2022), Mohegan tribe author Madeline Sayet describes common misconceptions about Native Americans who own casino establishments. This project will delve into the history of the Mohegan tribe casino, including common myths or beliefs about tribal casinos and positive impact for tribal nations.

Jason Brewster '25

86

Sponsor: Tom Raffensperger

Prominent Westfield Alumni (Westfield 185 Poster Series)

- Westfield 185 Series: Susan Payton Wortham
A poster describing Susan Payton Wortham, a Westfield Alumni who ran charitable organizations such as the YWCA and Hope Day Nursery in 1900s Harlem.
- Westfield 185 Series: Samuel E. Courtney
A poster describing Samuel E. Courtney, a Westfield Alumni, physician, and black community organizer with Booker T. Washington.
- Westfield 185 Series: Nettie Maria Stevens
A poster describing Nettie Maria Stevens, a Westfield Alumni who helped link chromosomes with biological sex.
- Westfield 185 Series: Lewis B. Allyn
A poster describing Prof. Lewis B. Allyn, a Westfield Alumni and faculty member who aided the "Pure Foods" movement in the early 1900s, popularized Westfield as the "Pure Foods Town" and is the only unsolved murder in Westfield history.
- Westfield 185 Series: George B. Cortelyou
A poster describing George B. Cortelyou, a Westfield Alumni who served in the Presidential administrations of Grover Cleveland, William McKinley, and Theodore Roosevelt. Cortelyou was present at McKinley's assassination and was effectively the Twenty-Fifth-and-a-Half President of the United States between McKinley and Roosevelt.

ENVIRONMENTAL SCIENCE**Mureno Mang '27, Griffin Beardsley '25**

83

Faculty Sponsor: Professor Lili Lei

How does pH and Phosphorus Levels of a Parking Lot Compare to a Riverbed?

Our project was intended to evaluate the difference in pH and Phosphorus nutrient found in the soil of two different sites, both facing the possibility of high erosion rates. The first site was along a parking lot

where small amounts of vegetation grows, and the other was along a riverbed. We collected 5 soil samples from each location using a soil core. The samples were taken from different sections just outside of the WSU commuter lot and the bank of the Westfield River. These samples were taken back to the lab for pH and phosphorus testing to determine acidity and nutrient availability. We found that the pH of the riverbed was higher than the parking lot and expect the phosphorus level to be higher in the riverbed than the parking lot because the parking lot has more disturbances and more human activity near it compared to the natural area of the river bed. We believe that with more human disturbances this in turn will decrease nutrients availability and decrease soil pH.

Makenna Albee '25, Miriam Taub '25

5

Faculty Sponsor: Professor Lauren DiCarlo

Vegetation Management Plan Monitoring: Pitoniak Conservation Area

The Pitoniak Conservation Area is a City-owned meadow in Westfield, MA currently under Conservation Restriction by Mass Audubon. In 2022-2023, Abigail Mahoney and Michael Heins ('23 WSU alumni) surveyed property vegetation and followed up with the development of a vegetation management plan (VMP). The VMP consisted of manual invasive species removal, herbicide application, and mowing. The mowing was completed in May of 2023 to preserve the area as a grassland. We conducted vegetation monitoring of the site during the fall of 2024 to compare vegetation before and after mowing. Our data collection methods included identifying species along ten 30-meter transects and determining ground cover using ten 1-meter quadrats. Since the initial data collection by Mahoney and Heins in 2022, there has been a slight increase in the relative abundance of native species found on the property. An increase in ground cover was observed due to the spread of invasive species. However, the relative abundances of both invasive and introduced species decreased from 2022 to 2024.

Jenna Boivin '25, Emma Evans

91

Faculty Sponsor: Professor Lili Lei

Comparing Microplastic Concentration and Characteristics in Tap Water from Amherst County VA

Microplastics (MPs) have been extensively studied in primarily marine environments, surface waters, and sediments, whereas there have historically been limited studies addressing freshwater sources such as tap water. Only recently has tap water been the focus of MP research, with a majority of studies being conducted in urban settings, however, there is a lack of research surrounding microplastics in rural areas. In this study, the characteristics and quantity of MPs were investigated in six local tap water samples from Amherst, Virginia. We accurately identified the particle color, concentration, and shape of MP particles through the implementation of thorough contamination controls, uniform, double-sampling and filtration methods. Within the full, double-sampled data, more MP's were found in the natural water source than our well and tap water sources, with well water having a lesser average of MPs than tap water. In summary, Amherst county has a much lower MP content in its tap water than some other places. This study aims to expand insight into microplastic contamination in rural tap water, a relatively under researched area, and works to inform future research on microplastics in various natural environments.

Sophia Milko '25, Lindsey Dion '25

Oral
Presentation

Faculty Sponsor: Professor Tim Parshall

An analysis of domestic goats (Capra hircus) as a method of invasive plant removal on the Westfield State University Campus

Invasive plant species have become a concerning problem in many areas in the world due to their nature to dominate ecosystems. There are many ways to remove invasives that are ecologically friendly and effective, one of them being the use of ruminant livestock to remove invasive grasses and shrubs. Due to having a multi-chambered stomach with a diverse range of microbes, ruminants can digest numerous plants that other mammals can't digest. For this project, we investigated the

efficiency of the domestic goat (*Capra hircus*) by reviewing relevant scientific literature and also completed a field study on campus. The field study focused on two different plots that contained mostly round-leaved bittersweet (*Celastrus orbiculatus*), multiflora rose (*Rosa multiflora*), and mugwort (*Artemisia vulgaris*). We also evaluated whether using goats to remove invasive plant species is a feasible option for the Westfield State University community to implement in the future.

Emma Kirkpatrick '24, Katrina Magoon '24

Faculty Sponsor: Professor Tim Parshall

Investigating the Effectiveness of Oil-Eating bacteria on Various Hydrocarbon-Based Vehicle Fluids

Oil pollution in water occurs when petroleum or its derivatives are released into aquatic environments, leading to detrimental effects on ecosystems, wildlife, and human health. Waste oils from vehicles in the form of motor oil, gear oil, transmission fluid, and power steering fluid are extreme environmental hazards when improperly disposed of or leaked into the environment. Oil-eating microbes (OEM), also known as hydrocarbon-degrading bacteria, have the potential to significantly reduce motor vehicle oil pollution in the environment through a process called bioremediation. The purpose of this experiment is to assess the effectiveness of degradation by OEM on different hydrocarbon fluids including motor oil, gear oil, transmission fluid, and power steering fluid when exposed to OEM. Using spectrophotometry, we measured absorbance indicating the amount of bacterial activity and used hydrocarbon testing to see oil degradation rates. We analyzed trends between different hydrocarbon-based fluids and degradation rates. We also evaluated the frequency of waste oil being introduced into the environment via vehicle leaks. Combining experimentation with real-world observation at Tim's Automotive, this study seeks to identify the fluids leaked most often and the effectiveness of OEM bioremediation on each fluid.

Oral
Presentation

Jamey Gusmano '25

Faculty Sponsor: Professors Tim Parshall and Lauren DiCarlo

Sustainable Landscape Restoration at Horace Mann Center

My project investigates four alternatives to landscape management to determine their effectiveness in reducing our school's carbon footprint. The study focuses on a 1.85-hectare grass field outside of Horace Mann Center and compares the carbon storage potential of each plan. The first plan is to maintain the current state of the area and serves as a baseline for comparison. The second plan allows the area to regrow into a native forest, promoting biodiversity and natural carbon sequestration. The third plan introduces a tree arboretum, enhancing educational opportunities and aesthetic value while increasing carbon storage. The fourth plan establishes an apple orchard, combining carbon storage with fruit production and community engagement.

Data collection involved sampling tree biomass in square plots using diameter breast height (DBH) and allometric equations to calculate the aboveground carbon content for each plan. The tree arboretum showed the highest carbon sequestration potential, followed closely by the natural forest regrowth, while the grass field had the lowest. The apple orchard provided a moderate level of carbon storage with additional difficulties in maintenance and potential to attract pests. The findings suggest that transitioning from a grass field to either a tree arboretum or a natural regrowth area would substantially increase the school's carbon storage capacity. Implementing these restoration plans can contribute to a more sustainable and environmentally friendly school landscape.

Oral
Presentation

John Gaj '26, Jenna Biovin '25

Faculty Sponsor: Professor Lili Lei

Comparative Analysis of Soil Organic Matter and Acidity Under Conventional and Alternative Land Management Practices

Soil management practices in agriculture have been the focus of soil scientists for a long time, and with the changes in management practices, we can create healthier, more stable soil and avoid destroying

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one of humanity's most important resources. Soil tillage is a key proponent of agriculture and various methods are used but determining what method is healthiest for soil management is key in order to maintain the health and productivity of soil. This experiment aims to determine how different management practices between annual tillage, tillage rotation, or no tillage, affects soil organic matter content and pH, both vital metrics when looking at soil health and productivity. Soil cores were collected from the Gaj family farm in Blandford Massachusetts due to their diversity of crops and management practices all while being within the same soil type. We expect that with less overall tillage there will be a slightly more acidic pH reading and a higher organic matter content than in the yearly tilled soil. This research could provide crucial information not only for the Gaj family farm but also agriculture in general for more soil friendly management practices, as well as a better understanding of how soil tillage can affect overall soil health and organic matter content.

Tyler Nagi

Oral
Presentation

Faculty Sponsor: Professor Tim Parshall

How Urbanization/Suburbanization and Residential Development Impacts the Spread of Invasive Plant Species Near Wetlands

Multiple scientific studies have indicated a higher percentage of invasive plants in urban areas than in rural areas and that human activity is driving this increase. The goal of our study was to determine if the findings of the urban/rural studies would be applicable when comparing locations near a development with locations that are not near a development in Westfield.

We selected six locations near wetlands, with three near a development and three not near a development. We used GPS equipment and ARC GIS software to determine the locations and surveyed the areas using visual approximation during September and October 2024, when there was still vegetation. We recorded each invasive and non-invasive plant species by location and assigned a percentage based on the entire area of the plot.

Based on our research and observations of the 6 locations, we found a higher rate of Invasive Plants in developed areas (51%) versus the rate of Non-Invasive Plants (33%) in areas not near developments. Based on the data, we determined that although there was an 18% point difference in the rate of Invasive Plants, the results were not statistically significant. We performed a T-test with a P-value of 0.092, greater than the <0.05 needed for statistical significance.

Given our data collection and findings, we believe our hypothesis, which was based on our research of previously published studies comparing urban and rural areas and percentages of invasive plants, that areas near developments versus areas in Westfield that are not near developments would also have more invasive plants was not confirmed because of the difference was not statistically significant.

Emma Brault '25, Zachary Dickinson '25

Oral
Presentation

Faculty Sponsor: Professor Tim Parshall

Surveying Beaver Distribution and Activity at Bear Hole Reservoir

The North American Beaver (*Castor canadensis*), is a semi-aquatic mammal and the largest rodent in North America. They are ecosystem engineers who modify ecosystems to meet their ecological needs. Our study was conducted at Bear Hole Reservoir, a 1,400-acre property in West Springfield, MA. Our objective was to investigate the relationship between beaver activity and their ecological surroundings. We visited Bear Hole to document beaver presence at the property and investigate how activity is related to dam/lodge quality, a food cache, and fresh tree cuttings. Ecological factors we measured include tree species composition, stream width, and gradient of where we found dams. Geographic Information Systems (GIS) were also used in this project to map where we found signs of beaver activity. We used a GIS habitat suitability map created by a prior senior capstone project that

determined locations by best suitability that meet beavers' needs within their habitat.

Isabelle Scott '25, Jenna Boivin '25

54

Faculty Sponsor: Professor Lili Lei

Assessing Hydrophytic Vegetative Strata Communities: A Comparative Study Between a Restored and Control Site by the Westfield River

Riparian zones are the ribbon of vegetation that runs along the two edges of a river, the medium between aquatic and terrestrial ecosystems, connecting and regulating both habitats (Burdon et al., 2020). Riparian zones provide many ecological functions that translate directly to intrinsic anthropogenic benefits, including but not limited to, flood mitigation, river eutrophication reduction, and pollution prevention. Anthropogenic disturbances have historically been the largest threat to riparian zones, but a new threat, invasive species, induced by human management, have created many challenges such as the potential to reduce the diversity of native riparian ecosystems. To determine the influence of invasive vegetation on riparian vegetative communities, we assessed vegetative strata between a restored and control site, before and after the removal of invasive winged burning bush (*Euonymus alatus*). We accurately identified vegetative species between four strata: tree stratum, shrub/sapling stratum, herb stratum, and woody vine stratum from the MA Handbook for BVW Delineation. We then analyzed our data through the Shannon-Wiener Index, in addition to the species richness, and the species evenness index. Our results showed that the removal of winged burning bush supported greater vegetative diversity, although the site without invasive removal had a greater abundance of vegetation.

Holly Bisset '27, Derric Ross '27

85

Faculty Sponsor: Professor Lili Lei

Effects of liming soils from different coniferous trees on soil pH change

Soil acidity is a big problem in the world because of many factors. Acidic soil decreases the availability of essential nutrients in the soil, it increases the impact of toxic elements, decreases the production of plants, and makes soil more vulnerable to structure decline and erosion. We collected 10 core soil samples each of Eastern White Pine soil, Eastern Hemlock soil, and soil from a deciduous area from Stanley Park. Liming the soil is a practical way to improve the soil's PH which will reduce the negative effects that acidic soil will have on plant growth, soil health, etc. In the lab we measured the PH and limed the PH using a rate of 8,000 pound per acre for a target soil PH at 6.5. The soil was then incubated for a week in the lab. The Deciduous soil: 4.18/3.87 White Pine soil: 4.07/4.10 Hemlock: 4.02/3.98. We expect the soil PH to increase after a week of incubation using 100% effective lime in the soil. This experiment helped us understand the relationship between acidic soils and liming to increase the PH, which indicates a practical way to lime acidic soil in this area.

Cody Brown '26, Eric Gingras '26

62

Faculty Sponsor: Professor Lili Lei

Coastal vs Inland Soil

The project consists of comparing both Massachusetts coastal and inland soil. Both the soil organic matter (SOM) and four characteristics of the soil profile were examined. The two soils are from different areas of the state. They have different climates, landscapes, and results because of those factors. Soil from two areas (Westfield State University commuter lot and a backyard in Plymouth) were collected. They were then examined for their soil profile characteristics. After they were characterized, they were put in an oven to find their soil organic matter content. Our results showed a clear difference in organic matter content and the soil profiling. The Plymouth soil showed to be a lot sandier than the Westfield soil. It had less organic matter. The soil from Westfield was more red after the oven compared to the Plymouth soil. This study showed that the organic matter content of inland soils is greater than coastal soils.

<p>Gabriella Stolfi '28 67</p> <p>Faculty Sponsor: Professor Susanne Chuku Sports and Well-Being in Student Athletes My research examines mental health in student athletes at Westfield State University, and how it is the basis of our emotional, psychological, and social well-being. I study the reasons for participating in sports and how we handle stress, relate to others, and make choices.</p>
<p>Andre Phaneuf '28 70</p> <p>Faculty Sponsor: Professor Susanne Chuku What is Actually in Your Food? What has the U.S. Food & Drug Administration allowed to be in your food for decades? What do big corporations not want you to know about toxic additives and preservatives? What has Europe done to fix this problem? My research studies the effect of food on overall health.</p>
<p>Noah Luis '28 79</p> <p>Faculty Sponsor: Professor Susanne Chuku Are You Paying a Baseball Superstar's Salary? My project studies how team revenue and other factors such as player statistics, ticket sales, and jerseys sales affect an MLB player's contract. Do the organizations put the financial burden for their superstar salaries on the fans by charging more for tickets, food, and fan merchandise?</p>
<p>Owen Packard '28 71</p> <p>Faculty Sponsor: Professor Karin Vorwerk <i>Has The United States Become Less Violent Since 1992?</i> My research examines the change in the United States violent crime rate over the past three decades. The data shows a decline in violent crime nationwide over this span of time. I will also look at the most and least violent states-as defined by violent crimes per 100,000 people-in the country in 1992 and 2022.</p>
<p>Ben Janes '28 87</p> <p>Faculty Sponsor: Professor Susanne Chuku <i>Is There A Correlation Between Club Participation And Student Morale?</i> I am using a survey to measure student morale and sense of belonging on campus. My research compares the sense of community to the number of clubs and student organizations they participate in at Westfield State University.</p>
<p>Edward Kinzer '28 96</p> <p>Faculty Sponsor: Professor Susanne Chuku <i>Navigating the Real Estate Market - Renting vs Buying</i> My project reflects the relationship between the cost of buying a house vs renting one. It also discusses the factors that lead into people either choosing to buy or rent a house. In addition, it considers the relation to one's income and how the cost of houses can affect what one is able to do with their finances.</p>
<p>Gregory Marengi '28 68</p> <p>Faculty Sponsor: Professor Karin Vorwerk <i>Predicting the Super Bowl Winner</i> When studying the last 10 Super Bowl winners, I looked at 6 major statistical categories, total offense, total defense, sacks, passing, rushing, and team turnovers (take away and recovery). At first glance some categories like rushing or team turnovers might seem completely irrelevant as most winners rank almost dead last in these stats, however looking at each Super Bowl winner they all have one thing in</p>

common which is the fact that every winner has ranked at least top 5 in 2 statistical categories. This data helped me narrow down a Super Bowl winner for this year, the Baltimore Ravens.

Emmett Garfield '28

72

Faculty Sponsor: Professor Karin Vorwerk

Changes in Household Income since 1964

I'm looking at changes in median household income both absolute terms and adjusted for inflation. I explore if the average household is better off now than in the 60s.

Theo Yetman '28

77

Faculty Sponsor: Professor Karin Vorwerk

Will there be a limitation for human physicality?

I look into a few aspects of human physicality, such as speed and height. My research results show that at some point physicality will plateau. I also examined the effect of outliers on my predictions.

Tyler Olden '28

6

Faculty Sponsor: Professor Karin Vorwerk

Causes of Homelessness

Homelessness has been a problem in the US to the point where it was declared a national issue in 1870. In this project I've investigated the causes of homelessness in the State of Massachusetts.

Gianna Tringale '28

75

Faculty Sponsor: Professor Karin Vorwerk

Addiction Patterns

Using data from the National Survey on Drug Use and Health, I am examining addictive substances that are in common usage, such as alcohol, marijuana, cocaine, and pain relievers. I investigate at what age people become addicted, how often they use, and how addiction changes over a person's lifespan.

Gregory Marengi '28

68

Faculty Sponsor: Professor Karin Vorwerk

Predicting the Super Bowl Winner

When studying the last 10 Super Bowl winners, I looked at 6 major statistical categories, total offense, total defense, sacks, passing, rushing, and team turnovers (take away and recovery). At first glance some categories like rushing or team turnovers might seem completely irrelevant as most winners rank almost dead last in these stats, however looking at each Super Bowl winner they all have one thing in common which is the fact that every winner has ranked at least top 5 in 2 statistical categories. This data helped me narrow down a Super Bowl winner for this year, the Baltimore Ravens.

James Crook '28

45

Faculty Sponsor: Professor Vanessa Diana

Downtown Businesses on Westfield State Instagram

In the First-Year Journey Course "Discover Westfield," we explored the City of Westfield through downtown trips and then developed proposals for increasing WSU student engagement in the City. This presentation proposes that students collaborate with the Westfield State Instagram account to shout out downtown businesses in order to increase student involvement.

Crina Bojonca '28, Chelsea Brito '28, Benny Rosas '28

51

Faculty Sponsor: Professor Vanessa Diana

Questo

In the First Year Journey Course, "Discover Westfield", we proposed ideas in order to improve student engagement with our town. Our group decided to encourage students to go outside and explore their city by making it fun through Questo, a trivia app that leads you in an adventure as you explore

Westfield.

Hannah Wright '28, Paige Galpin '28, Arianna Dupuis '28

49

Faculty Sponsor: Professor Dristi Neog

Unity in Every Drop: A Downtown Blood Drive Bridging Campus and Community

In the First-Year Journey Course "Discover Westfield," we explored the City of Westfield through downtown trips and then developed proposals for increasing WSU student engagement in the City. This presentation proposes a series of blood drives that will be hosted around Westfield, including incentives from local businesses and a fun competition between students, this will benefit those in need, students, and local business owners thus increasing student engagement in downtown Westfield.

Amariana Do Santos '28

108

Faculty Sponsor: Professor Marsha Marotta

Jenna Duff '28

110

Faculty Sponsor: Professor Marsha Marotta

Gavin Hallfelder '28

112

Faculty Sponsor: Professor Marsha Marotta

HONORS

Ariana Santiago '27, Lakshmi Jetty '27

29

Faculty Sponsor: Professor Hillary Sackett Taylor

Balancing Healthcare and Affordability: The Impact of the ACA on American Families

The Affordable Care Act is the law I have decided to concentrate on for my CURCA research. This law has an effect on Americans finances. It was developed to assist more individuals obtain health insurance and to lower the cost of healthcare. Lowering the number of Americans without health insurance was another goal. In many aspects, the ACA has been successful. For example, it improved access to preventative care, made more screening processes covered, prescription drugs began to cost less and increased the number of people who were able get insurance through Medicaid expansion. But there have also been some issues brought on by this act. Higher premiums have begun to cost more for some people. Small businesses have also found it difficult keeping up with the new laws. Some alternatives I will be analyzing in my research project are ways to reassess the criteria for people who qualify for medicaid. Also, I will be looking into ways to not cost some people as much money in private health insurance. I will be making policy changing recommendations based on economic factors.

Christopher Bamber '28

92

Faculty Sponsor: Professor Hillary Sackett Taylor

The Student Loan Forgiveness Program: Goals, Challenges, and Broader Implications

The Student Loan Forgiveness Program is designed to help reduce financial stress on students because of high amounts of loan debt. This program strives to forgive significant amounts of balances from borrowers to help them overcome burdens brought about from their debt. However, the program sparked legal debates, many people criticized the program and questioned whether or not the president has the authority to even forgive such large amounts of debt without approval from

Congress. And so, similar plans have been formed to help borrowers in comparable ways such as the Income-Driven-Repayment plan (IDR) which has been revised to help lower monthly payments and offer borrowers extra relief and repayment flexibility.

The program's main goals are to alleviate the financial pressure on borrowers which in theory will allow them to invest in things like housing, retirement funds or other entrepreneurship goals instead of being held back by high amounts of school debt. The program also strives to promote economic activity by increasing these borrowers' disposable income. The program specifically targets lower-income borrowers and marginalized communities who may be disproportionately impacted by student debt. Programs like IDR and PSLF have helped reduce monthly payments by up to \$200-\$300 for many borrowers while also succeeding in boosting consumer spending. But, not without their setbacks and problems. The long-term impact of these programs has been questioned by many, high-debt borrowers may see limited benefits, and some argue that the economic burden is shifted onto taxpayers. Some other unintended consequences include possible tuition increases from universities, uproar from those who have already repaid loans, and the hazard of future borrowers taking on extra debt in hopes of relief.

Key stakeholders include young adults, low-income households, marginalized groups, taxpayers, educational institutions, and private lenders, who all face varying impacts from these changes in policies.

Cassandra Lorom '26, Autumn Jones '26

93

Faculty Sponsor: Professor Hillary Sackett Taylor

Breaking the Barriers: The Importance of an Interdisciplinary Approach to Quality Patient Care

Effective healthcare practice requires an interdisciplinary, collaborative approach to maximize quality of patient care. Old-model practices that rely heavily on a single provider are insufficient, leading to poor outcomes, multiple referrals, and potentially adverse events. Integrated collaborative approaches allow all professionals (nurses, doctors, social workers, therapists, CNAs, etc) to have a voice in the care process, though the patient overall has the biggest input. Utilizing this style of healthcare leads to improved safety, quality, rapport, and success. The teams have professionals who are specialized in certain areas, to create a harmonious care team, motivated to improve all aspects of the patients concerns. The social, emotional, and psychological health of the patient are also fostered in this type of collaborative care. Each professional involved in the care and treatment has a unique perspective and personality, allowing for the most effective quality of care. However, limitations and challenges such as education levels and hierarchical structures, pose difficulty for lower-level professionals. These challenges can be combated with standardized training, effective communication, and collaboration. Overall, the interdisciplinary approach to medicine allows for high-quality patient care.

Logan Sullivan '26

60

Faculty Sponsor: Professor Hillary Sackett Taylor

Independent Study NASCAR Research

The National Association for Stock Car Auto Racing (NASCAR) remains a powerhouse in the motorsports world, captivating millions with its high-speed action and storied traditions. Despite evolving challenges, the organization continues to grow as a business by innovating to meet the demands of a modern audience. This poster explores NASCAR's enduring success, focusing on the remarkable efforts of the France family, whose leadership has guided the organization for over seven decades. By examining the book "The NASCAR Way" written by Robert G. Hagstrom and published in 1998, the first five decades of the NASCAR business are explained and represents a foundation behind NASCAR's ongoing relevance to business, marketing and sponsorship strategies. NASCAR's strategies also include maintaining fan engagement and navigating questions about the sustainability of its business to ensure that the motorsport world stays afloat due to the costs that are related to keep the

Aiden Betit '25

33

Faculty Sponsor: Professor Hillary Sackett Taylor

Solar Tax Credits and Their Impacts on Homeowners

As concerns over the climate and environmental health grow, the need to turn to clean energy sources is becoming more apparent. While renewable energy sources come with a variety of environmental and economic benefits, it also comes with an intense initial cost that can deter many homeowners from using clean energy. How can we subvert these costs to make these energy sources more accessible and continue to promote clean and renewable energy?

In support of clean energy, both the federal and state governments throughout the United States offer tax credits for those willing to adopt renewable energy sources such as solar power. These tax credits are used to increase solar energy use throughout the United States, fighting against dependence on foreign oil and addressing concerns over environmental health and energy security (Lazzari, 2008; VandeHei, 2005). The purpose of this project is to research tax credits related to solar energy systems with the goal of understanding how much they can reduce the cost of residential solar energy to American homeowners and the potential economic benefits. This project will be research based and I plan to explore both federal and state policies related to solar energy tax credits to determine how much of an impact they have for homeowners interested in turning to solar power. I also intend to research alternative policies that promote renewable energy of various kinds in a residential environment in order to compare those policies and determine what is most effective and beneficial for homeowners. Finally, I will research if there are any additional consequences to the adoption of solar panels for residential use outside of the high upfront cost. The findings of this research and a recommendation regarding incentives for clean energy will be presented at CURCA at Westfield State University during the Fall 2024 semester.

Ashley Chacho '27, Fatimah Naser '26, Mariza Monteiro '26

53

Faculty Sponsor: Professor Hillary Sackett Taylor

The Affordable Care Act: Bridging Gaps in Health Coverage and Access

The Affordable Care Act (ACA), also known as Obamacare, is a transformative federal policy designed to enhance the economic well-being of Americans by addressing healthcare accessibility and affordability. Its primary objectives include making health insurance more affordable and widely available, expanding Medicaid to cover a larger population of low-income adults, and supporting innovative healthcare delivery models to reduce overall costs. The Department of Health and Human Services states "Make affordable health insurance available to more people. The law provides consumers with subsidies ("premium tax credits") that lower costs for households with incomes between 100% and 400% of the federal poverty level (FPL)." (Department of Health and Human Services)

Data indicates that the ACA has been effective in achieving these goals, with millions of previously uninsured Americans gaining coverage and states experiencing improvements in public health outcomes due to Medicaid expansion. However, the ACA has also led to unintended consequences, such as increased costs for some individuals and businesses as they adjust to coverage mandates and compliance requirements. We would like to consider alternatives that would make the ACA an easier process to apply for citizens. These alternatives could impact medium- to low-income households who benefit from expanded coverage, small businesses that must navigate new insurance requirements, healthcare providers adapting to new care delivery models, and state governments managing expanded Medicaid programs. By reshaping the U.S. healthcare system we advise to reduce cost sharing, strengthen coverage requirements, create federal backstop for coverage, and simplify

enrollment options in order to improve our economy.

MANAGEMENT AND MARKETING

Jessica Isbell '25 (Honors)

34

Faculty Sponsor: Professor Anthony Furnelli

Evolving Brand Identity on Social Platforms

Modern branding and digital marketing demand a strategic, consistent identity across social media platforms to connect with target audiences. Businesses can distinguish themselves by utilizing social platforms such as Facebook, Instagram, and LinkedIn. Marketing is evolving to place a greater emphasis on providing memorable, unique experiences that exceed standard advertising. This project analyzes important branding concepts and highlights an example of how a consumer food brand created marketing buzz through an ad campaign.

MUSIC

Elizabeth Blais-Bennett '25

Oral
Presentation

Faculty Sponsor: Professor Sonia Lawson

The Underdog of Romantic Music: Exploring the Romantic Clarinet

The clarinet is one of the most recognizable instruments of today, alongside the likes of the piano and the guitar. Every time I provide a demonstration of the clarinet family for music appreciation classes here at WSU, I ask the class if anyone has ever played the clarinet, and every time without fail a dozen hands go up. As well-recognized and appreciated as the clarinet is, I've noticed throughout my education here that the clarinet is not recognized in our music textbooks as an important instrument. Music written specifically for the clarinet is not recognized as an important part of music history. As a clarinetist, I think this is a shame! I think it's time that the clarinet's rich history was explored and shared!

My project includes a 30-minute lecture with guided listening examples for 7 pieces of Romantic that are important in the clarinet canon, and the lecture ends with a live performance of a segment of an important work. These works display the range of music written for the clarinet during the 19th century. The lecture focuses both on musical history and developmental history of the clarinet.

NURSING

Abby Work '25, Makenzi Ritchie '25, Jayda Mazarella '25, Timothy Jinn '25

76

Faculty Sponsor: Professor Joan Kuhnly

Preterm Labor and Birth

Preterm labor occurs when the body births a baby before the 37th week of pregnancy. Preterm birth remains the number one leading cause of death in neonates. Preterm birth can happen for a number of reasons, some include being pregnant with more than one child at a time, having pre-existing pregnancies where you delivered a preterm before, long term health diagnosis can also play a role for preterm birth, smoking, drugs, and unhealthy practices during the pregnancy can also be a key factor. Preterm babies are far more vulnerable and require lots more attention. Birthing units of preterm babies pose a higher risk for anxiety, postpartum depression, and post traumatic stress disorder for everything they go through. Preterm birth poses multiple risks toward birthing units and babies.

Abby Work '25, Autumn Frailey '25, Ella Sherman '25

Faculty Sponsor: Professor Jamie Rivera

Eat, Sleep, Console

This abstract poses the question of when comparing the Finnegan Neonatal Abstinence Scoring System (FNASS) with the Eat, Sleep, Console approach, which approach will reduce the length of stay (LOS), pharmacological interventions, returning to the emergency department or readmissions for infants experiencing neonatal opioid withdrawal syndrome (NOWS)? Eat, sleep, console is a method used in NICUs to help babies withdrawing from opioids. If the baby is able to eat, sleep, and be soothed by the nurse they should not need pharmacological support. Sometimes babies that are withdrawing can have a very hard time coming off the substances they were exposed to in utero. Due to less than optimal functioning these babies are medicated to make them more comfortable in their withdrawal process. There is research to suggest that the eat, sleep, console method may help babies to avoid being medicated or readmitted to the hospital due to withdrawal complications. The next step in research is coming up with an assessment tool based on the eat, sleep, console method that uses a grading-like system to decide if babies withdrawing need pharmacological intervention. Recent research compares the existing Finnegan Neonatal Abstinence Scoring System (FNASS) with the possible eat, sleep, console tool. Despite the tool being relatively new and needing more research. The method is solid and the results have proved that babies using the eat sleep console method have needed less medication. Compared to the babies who were only scored by the FNASS and having not been encouraged to withdraw on their own.

PSYCHOLOGY

Sarah Fuller '25

24

Faculty Sponsor: Professor Summer Williams

The Psychology of Illness: A Snapshot of Kidney Disease

This poster will include the many aspects of suffering from kidney disease. It will include the social isolation of having kidney disease, the impact of having a strong support system, different types of coping, and the feeling of powerlessness in chronic disease. It will also include discussion about possible psychological interventions for kidney disease patients. This poster is based off of the pathography of Jennifer Cramer-Miller. She is a woman in her twenties whose life got completely changed with the onset of Focal Segmental Glomerulosclerosis, a type of kidney disease. Jennifer lived a "normal" college life until her symptoms appeared at twenty two years of age. She struggled to accept her diagnosis. She faced an immense amount of hardships throughout her journey. Roughly 1 in 7 Americans have chronic kidney disease, about 37 million people. Along with these statistics, it is important to bring awareness to this condition because of the severe life impact it has.

Alec Ryan '25

56

Faculty Sponsor: Professor Summer Williams

The Psychology of Illness: A Snapshot of Oppressive Compulsive Disorder

This was a story of Jeff Bell and his story with Oppressive Compulsive Disorder (OCD). OCD is a pattern of thoughts and or fears that lead to repetitive behaviors. These behaviors often get in the way of everyday activities. Jeff Bell is an author, radio news anchor, health advocate and the co-founder of "Alliance 2 Advocacy". He struggled for many years without knowing what was wrong with him until he just happened to find a book that described how he was feeling when he was doing his own research. There are 2 different types of psychological interventions to try to handle or cure his illness. He uses Cognitive behavioral therapy and meaning focused coping. He also had a few themes throughout the book like his constant power struggle with his illness, his constant struggle to be "normal", his pretty good social support from his wife and his mother, and one of his meanings focused coping strategies.

Lila Labrie '25

66

Faculty Sponsor: Professor Summer Williams

The Psychology of Illness: A Snapshot of Breast Cancer

Ruth Picardie provides a perspective on breast cancer in *Before I Say Goodbye* which lays out her own experience of coping with and eventually losing to the disease. The book, which is written as a collection of letters, journal entries and reflections, describes Picardie's experiences with her diagnosis, the psychological and physical effects of her treatment and her changing views on death. With applying interventions such as mindfulness and acceptance, as well as psychological support through counseling and therapy can be proven to be reliable for individuals who have breast cancer. Ultimately *Before I Say Goodbye* is a reflection on life loss and the enduring relationships that influence human experience in addition to being a memoir of Picardie's last days. The current study will investigate Picardie's experiences with psychological themes of illness and psychosocial treatment interventions for breast cancer patients.

Kirstyn Carrigan '25

69

Faculty Sponsor: Professor Summer Williams

Psychology of Illness: A Snapshot of Blindness

This research will highlight the illness experience for individuals undergoing chronic illness. A majority of this study will relate back to Robert Hines and his experiences being blind described in his pathography *Second Sight*. The focal point of this project will include understanding the emotional, physical and societal factors of chronic illness and how they can create barriers or support. Overall this study will explore various aspects of the illness experience. This will include how social support, coping, self management and roles of healthcare providers may affect an individual undergoing chronic illness in a positive or negative manner. Investigation of how individuals undergo and adapt to the chronic illness experience will be the primary focus of this study.

Keisha Thompson '26

80

Faculty Sponsor: Professor Summer Williams

The Psychology of Illness: A Snapshot of Schizophrenia

Elyn Sak's pathology "The Center Cannot Hold" is a coming-of-age biography of an individual experiencing Schizophrenia and the effects it had on their life. Elyn describes exhibiting Schizophrenia symptoms at age eight and how it affected her. As she ages her symptoms show increased severity and completely derail her academic life.

Schizophrenia is a chronic brain disorder that affects approximately 24 million people and is characterized by delusions and hallucinations, disorganized thinking and behavior, and changes in emotion, movements, and behavior. This is an important area of study because individuals with Schizophrenia die at a younger age compared to healthier people with suicide being the biggest reason and health issues being the next, medical professionals may assume their health issues are a result of their illness or a delusion which in turn makes individuals with Schizophrenia will be less likely to convey their issues to a medical professional. Key concepts explored such as powerlessness, treatment adherence, healthcare-provider interactions, and medication self-management are prevalent in this book and showcase the reality of chronically ill individuals. This poster will explore psychologically based interventions like the PCMH model, collaborative care, and cognitive behavioral therapy which integrate behavioral health and primary care for patients with complex and physical illnesses and exhibit treatments that would serve as helpful for individuals with serious mental illnesses.

Jordan Gurau '26

94

Faculty Sponsor: Professor Summer Williams

The Psychology of Illness: A Snapshot of Burn Victims

Burn injuries are not uncommon, but for the Weill Cornell Medical Center on September 11th, 2001,

there were people filled in the burn unit. Lauren Manning was one of those people, and her story is told through the lens of her husband Greg Manning. The poster will include four key themes that the couple go through: social support in a time of uncertainty, being thrust into the caretaking role, couples coping, and anticipatory guidance. It is important to study about burn injuries and about Lauren and Greg's story because they address how everyone's recovery is different and how social support goes a long way. Musical interventions have been proven to decrease pain and anxiety in adult burn patients (Monsalve-Duarte et al., 2022) through music therapy. Rafii et al. (2020) found that aromatherapy massages help with anxiety and sleep quality among burn patients.

Kendall McKenna '25

73

Faculty Sponsor: Professor Summer Williams

The Psychology of Illness: A Snapshot of Crohn's Disease (IBD)

Crohn's disease, a chronic inflammatory bowel disease (IBD), impacts both physical and mental health. This poster examines the psychological challenges of living with Crohn's through Tessa Miller's personal story, highlighting her struggles with symptoms, isolation, and emotional toll. Social isolation, anxiety, and depression often accompany chronic illness, worsening the condition. Tessa's experience underscores the importance of social support, particularly from family, friends, and support groups, in managing the disease. Effective healthcare, with empathetic communication and strong provider-patient relationships, is essential for both physical and emotional well-being. Tessa's journey also emphasizes positive coping strategies, such as acceptance, to manage stress and improve quality of life. Her story highlights the need for integrated care that addresses both physical and mental health, and the resilience required to navigate the challenges of Crohn's disease. The poster will also present evidence-based interventions for psychosocial care of Chron's disease.

Sophie Chauvin '25

74

Faculty Sponsor: Professor Summer Williams

The Psychology of Illness: A Snapshot of Lyme Disease

Lyme disease is an auto-immune disease that is commonly misrepresented, misunderstood, and misdiagnosed. Symptoms include a broad range, leading to doctors having a wide array of explanations. Doctors often use the process of elimination, ruling out other explanations. Awareness of Lyme disease varies among healthcare providers, contributing to inconsistent treatment approaches and creating an unpredictable journey for patients. Even after diagnosis, individuals face other obstacles in managing themselves, their lives, and their disease. Patients undergo different routes to gain back the normalcy of their lives. These struggles include feelings of powerlessness, adherence to treatment, and coping with the disease's impacts. This poster will examine the challenges and highlight a need for greater awareness and the development of standardized practices in the healthcare system to improve care for those affected by Lyme disease.

Isabella Lombardi '25

78

Faculty Sponsor: Professor Summer Williams

The Psychology of Illness: A Snapshot of Acute Myeloid Leukemia

The author of *Between Two Kingdoms*, Suleika Jaouad, guides readers through her journey of treatment for acute myeloid leukemia (AML) beginning at the age of twenty-two-years-old. This poster will review four themes involved in the diagnosis of AML: feelings of powerlessness, social isolation, the necessity for social support, and the illness experience, as they correspond with this condition. Treatment for AML will commonly consist of a paradigm of treatments. Two psychological interventions will be elaborated on that can improve patients' mental health during palliative and oncology care. The first, a digitalized prevention style to introduce a psychological mobile app called, DREAMLAND, gives patients an accessible way to manage the psychological elements that come with the diagnosis period. The second, Cognitive behavioral therapy (CBT) is a psychological intervention that addresses coping skills to deal with the symptoms and psychological effects of the condition. Both

interventions will include psychosocial elements that speak to the psychological needs that coincide with the health outcomes of patients with myeloid leukemia.

Noah Valentine '25

100

Faculty Sponsor: Professor Summer Williams

The Psychology of Illness: A Snapshot of Comorbid Chronic Illnesses

Invisible Illness: Coming of Age, Chronic Illness, and a Mother's Will to Survive examines the social, mental, and physical obstacles that people with chronic illnesses must overcome, which the book does from the viewpoint of a young woman's life journey. In the book, we see how her parents and sister portray their support in times, her husband, lifelong friends, and even her children. The overview of the presentation was done by Professor Williams in the psychology department. This narrative emphasizes the importance of empathy, patient-centered care, and family cohesion in managing chronic illness. Key issues in Lubkin's Chronic Illness are closely aligned with this story, especially in the way that invisible illnesses like fibromyalgia, chronic pain, chronic fatigue syndrome, and mental health disorders impact not just the individual but also their family. The psychological toll of having a condition that is frequently misinterpreted or invisible by others is also discussed in the book. This is a major issue in Lubkin's analysis of the psychosocial effects of chronic illness. Both books emphasize the emotional burden of stigma, isolation, and the need for emotional support in managing long-term conditions. Speaking on themes of advocacy, care, and the need for support systems, her story shows how the patient, family, and friends must adapt and create coping strategies for the ongoing challenges she and others face. The poster will entail four key themes from Lubkin's that Lauren faces such as social isolation, others not understanding the seriousness of the illness, feeling powerless, and the social support received. It will as well speak about two interventions that should've been implemented as major signs that were not taken into consideration sooner.

SPORTS MEDICINE AND HUMAN PERFORMANCE**James DiCarli '25**

57

Faculty Sponsor: Professor Lynn Pantuosco Hensch

The Effects of Various Therapeutic Modalities to Determine the Most Proactive Treatments for Ankylosing Spondylitis

Ankylosing spondylitis is an incurable, inflammatory spinal disease that has been tested with various therapeutic modalities including acupuncture, cryotherapy, therapeutic ultrasound and aquatic therapy. A review of the most proactive treatments will be included to understand the most valuable and dynamic findings in physical function, range of motion, pain control and overall quality of life within the diseased population.

Athena Roncarati '25

90

Faculty Sponsor: Professor Lynn Pantuosco Hensch

Does Mirror Therapy Reduce Phantom Limb Pain?

Mirror Therapy is a common intervention used to reduce Phantom Limb Pain. The effectiveness of Mirror Therapy is favored in some studies and in other research, alternative modalities were found to be more effective or similar.

Casey Daigneault '24

89

Faculty Sponsor: Professor Lynn Pantuosco Hensch

How Do Menstrual Cycles Effect Exercise Performance?

The phases during a menstrual cycle have an impact on exercise performance. When the phases were compared, it was found that the follicular phase is more beneficial to exercise performance than the luteal phase.

<p>Sarah Janssens '25 64</p> <p>Faculty Sponsor: Professor Lynn Pantuosco Hensch</p> <p><i>An Overview of Lumbar Spinal Stenosis: What is the Best Treatment?</i></p> <p>This research examines evidence-based treatment options for lumbar spinal stenosis (LSS) comparing the use of certain strategies in specific situations focusing primarily on nonsurgical interventions including physical therapy. A variety of physical therapy techniques will be presented, as well as cases where surgical intervention is needed to reduce back issues in older adults.</p>
<p>Ariann LeCours '25 19</p> <p>Faculty Sponsor: Professor Lynn Pantuosco Hensch</p> <p><i>Effectiveness of the Schroth Method on Adolescent Idiopathic Scoliosis Patients</i></p> <p>Adolescent Idiopathic Scoliosis (AIS) is a common musculoskeletal condition within adolescence that requires different therapeutic interventions for treatment, one of these being the Schroth method. This research project examines the effectiveness of the Schroth method for AIS patients and the possible continual use for clinicians.</p>
<p>Delaney Parker '25 20</p> <p>Faculty Sponsor: Professor Lynn Pantuosco Hensch</p> <p><i>Effect of Playing Surface Type on Soccer Injuries</i></p> <p>There is an ongoing perception that artificial turf imposes a greater injury risk when compared to natural grass. This research examines the relationship between playing surface type and injury rates among soccer players across various competitive levels.</p>
<p>Jessica Gardner '25 55</p> <p>Faculty Sponsor: Professor Lynn Pantuosco Hensch</p> <p><i>The Silent Struggle: The Hidden Impact of Anxiety on the Performance of High-Level Athletes</i></p> <p>The purpose of this research is to examine the correlation between anxiety and the performance of high-level athletes, both in competition and practice. Many byproducts of anxiety will be explored such as sleep disturbances, attentional impairments, societal pressures, and the environment.</p>
<p>Ryan DelBarba '25 98</p> <p>Faculty Sponsor: Professor Lynn Pantuosco Hensch</p> <p><i>Impact of Early Physical Therapy Intervention in Recovery Outcomes in Athletes with Ankle Sprains</i></p> <p>Early physical therapy is key to improving recovery from ankle sprains in athletes, as it helps minimize the risk of re-injury and accelerates the return to activity. Research shows that early mobilization, exercise-based rehabilitation, and supervised therapy effectively restore function and prevent long-term issues.</p>
<p>Matthew Elmasian '25 84</p> <p>Faculty Sponsor: Professor Lynn Pantuosco Hensch</p> <p><i>Is Exercise Therapy an Effective Alternative to Surgery for Meniscal Tears?</i></p> <p>This research examines the effectiveness of exercise therapy compared to surgical meniscectomy in treating meniscal tears. By analyzing existing literature, it explores differences in pain, knee function, and quality of life between patients who received physical therapy and those who underwent surgery.</p>

WALL OF WORDS

THE WALL OF WORDS POSTERS ARE LOCATED ON THE RIGHT SIDE OF THE ROOM

The Wall of Words is a collection of verse and prose poetry culled from current writing workshop students' work. Audience members are encouraged to ask the poets and authors about the forms they wrote in, the inspiration for their works, if they had a model text they were working from. . . and of course, asking about specific themes or imagery is always welcome. Our talented poets and writers develop their pieces in studio workshop sessions, getting feedback from their professors and classmates, but we are grateful to have an expanded audience for student creativity at CURCA!

-Professor Michael Filas (English)

ENGL 243 Writing Poetry Presenting 1:45-2:45	ENGL 335-001 Lyric Essay Presenting 1:45-2:45	ENGL 130-001 Creative Writing Presenting 3:00-4:00	ENGL 130-002 Creative Writing Presenting 3:00-4:00
201 Katelyn Beddia '25	227 Mekhai Felton '25	200 Tierney Boyle '26	230 Sicilia Campbell '28
203 Nathan Crane '25	229 Gage Glanville '24	202 Mason Bouffard '26	232 Ryan Canney '27
205 Madison Dudley '26	231 Tom Parent '25	204 Bridget Bucari '28	234 James Corrigan '27
207 Mekhai Felton '25	233 Dave White '25	206 Emily Czupta '25	236 Wyatt Graham '28
209 Summer O'Neil '26		208 Amber Greene '26	238 Ella Hansen '27
211 Jo Pearse '26		210 Jordan Healy '27	240 Kathleen Lee '28
213 MaryKate Quinlan '26		212 Abby Keenan '25	242 Hannah Miller '28
215 Ariana Santiago '27		214 EC Lawrence '27	244 Troyelle Nosal '28
217 Harleigh Sirafos '25		216 Glen McKane '25	246 Olivia Roberts '28
219 Maia Soucy '26		218 Grace Murray '26	248 Kadi Rosier '28
221 Dave White '25		220 Ashlyn Nichols '26	250 Spencer Wakefield '23, MS '26
223 Atlas Whitlock '26		222 Grace Peltier '26	252 Allie Whitaker '28
225 Jessica Zaniewski '25		224 Harper Pirnie '26	254 Sydney Wietecha '26
		226 Micah Scott '27	256 Angelina Williams '28
		228 Maddie Smith '28	

Westfield State University is delighted to be hosting guest CURCA submissions from Holyoke Community College.

Presenting from 1:45-2:45 p.m. are:

- Grace Leiper #235
- Sonia Szala-Krotkov #237
- Luca Seiber #239

Thank you to Professor Dave Champoux, Creative Writing Advisor from HCC, for your help in facilitating this collaboration.

HOW TO INTERACT WITH THE WALL OF WORDS:

Please ask us about our poetry and short prose! Ask our student writers if one of the works on display is by them, and even if their work is not on display, please ask questions!

Some possible questions to ask a poet or creative author:

- Ask about the form of poem.
- Ask about the rhyme scheme and rhythm.
- Ask about their inspiration for the work.
- Ask them about their writing habits.
- Ask them about their biggest writing challenges.
- Ask them about their writing goals.
- Ask what changes they made when revising.
- Ask about the symbolism
- Ask about the themes.
- Ask about the language.
- Ask about the line breaks.
- Ask about what they left unsaid.
- Tell them what you think.



THANK YOU

TO ALL STUDENTS, FACULTY MENTORS, STAFF, AND SUPPORTERS OF CURCA

Westfield
STATE UNIVERSITY
