



ST. THOMAS AQUINAS COLLEGE
3rd ANNUAL ART, DESIGN &
SCHOLARSHIP EXHIBITION



Ignite your curiosity. Ignite your imagination.

Welcome to Ignite: St. Thomas Aquinas College's third annual Art, Design, and Scholarship Exhibition. Ignite is a celebration of our undergraduate students, their research, and their creativity from multiple disciplines across campus. The scope of the presentations featured showcase the outstanding caliber of our undergraduate students at St. Thomas Aquinas College. We hope that this exhibition will ignite a passion for discovery and ingenuity in all of our students for years to come.

The projects on display also demonstrate the ongoing commitment of our faculty to supporting undergraduate research. As is true of their faculty mentors, these students and their work hold the potential to contribute positively to the world. Each of these students has benefitted from guidance provided by exceptional faculty. We thank the faculty for their efforts on behalf of these students.

We strongly encourage you to share in this showcase -- visit the poster presentations, view exhibits on display in our gallery, and read the collection of abstracts included in this program.

Organized and curated by

Nina Bellisio
Director, AMAG
Associate Professor of
Visual Communications

Craig Martin
Associate Professor
of Religious Studies

Ryan Wynne
Director, Honors Program
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Biology

IGNITE: 3rd ANNUAL ART, DESIGN & SCHOLARSHIP EXHIBITION

**April 22- May 11,
2018**

Measuring 11-Ketotestosterone in the Convict Cichlid Using a Non-Invasive Water Borne Extraction Protocol

Thomas Hollway, Andreu Ferragut Lluch, Angelica Matwiejczuk and Aaron Stahl
Faculty Mentor: Dr. Ryan Wynne, Associate Professor of Biology

The study of hormones in various animal species has shown a strong correlation between the expression of different behaviors, and changes in hormone concentration. Extensive research has been performed on the convict cichlid (*Amatitlania nigrofasciata*), and how the hormone 11-ketotestosterone (11-KT) fluctuates throughout the reproductive cycle of males in this species. In the present study, we attempt to quantify the level of 11-KT in the adult convict cichlid using a novel non-invasive water borne extraction protocol. Our goal is to determine how well waterborne hormone levels correlate with blood plasma levels in this species of fish. We hope to use this non-invasive hormone extraction protocol to measure levels of 11-KT across multiple days of the reproductive cycle of both male and female convict cichlids.

O'Say Can You See? How American Nationalism Affects Racial Attitudes

Ashlee Joseph
Faculty Mentor: Dr. Ben Wagner, Assistant Professor of Psychology

Previous research showed that activating conservative attitudes increases prejudice against minorities. Conservative attitudes are activated when Americans are exposed to the American flag. In this study, participants will complete questionnaires measuring attitudes toward Black Americans under three conditions: American flag prime, college community prime, and international prime. Symbols of each condition will be placed on the top right hand corner of the questionnaires. It

is hypothesized that participants in the American prime condition will express more negative attitudes toward Black Americans than participants in the college community prime condition and the international condition.

The “Tough Cookie” Food Truck

Mallory Rae

Faculty Mentor: Dr. Christine Cahill, Associate Professor of Business Administration

Gourmet food trucks have emerged as increasingly popular dining alternatives for consumers in today’s urban landscape. *Tough Cookie Food Truck* is a business plan that I plan on making a reality when I graduate, which will sell edible cookie dough treats in Halifax, Canada. The business plan is broken down into seven sections; executive summary, business description, market analysis, industry analysis, operations plan, management plan, and the financial analysis. All seven sections will break down how the business will operate, if it can be financially viable, and how it will compete in the market. I will examine the current market in Halifax and how to utilize various strategies to establish a viable niche for my business in this diversified and burgeoning market. Among other things, these strategies include online social networking, creating and maintaining a recognizable brand identity, and collaborating with local business owners.

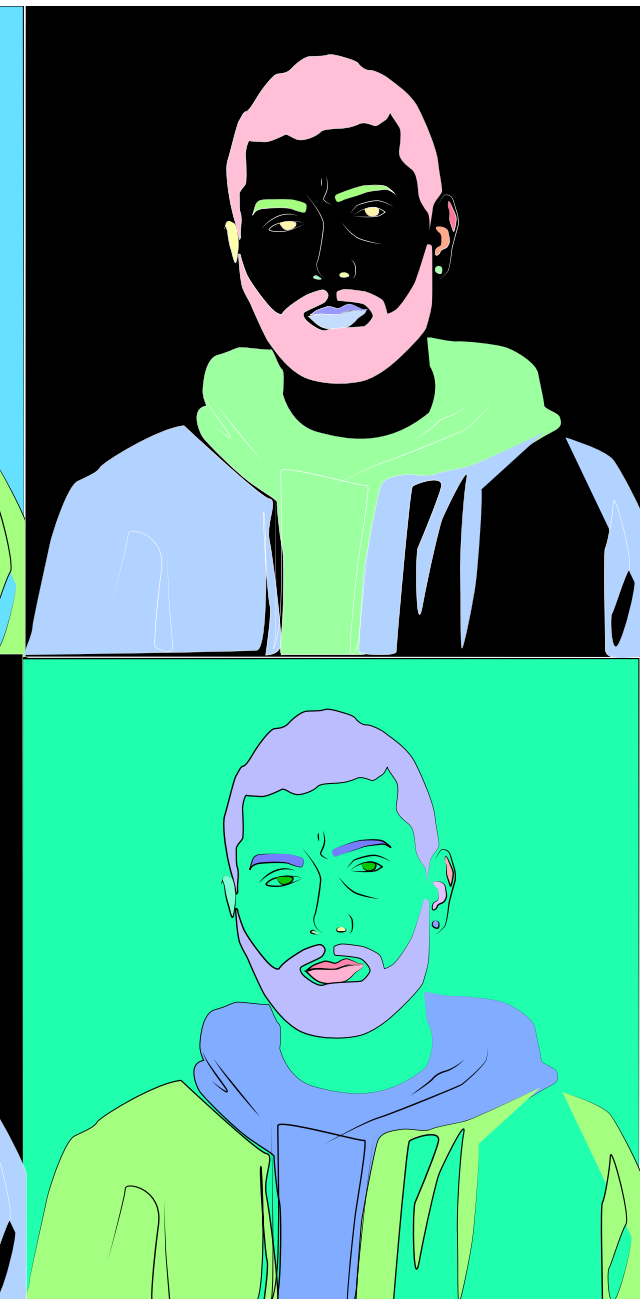
Meditation: A Non-Pharmacological Treatment for Depression, Anxiety, Pain and Stress

Caryn Balacky

Faculty Mentor: Dr. Linda Levine Madori, Professor of Therapeutic Recreation

This study was done with in-patients at a local rehabilitation hospital. A meditation program is conducted Monday-Friday for 30 minutes. Self-selected patients with many different diagnoses (primarily stroke, orthopedic, amputees & spinal cord injuries) attend the group by personal choice. From this cohort, random attendees were chosen to participate in data collection measuring their depression, anxiety, pain and stress (DAPS). The DAPS questionnaire is a four item 1-10 based scale, 10 being the worst and 1 being the lowest report of self-perceived depression, anxiety, pain and stress. The patients chosen to complete the DAPS were given a pre-test before the meditation and a post-test right after the meditation. Data was collected over a two-year period (2015-2016) from one hundred patients. The quantitative results showed that following meditation, the patients reported significantly lower depression, anxiety, pain and stress scores. It demonstrates that regardless of the diagnosis or illness, meditation can be a powerful, non-pharmacological treatment for those who want to address their depression, anxiety, pain, and/or stress levels.





VISUAL COMMUNICATIONS

Michael Pascocello
Me digital illustration

STAC New Hope Movement-A Spes Nova Project

Krystal Rondon, Brittany Malloy, Adiya Henderson, Marie Clune, Nashikah Lamour, and Samrawit Kiros

Faculty Mentors: Dr. Rossen Trendafilov, Assistant Professor of Finance, and Dr. Deirdre-Noel Engels, Assistant Professor of Marketing

Regardless of the financial development powered by globalization, social disparity still exists on the planet today. One possible solution to this inequality is Fair Trade. Fair Trade advances socially and naturally mindful business practices which promote economic growth.

Our task was to learn the concepts of Fair Trade and manage the design, assembly and marketing of handmade artisan crafts. Our research focused on two developing nations (Haiti & Ethiopia) and the unique challenges they face. Together, we designed artisanal crafts marketed under our brand, "The STAC New Hope Movement" which are sold on the Spes Nova ecommerce website and at the STAC Fair Trade "Pop-Up Shop" which will take place on Fair Trade Day, April 11th, 2018. Our "New Hope Movement" is part of a collegiate cooperative with Vassar and Fordham Universities and sponsored by nonprofit Spes Nova.

Our goal is to continue this project each semester with new students driving the best approach to grow our ecommerce business and investigate new issues associated with Fair Trade.

The Sweet Tooth Food Truck

Adiya Henderson

Faculty Mentor: Dr. Deirdre-Noel Engels, Assistant Professor of Marketing

The purpose of this independent study was to create a business plan, marketing plan and brand assets for the Sweet Tooth company. Sweet Tooth is a food truck concept designed for the Canadian market in the city of Halifax. The food truck features edible cookie dough and hot chocolate for the winter season. As part of this project I designed the logo, menu template, website, and wrote the first-years marketing and social media plan. This project will help build a personal portfolio for my career search as a Marketing major with a minor of Graphic Design.

The Kennedy's Influence on the Social Acceptance of People with Special Needs

Anthony Mancino

Faculty Mentor: Dr. Elizabeth Finnegan, Associate Professor of Teacher Education

The way society views people with special needs has changed drastically over the last sixty years. The social acceptance people with special needs experience today is largely due to advocacy. The Kennedy family includes a number of prominent advocates; John F. Kennedy, John P. Kennedy, Rose E. Kennedy, Eunice Kennedy Shriver, Jean Kennedy Smith, and Anthony Shriver all dedicated themselves to improving the lives of people identified with special needs.

Referencing information gathered from both primary and secondary sources, this poster explores the reason for the Kennedy family's advocacy and outlines the many actions they took to benefit people with special needs. This includes passing legislation through Congress, setting up organizations to raise money for awareness and research, and opening up places for people with special needs to go, have fun, and feel accepted.

College Students & Social Media: A Media Fast Analysis

Stephen Betz, Stephanie Gorman, Courtney Olsen, Bryan Zuniga

Faculty Mentor: Professor Elaine Winship, Instructor of Communication

Do college students spend more time on human or digital interaction? As technological innovations accelerate and social media proliferates, college students contend with more distractions than any previous generation. Meanwhile, an increasing appetite for entertainment--without considering the consequences--threatens to derail the ability to become socially conscious and engaged citizens.

The legacy teachings of Neil Postman and the recent publications of Nicholas Carr explore the effects of media on public discourse and how it deteriorates the capacity for intellectual thought. With those serving as backdrops, college students can use a media fast to examine their media consumption, explore its effects, and extrapolate how media use can evolve into media abuse.

An Impossible Double-Standard: An Analysis of the Female Body under Patriarchal Oppression in Both the Novel and Hulu Adaptation of *The Handmaid's Tale* by Margaret Atwood

Ariana Carpentieri

Faculty mentor: Dr. Staci Shultz, Associate Professor of English

In *The Handmaid's Tale* by Margaret Atwood, the female body has been restricted and completely diminished under the patriarchal Gilead regime. Its sole purpose is to procreate to keep the human race alive after humanity is threatened by toxins polluting the air as the result of a catastrophic war. Women are now meant to strictly be, in essence, birthing-machines with limited

human interaction and suppressive attire to further isolate them. While they must lead lives of pious solitude, they are forced to live up to an impossible double-standard. Despite these harsh societal changes, their bodies are still highly objectified by the all-ruling patriarchy. In addition to the novel's exploration of the female body, the Hulu series further deepens the oppression conveyed in the book. Both the novel and the Hulu adaptation explore the functions of the female body as being invisible yet hyper-visible, and illustrates how Gilead's lifestyle is impossible to maintain because it is detrimental to the feminine spirit.

Microplastic contamination within the Sparkill Watershed

Rob Hornberger

Faculty mentor: Dr. Bianca Wentzel, Assistant Professor of Biology

The accumulation of anthropogenic litter, specifically plastics, has become a defining issue in the pollution of the environment. When plastics begin to degrade and breakdown to sizes less than 5 mm they begin to have new effects as pollutants. The scientific literature has well established that microplastics have the ability to work their way into the biota of an ecosystem via bioaccumulation. Once inside of an organism microplastics can cause an intestinal blockage, which can lead to complications and even death. There have even been some studies that show their potential to concentrate polychlorinated biphenyls (PCBs) and introduce them into the food web. This study seeks to analyze what the current condition of microplastics is in the Sparkill Watershed. Sediment cores and water samples will be taken at several sites throughout the watershed. The microplastics recovered will then be categorized and identified using FT-IR spectral analysis.

The College Fed Challenge 2017

Jessica Freeman, Kristin Burns, Fiona Egan, Jimmy Minchala

Faculty Mentors: Dr. Rossen Trendafilov, Assistant Professor of Finance, and Dr. Meghan Mihal, Associate Professor of Economics

This past semester, STAC sent a team to the College Fed Challenge, a competition where teams formulate an effective monetary policy decision for the current economic environment and present to panels of economists. Using the Bloomberg Terminals, we collected real time data on macroeconomic indicators that lent themselves to the Federal Reserve's dual mandate: price stability and full employment. Factors that we weighted heavily were the uncertainty surrounding the unwinding of the balance sheet, market readiness, and changes in the leadership of the Federal Reserve. We used economic forecasts compiled by Bloomberg to determine policy implications for the Fed. We analyzed the potential outcomes associated with each risk, and our final

recommendation was for the FOMC to keep the target Federal Funds Rate unchanged, between 1 and 1 ¼ percent. Our recommendation was made as an accommodative stance in order to mitigate any risk of shocking the financial system.

Hogwarts Teach Us Something...Please!

Sarah Lacker

Faculty Mentor: Dr. Richard F. Heath, Professor of Psychology

Hogwarts School of Witchcraft and Wizardry is one of most famous schools that never existed. Countless readers have dreamed of attending potions and charms classes in the old castle. But is Hogwarts truly as wonderful as it appears? By applying psychological and educational theories of real-world schools today, I argue that this nostalgic place from so many childhoods is a deeply flawed as an educational institution. The teachers and professional staff of Hogwarts are ill-prepared to be in charge of the educational and emotional development of their students; their actions, decisions, and attitudes often create a negative environment for these students to grow in. Hogwarts, therefore, viewed through the lens of psychological and educational research and theories, is an ineffective institution for student learning and personal growth—no matter how magical it may seem.

The Anatomy of the Afterlife

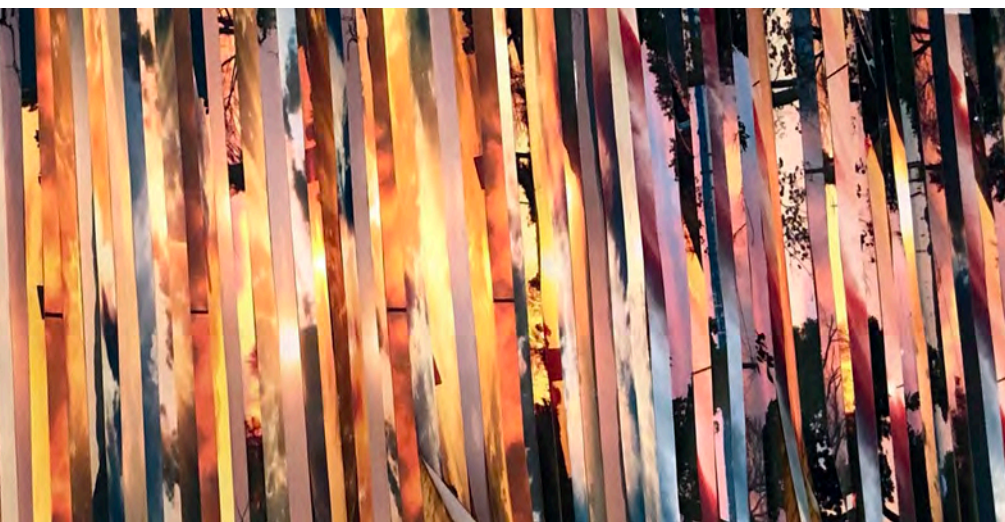
Kellyann Averill and Devin Beckmann

Faculty mentor: Dr. Maria Ann Roglieri, Professor of Foreign Languages

Dante Alighieri's *Divine Comedy*, written in the early 14th century, is an influential, Catholic based, epic poem, which outlines his idea of the afterlife. Dante takes himself on a journey through the three realms of the afterlife where he encounters the souls of people he once knew that are either suffering in Hell for the sins they committed on Earth, repenting for their sins in Purgatory, or glorifying their lives with God in Heaven.

Rather than seeing souls placed in the three realms, we envisioned the physical aspects and emotional responses of the human body to be sorted based on the effects they had on quality of life. Hell includes what makes living on Earth feel like death. Purgatory contains the acute challenges that get better only with time and perseverance. Heaven is where the significant features belong that provide livelihood and generate pleasure.





VISUAL ART

Amanda Fidlow

Untitled collaged digital photographs

Innovations Through Augmented and Virtual Reality

Joe Vogel, Jules de Courtenay

Faculty Mentor: Dr. Robert Vermilyer, Professor of Computer Science

The next major step in society's technological advancement is the innovations capable through augmented/virtual reality (VR/AR). By transcending the limitations of traditional screen-and-keyboard computing, augmented/virtual reality provides a myriad of completely new possibilities. The difference between augmented and virtual reality is that the former takes the user's current surroundings and overlays it with computer-generated imagery (CGI), augmenting the picture, while the latter is exclusively CGI. Although there is huge potential in gaming for VR, the purpose of this assignment was to bridge the gap between entertainment and education by providing an innovative and immersive environment for users to learn. The project is built on a hybrid model of AR and VR wherein a 3D model of the Romano Student Center will be the setting, and the user will be able to interact with objects around the building.

The Group-like Structure of Swarms

Isabella Diaz, Natalia Swiecki, Rebecca MacLeod, Mikaila Hulse, Miraf Molla

Faculty Mentor: Dr. Meghan DeWitt, Assistant Professor of Mathematics

Group theory is used to describe and predict countless events, and swarms will be the next. Many of these biological groups exhibit behaviors that may be able to be connected by guidelines of algebraic group theory. These behaviors include a maximum and minimum distance between group members and a collective between them, such as direction of movement. These behaviors are currently being researched using differential equations. However, we believe that we are the first to study them using group theory. Group theory studies symmetry, which is found in all parts of nature and has real life applications. The definition of symmetry is not limited to visual cases, but also includes, behavioral patterns. This will be crucial in understanding the way swarms operate. Swarms often depend of environmental conditions and mate recognition with the largest density of individuals concentrated in the center of the swarm according to a 2009 study by Manoukis et. al.

Experimental Dynamics: The Falling Chain Problem and Actuator Disk Theory

Paul Owens

Faculty Mentor: Dr. Donald Johnson, Associate Professor of Physics

The falling chain problem is a theoretical debate among physicists regarding the acceleration of chain falling off a table. Newtonian physics predicts the chain should accelerate at a rate of one-third of the gravitational acceleration ($g/3$), while Lagrangian mechanics suggests the rate should be half of the gravitational acceleration ($g/2$). We will attempt to determine which rate is accurate experimentally by dropping a chain off the side of a table and measuring the time and position of individual links as the chain accelerates.

We will also be attempting to confirm actuator disk theory, which is used in determining the air speed below the wings or rotors of a hovering object, and has applications in dynamics as well as biophysics. We will measure the wind speed of a drone in an attempt to experimentally prove the theory.

Sombra: An Artistic Interpretation of Antonio Machado

Sabrina Calderon

Faculty Mentor: Dr. Gerald McCarthy, Professor of English

Antonio Machado ranks high on the list of Spain's greatest 20th-century poets, right next to famous names such as Federico Lorca, Juan Ramón Jiménez, and Ruben Dario. Unlike those such as Lorca, there are few translations of Machado's work that keep the same laconic power of his poems in its original Spanish. I translated five of Machado's poems from Spanish to English and moved the twentieth-century writing style into the twenty-first century while trying to keep his same effect. Machado's poems are famous for being simplistic and cogent yet striking and impactful. Hence, I followed suit and translated his shorter poems that describe nature through his eyes. In conjunction with the translations I created one art piece for each poem; the piece is an artistic representation of the Machado's words.

The Boy Code and Androgyny: A Recipe for Disaster

Earl Warren Minoza

Faculty Mentor: Dr. Richard Heath, Professor of Psychology

Following the cultural gender norms of masculinity is a key component in the development of male self-esteem during adolescence. Known as the Boy Code in American society, adherence to or deviation from fulfilling these expectations, primarily during adolescence, plays a significant role in an individual's perception by their peers and therefore one's position in the social hierarchy. Individuals who do not fit these gender stereotypes are known as androgynous. In analyzing two works that portray androgynous individuals,

A Separate Peace by John Knowles and *The World of Normal Boys* by K. M. Soehnlein, this text examines the effects of these gender expectations on androgynous self-esteem and self-image during adolescence. Through the dissection of both novels' characters, I demonstrate that strict adherence to gender norms leads to dysfunction in androgynous individuals, whether in literature or the contemporary world.

Detection of Heavy Metals in Haitian Well Water by Atomic Absorption Spectroscopy

Jackie Gleason and Hayley Murphy

Faculty Mentor: Dr. Paul Dent, Assistant Professor of Chemistry

Sixteen water samples collected from wells in Haiti during the summer of 2017 were analyzed for heavy metals by Atomic Absorption Spectroscopy (AAS). The samples had been previously tested for total hardness, alkalinity, pH, nitrites, nitrates, and ammonia levels in Haiti but the AAS allows individual metals to be quantified. Calibration curves with standard concentrations of lead and cadmium determined the lower limits of detection to be 500 ppb and 100 ppb respectively. All sixteen samples responded lower than the detection limit for both lead and cadmium resulting in zero concentration by the limits of the analysis.

The Art of Horace Pippin--Harlem Hellfighter/World War I Veteran and Artist of Both War and Peace

Alexa Lewis

Faculty Mentor: Dr. Gerald McCarthy, Professor of English

Horace Pippin was a man ahead of his time. After volunteering to serve in World War I, he became one of the Harlem Hellfighters a segregated black unit that won its name from German soldiers. Wounded, he returned to the United States and became a self-taught artist as a way to help heal his arm. Through his paintings he showed how he perceived the world, called "primitive and naïve" they also had a pureness and a clarity. This showed both the raw reality of war and many aspects of African American life and the struggle for civil rights. Though his work was amazing for its simplicity and great depth, Pippin did not receive fame for his work until after his death.

"Pippin is the first African-American painter to express his concerns about war and social-political injustices in his art, and his compositions on those themes are forceful and striking" (Biography, The Philips Collection)

Environmental Impact of Land Use in Rockland County on Aquatic Ecosystems

Adam Dore

Faculty mentor: Dr. Bianca Wentzel, Assistant Professor of Biology

Humans impact their surrounding environments by many means, perhaps most directly regarding methods of land usage. Through deforestation, urbanization, natural conservation, and many other land uses, people have altered ecosystems in both positive and negative ways. The purpose of this study was to examine both soil and water quality at nine distinct aquatic sites in Rockland County, NY and draw conclusions about how land use history may have led to variation between the sites. Overall levels of human impact at each location were determined based on land use and as well as surrounding vegetation buffer regions at local water bodies. Temperature and pH of water and soil were measured along with dissolved oxygen content, total suspended solids, and soil microbial biomass. Regional vegetation data along with historical accounts of surrounding infrastructure were critical to the analysis of the results.

Mughal Empire: A Marriage of Persian and Indian Culture

John Bhatti

Faculty mentor: Nina Bellisio, Associate Professor of Visual Communications

My ignite is focusing on the artwork of the Mughal Empire and the different elements that make up the unique artwork. The Mughal Empire ruled what is now North India, Pakistan, Afghanistan and Uzbekistan. The Mughals were ethnically a mix of Turkish, Iranian and Mongolian ancestry. They heavily were influenced by Iranian/Persian culture and the national language of the Mughal Empire was the Persian language of Iran. Although the Mughals ruled the Indian subcontinent mostly they transformed India the base of their Empire into a place that was like Iran.

The artwork followed the Persian style and the artwork reflected the cultural diffusion as well. The art was more based on Persian which is the culture that was influencing the Mughal empire. The art was also heavily influenced by the religion of the Mughals which was Islam. Islamic text is dominant throughout the artwork. The artwork also heavily features the Mughal emperors and royalty and their royal courts. The colors are very vivid and bright throughout the artwork. However because the Mughals were themselves a mixed group of people and culture and because they were ruling over the Indian subcontinent. The art was very unique because it combines all these different aspects.

The Effects of First Person and Third Person Narrative on Primary School Students' Attitudes Toward Disability

Catherine Courtadon

Faculty Mentor: Dr. Benjamin Wagner, Assistant Professor of Psychology

Research has shown that people with disabilities are often negatively viewed by the non-disabled, and that this occurs among children as well as adults. Since narrative has been used successfully with adults to increase positive attitudes and decrease prejudice about members of outgroups, intervention using narratives about disabled peers may decrease prejudice about disability among children. This study examines the effect of such narratives on 4th grade and 5th grade students' attitudes toward disabled children. Subjects will be asked to read narratives including disabled children in the first-person or in the third-person, and then attitudes will be evaluated using an attitude survey. Both narratives are expected to have a positive impact on attitudes toward disabled children, with the first person narrative impact more powerful than third-person. The results will be useful for developing effective interventions to use in elementary schools to promote positive attitudes toward students with disabilities.

A Kosher Supermarket: A Link to Jewish Society

Yola Halpert

Faculty Mentor: Dr. Christian Churchill, Professor of Sociology

Since food is such an integral part of the Jewish religion and culture, I was wondering how food shopping plays into the life of other Jewish women. How important is food shopping in a Jewish woman's life? Would a Jewish woman consider a trip to the grocery an outing? Does the store a Jewish woman shops for food make a difference? Is there an emotional component to food shopping in a Jewish home? My research was done by observing people in a Kosher supermarket. I interviewed Jewish shoppers to get a better idea of what women felt about grocery shopping. I discovered that Jewish women are connected to the stores they shop in as well as the foods they buy. Food shopping in the Jewish world has an emotional component.

"Your Voice In a Sea of Silence" A Live Business Case: ClassPulse

Jillian Colleluore, Carolyn Kopf, Tina Hamamciyan, Orianna Santiago, Alexander Bruzzi, and Kristin Burns

Faculty Mentor: Dr. Christine Cahill, Associate Professor of Business

ClassPulse is a mobile application that helps instructors and institutions gather actionable student feedback in real time. The founders of ClassPulse recognized that the feedback students share in traditional course evaluations

are rushed and is inefficient. ClassPulse aims to change this and give students the chance to share helpful feedback in moments when it occurs, and when their constructive feedback could help in their current classroom environment and when students have a personal incentive to help that instructor teach better. In addition, professors should benefit from the comments and improve the classroom experience in real time. Our project goal is to serve the co-founders of ClassPulse as business consultants and complete a project that includes a market analysis, revenue model, marketing plan and key feature recommendations, along with a plan for growth for the next 3-5 academic years. Our findings are presented at the Annual IACBE International Conference as part of the Student Case Study Competition in New Orleans, where we competed against 8 other international institutions.

Go Army, Beat Navy

Victoria Alpegiani

Faculty Mentor: Dr. Christian Churchill, Professor of Sociology

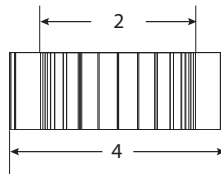
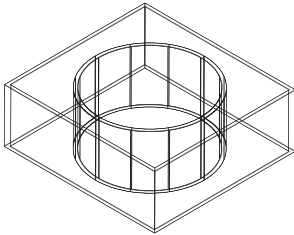
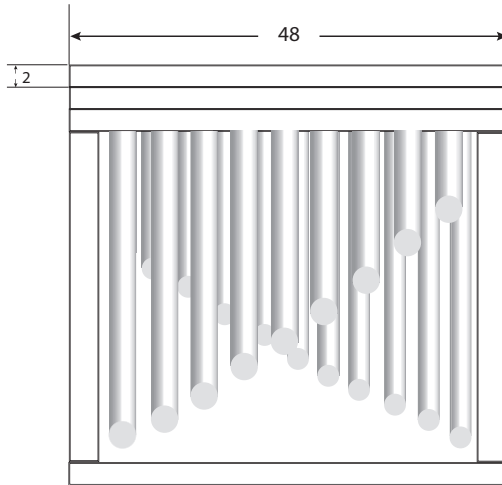
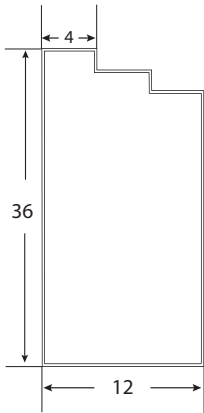
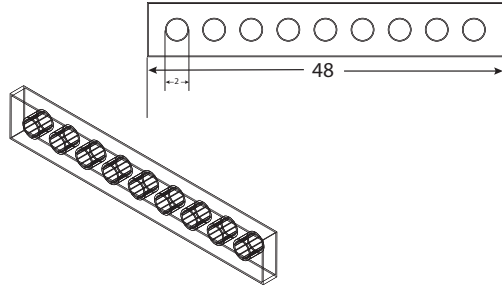
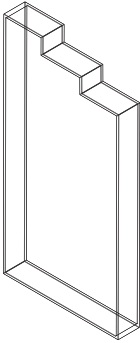
Each fall, I spend my weekends either at the United States Military Academy at West Point watching the football games, or travelling along with the families to attend games at other universities. Through my research, I came to realizations about the community of which I had been a part of for three years that I had never noticed before. I investigated what exactly draws people to attend these football games. My goal was to understand something about this group of people I associate myself with in the hopes of perhaps finding something out about myself. What is it about Army Football that makes people arrive in droves to watch? Army football and their fans really are unique and my research provides the themes that set Army Football and their fans apart from everything and everyone else.

H2.0

Kyle Reinhardt, Justine Gizzi, Erin Durkin, and the STAC Singers

Faculty Mentors: Dr. Evan Matthews, Associate Professor of Music, and Nina Bellisio, Associate Professor of Visual Communications

Water II, is a continuing exploration of performance art using music, painting, sculpture, noise and spoken word. It is a celebration of Water as a source of life and, as a metaphor for community and renewal. It is, also, a reflection on the importance of access to potable water as a growing source of political conflict in our world. The piece consists of various smaller presentations constituting a whole, some of which will include interactive elements, inviting the general public to participate. The interactive installation will be presented in the Azarian-McCullough gallery for the duration of the Ignite Festival.



1/12 Scale	Inches
Mechanical Drawing	
Kyle Reinhardt	KnX

Determining Cause of Death: Observation of Autopsy Procedures

Jacqueline Gleason

Faculty Mentor: Dr. Clara Toth, Professor of Biology

Summer of 2017, during an internship at the Dutchess County Medical Examiner's Office, the scene investigation and autopsy of a self-hanging victim was observed. The decedent was examined and photographed at the scene, then transported to the medical examiner's office. Upon arrival, measurements were taken, and samples were collected. An external examination was performed with photographs, followed by a complete autopsy. Findings were compared to known medical history. After samples were analyzed by a laboratory, the cause and manner of death were determined. This is an overview of the procedure and results of the autopsy.

Scene to Science: Analysis of Forensic Evidence in a Homicide Case

Hayley Murphy

Faculty Mentor: Dr. Clara Toth, Professor of Biology

A homicide investigation was followed during an internship at the Westchester County Department of Labs and Research's Division of Forensic Sciences. The homicide was caught on video surveillance, and this, along with the evidence provided to forensic scientists, aided in the conviction of a suspect. Important evidence gathered at and around the scene of the crime underwent biological and trace analyses to determine important characteristics and connect the suspect to the crime.

Inhibitory Effects of Essential Oils on the Growth of *Escherichia coli* & *Staphylococcus aureus*

Courtney Tello

Faculty Mentor: Dr. Clara Toth, Professor of Biology

After introducing peppermint, eucalyptus, frankincense and tea tree essential oils to *Escherichia coli* and *Staphylococcus aureus*, their zones of inhibition were measured. It was hypothesized that peppermint and tea tree oils would result in the largest zone of inhibition for both *E. coli* and *S. aureus*. The oils were used at a 100% concentration, 50% concentration and then a 1:1 combination of paired essential oils. The results demonstrated that although both peppermint and tea tree oil did inhibit the growth of the bacteria separately, all essential oils repressed the growth of bacteria better when paired with another essential oil. The synergistic effect of these combinations should be further studied to determine what combination of specific molecular components are responsible for this inhibitory effect.

Dynamic Stretching and The Vertical Jump

Ross Greenfield

Faculty Mentor: Dr. Heather Rave, Visiting Instructor of Physics

Studies on the different relationships between dynamic stretching and maximizing vertical jump are minimal. The purpose of this research is to set-up a hypothetical experiment that could test this relationship in college basketball players. Dynamic stretching will be compared to other preparation techniques. The procedure will involve a comparison in jump altitude when preparing to maximize the jump height in a variety of ways. Conclusions of prior relatable research display many vital conclusions: no measure of strength correlates with field test (anaerobic performance, sprinting ability, agility and vertical jump performance) performances however large relationships between varying field tests were discovered. Additionally, angular analysis of the optimal center of gravity pre-jump plays a pivotal role in maximizing altitude. Also, stretching has a threshold until it becomes counterproductive, therefore maximum force will eventually start to decrease if technique is improper. The proposed research is dissimilar; it deals dynamically stretching in comparison to other ways to prepare to maximize vertical jump. Despite the difference, previous relating research will aid the one proposed.

AZARIAN MCCULLOUGH ART GALLERY

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AZARIAN MCCULLOUGH
ART GALLERY