

UWG Scholars' Day

**UNDERGRADUATE
RESEARCH
CONFERENCE**

A Celebration of Undergraduate Scholarship

April 2020



UNIVERSITY OF WEST GEORGIA

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OFFICE OF UNDERGRADUATE RESEARCH (OUR)

Faculty-mentored undergraduate research and creative activity complement classroom learning through learning by doing and reflection on doing. In the process, these endeavors offer students an experiential learning opportunity that transforms them into scholars. The Office of Undergraduate Research was established to facilitate collaboration between faculty and staff mentors and student researchers and creators, coordinate university-wide research events, assist students in their preparation and travel to research conferences and professional meetings, and aid students in applying for national scholarships and fellowships. We are dedicated to facilitating undergraduate student involvement in research and creative activity in all disciplines.

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UNDERGRADUATE CONFERENCE ANNOUNCEMENT

The 2020 UWG Scholars' Day Undergraduate Research Conference has been canceled due to COVID-19. All of the abstracts for accepted presentations are available below, organized by college and departments, then program areas.

PRESENTATIONS

Arts and Humanities

Art

“Wanderer Above a Sea of Fog - Romantic Landscape Painting and Potential Personal Portrait”

Presenter Jenna Miller, Interdisciplinary Studies major

Mentored by Dr. Nathan Rees

Wanderer Above a Sea of Fog is an oil painting by Caspar David Friedrich that uses cool tones and a triangular composition to emphasize the drama of a landscape shown before a lone figure atop a hill. Wanderer is also a prime example of the nineteenth century Romantic movement. Its emphasis on the power of nature makes it reminiscent of the Romantic landscape, a subsection of the Romantic movement. The piece was painted around 1817, and it includes one of the very few portraits Friedrich ever composed. That this painting bridges the gap between landscape paintings and portraits makes this piece unique in its own obscurity. There are minute details that may indicate Friedrich painted himself as the sole figure that stands central in the image. Because this figure breaks up the powerful landscape before him, viewers must decide for themselves whether this painting's true subject is the man or the background.

“The Best Way to Deal with Death is Through Art”

Presenters Keatyn Remmel, Art History major; and Emily Warren, Art Education major

Mentored by Dr. Nathan Rees

Titian was a prominent renaissance artist known for being versatile in his work as he was just as talented in painting portraits, landscapes, mythological subjects, as well as religious subjects. One of his religious works, The Martyrdom of Saint Lawrence, prominently displays an expert use of chiaroscuro to give the painting depth and add a level of drama that was a common theme amongst Titian's later works. The dark background adds to the feeling of anguish that Saint Lawrence's is about to experience as he is being killed, but Titian's addition of Saint Lawrence turning his face upwards towards the rays of light breaking through the storm clouds symbolizes the salvation waiting for him once he ascends. This severely dark background is also helping to draw the viewer's eyes back to the conflict being shown in the foreground, in which a man who bears a striking resemblance to Titian is kneeling and looking to the dying Saint. Another work of his that also features his image was the last work Titian ever made, his Pieta, in which he was similarly depicted kneeling on the ground looking towards a dying man. Titian struggled with the realization of his own mortality toward the end of his life and dealt with it by incorporating his image in his artworks that featured death and the ascend to heaven in the hope to immortalize himself and come to terms with his own inevitable demise.

“Michelangelo's Secret”

Presenter Emily Warren, Art Education major

Mentored by Dr. Nathan Rees

The Greeks and Romans had a very open view of sexuality, allowing and encouraging

homoerotic acts among their philosophers and artists. Both cultures idolized the perfect form of a man because it represented a divine being closest to human perfection, which should be celebrated not shied away from. Michelangelo believed in a form of renaissance Humanism and the ultimate form of beauty was the nude male. I believe that he took this aseptic from classical antiquity and let it influence his work and style of art further along in his career. No matter the gender the figures he painted or sculptured they all had this same muscular tendency; with wide shoulders, and rectangular torsos. Even the women he created to represent pure beauty illustrated very masculine features as well, except for the occasions when he depicts the Virgin Mary, a holy figure that should not be sexualized. They all represented the ideal form of a man much like the figure in the Rape of Ganymede which was supposed to be a drawing depicting his male love interest as a gift. The drawing was set in a mythical tale so it would be viewed as appropriate to the catholic church who had a complete rule. By placing the story in classical antiquity Michelangelo was allowed to live out a forbidden fantasy. It also allowed for a religious exception to homosexuality which was extremely frowned upon in society during Michelangelo's time. While the Greeks not only excepted homosexuality but celebrated it. With the parallels between the church and classical antiquity so intertwined the different views on homosexuality more than likely deeply bothered him. Michelangelo being so intensely moved by the perfection of classical antiquity and his attracted to men very likely influenced how he saw the ideal body of women, because to him ideal beauty was in fact the body of a man.

English

“Lying in a Bed with a Barbarian Girl: Exposing the Empire’s Utilization of Their Own to Oppress Barbarous People in J.M. Coetzee’s Waiting on the Barbarians”
Presenter Melayne Daniel, English major
Mentored by Dr. Matt Franks

J.M. Coetzee in *Waiting on the Barbarians* a general “Empire” taking over “barbarians” is displayed. The magistrate, an officer for the Empire, becomes enthralled with a barbaric girl. A sexual/dependent relationship develops between them, which at first excites and comforts the magistrate to have someone who is his, but his thoughts begin to change. The magistrate realizes he has become a victim of the Empire's ideology which is to seize, explore, and conquer foreign land. The magistrate had conquer the barbaric woman body. It is the magistrate that realizes he is doing this to the women, and he eventually rebels against the actions of the Empire. The magistrate displays the the readers the harsh reality of the relationship between Empire and the barbaric. The relationship between is one that is very frequent and common in history, but through the magistrate, there is a charge to break that trend history and be better than those before us.

“John Mandeville’s Travels: Eastern Exotification as a European Interest Topic Toward the East”
Presenter Jessica Dunton, English major
Mentored by Dr. Leah Haught

The *Travels of Sir John Mandeville*, a popular Medieval travel narrative read by many because of its comprehensiveness, creates and normalizes many troubling assumptions about different cultures, especially of the Southeast Asian culture of Lamary. Although recent scholarship suggests Mandeville ripped his stories from other travel narratives,

he establishes his authority based on this supposed first-hand experience and Western European culture lens. Nevertheless, a disconcerting theme concerning his vocabulary crosses the border of respect and into commodifying and exotifying territory. Mandeville frequently assumes non-European cultures as “evil” and zeroes in on their strangeness rather than their similarities with European culture, and fails to include Lamarian voices to create a more wholesome story of their culture. In this research paper, I intend to expose and interpret this othering vocabulary in order to understand Mandeville’s intentions and his ideas of “correct” civilization.

“Sitting Pretty in Eternal Silence: How Female Expectations and Liberation are Depicted in Kate Chopin’s and Angela Carter’s Literary Texts”

Presenter Danielle Gorman, English major

Mentored by Stacey Morin

Kate Chopin’s 1894 “The Story of an Hour” considers how Mrs. Louise Mallard, an oppressed wife, manages to achieve her freedom through death. In a similar manner, Angela Carter’s 1979 “The Tiger’s Bride” explores the female narrator’s escape from the expectations she endures in the human world through her decision to become an animal. This paper explores the historical and cultural contexts surrounding both stories and the rigid gender expectations placed on women. Although the stories were written during different eras and in different cultures, both reveal the stagnant changes female expectations have experienced in American and British societies. Furthermore, both stories also indicate that the only way female expectations can be escaped from is through death, yet Chopin and Carter do not depict these demises as tragedies but as new beginnings for the women. As a result of their unique depictions, Chopin and Carter offer a new perspective that challenges the standard notion of death.

“Playing God in Science Fiction and Eugenics”

Presenter Natalie Hobbs, Biology major

Mentored by Amy Ellison

Genetic engineering has been arguably one of the most impactful breakthroughs in the scientific community. Scientists are given the power to simply alter strands of DNA to get rid of major disorders and ailments such as Huntington’s and hemophilia. However, how much power is too much? This research explores how genetic engineering came to be, what sort of projects is it famous for, and how we could use it in the future. It also uses two literary sources to show what not to do when presented with opportunities like the characters Dr. Victor Frankenstein and Dr. Moreau did in their respective novels. While both novels are in the science fiction genre, science in the real world is not far off from what these two scientists went on to do in their experiments. Many believe that both characters were problematic in their actions which are addressed in this paper as well as some projects that were viewed as controversial such as the “designer baby” concept and the sterilization era. Outside sources used for this research include Harvard University’s genetics department and the History channel website. This paper is meant to warn the audience about how dangerous genetic engineering can be if used incorrectly rather than argue for whether it should be used altogether.

“Clare Savage and Bertha Rochester: Double-Consciousness in Michelle Cliff’s No Telephone to Heaven”

Presenter Erica Jordan, English major

Mentored by Dr. Matt Franks

Michelle Cliff's 1996 novel *No Telephone To Heaven* mirrors Charlotte Brontë's classic gothic sentimental novel *Jane Eyre*. The central character Jane, like Clare Savage, is an independent, individualistic, motherless, and educated woman. Both women desire a space to exist in a world that leaves them feeling abandoned and alone. It is easy to see why Clare may initially see Jane in herself or herself in Jane. However, she identifies solely with Jane only momentarily, soon remembering the light-skinned Caribbean woman, Bertha Mason, trapped in Rochester's attic. Her disillusionment does not last long and Clare challenges and repositions herself as someone who is double-conscious. Despite her attempt to assimilate into the imposed white society of her father and soon enough the racialized culture of London, Clare Savage asserts her racial ancestry by claiming parts of herself that she previously could not. She chooses her racial identity and explodes the perceived notions of racial construction. Part V of Cliff's novel, "Et in Arcadia Ego" and its mention of and connection to *Jane Eyre* aid in exploring the ways in which Clare's double-consciousness mirrors not that of Jane Eyre but that of Bertha Rochester.

"What's in a Name: The Ties Between Name and Identity As Shown In Translations"

Presenter Natalie King, English major

Mentored by Dr. Matt Franks

In the 1830s, British forces moved into Ireland for the completion of the Ordinance Survey of Ireland, during which they mapped the country and anglicized its place-names for the purposes of the British empire. On the surface, the Ordinance Survey of Ireland claimed its mapping was to conceptualize the Irish landscape and to standardize its place-names, but underneath this rhetoric lay violent and deceptive motives: by weakening the Irish connection to their land and language, the English sought to pave the way for their colonization and assimilation into the British Empire. *Translations*, by Irish author Brian Friel, focuses on a small, fictional town, Baile Baeg, during the Ordinance Survey and on the interactions between the Irish and English. This essay seeks to explore the inseparable ties which exist between names and identity as well as the violence inherent to the process of renaming as a tool of colonization in light of the situation proposed by *Translations* and to illuminate this text's hidden prompting for the colonized to reclaim their identities through the very language used to subdue them.

"A Literal Queer Eye: Queering Replicants in Blade Runner"

Presenter Lindsay Koziel, English major

Mentored by Dr. Lisa Crafton

The American standard of a happy household used to be 2.5 children, a domestic mother, a working father, and a white picket fence. As technology has evolved, the ideas regarding the underlying social norm for family structure have adapted as well. The legalization of gay marriage, the emerging female domination of the work force, and the new overwhelming male support for the pro-choice movement are all arguably signs of progression in regards to marginalized individuals such as women and the queer community. Underlying this seemingly more accepting and progressive society, the social control of sexuality by the media, especially within the film industry, reinforces the ever prevalent themes of heteronormativity and female subservience. Additionally, the cyborg figure within the media represents an aversion to the normative societal standards. Because the cyborg figure invokes hybridity, the cyborg is described as "not completely the Other. Rather, its narrative power comes from its ability to blur

boundaries by blending the Other and the human” (Nishime 35). This liminal space of a non-human, passing as human, allows the marginalized minority to mimic characteristics of the overwhelming social majority. By utilizing the queer studies lens to examine societal barriers and social control, the film *Blade Runner* by Ridley Scott contains the cyborg figure of replicants that represent a queer figure passing as straight in a heteronormative post-apocalyptic world. The ability of the replicant to pass as an actual ‘human’ in this technologically driven version of Los Angeles, portrays the ability for a queer person to pass as a heterosexual individual in actual society. Through the alternate world that the film *Blade Runner* creates, ‘human’ passing replicants are a metaphor for straight passing members of the queer community, and the replicants embody the repercussions of violating the typical societal sexuality norm. Additionally, this alternate reality of a society uses a police force and the special guidance of Deckard to maintain this social control on the standards of sexuality.

“A Little Like Me:’ Perceiving the Past in Octavia Butler’s *Kindred*”
Presenter Sonora Lanham, English major
Mentored by Dr. Leah Haught

Kindred is both a neo-slave narrative and time travel narrative that follows Dana Franklin’s journey between 1976 and early 1800s America, intrinsically linking the past and the present. This narrative forces Dana to travel to antebellum America and ensure her family’s lineage as she becomes caught between the needs of her slaveholder great-great-grandfather Rufus Weylin and slave Alice, her great-great-grandmother. This paper focuses on the ways in which Dana resists the similarities she observes between the past and the present, particularly in terms of how she perceives both her ancestors and her modern life. I argue that *Kindred*’s time travel narrative serves as a metaphor to illustrate that our perception of the past is shaped by present ideologies, and that Dana’s identification with Rufus rather than Alice denies a black, matriarchal connection while upholding the white, patriarchal narratives that shape both the present and the past. Therefore, relying on a history that valorizes the white patriarchal narrative often blinds us to the ways in which the racist policies and ideals of antebellum America influence modern America as well.

Panel on Cyborg Film Theory
Presenter Jarod Lewchuck, Theatre major
Mentored by Dr. Lisa Crafton

In the Fall, I took an English class that ended up being one of my favorite classes I have taken here at UWG. Dr. Crafton’s Film As Lit: Becoming Cyborg class was a fresh experience especially within my time as an English minor because almost all of our primary texts were films instead of books. I am a big fan of dissecting movies/TV shows and had a blast doing so in this class. Over the course of the semester, we studied an episode of *Black Mirror*, *Whale’s Bride of Frankenstein*, *Blade Runner*, *Terminator 2*, and several other films that depict cyborg theory in various ways. However, the film that I was most drawn to was Alex Garland’s 2015 release *Ex Machina*. I loved the story it told and all of the symbolism and deeper meanings behind each character’s story. For this reason, I chose to write my final paper for this ENGL 4109 class about *Ex Machina*; this paper helped me finish with an A in the class and has now been selected by Dr. Lisa Crafton to be a part of her faculty-nominated panel.

My paper is about othered groups reclaiming their power in society and how Ava, the

primary cyborg in *Ex Machina*, represents that reclamation. In my essay, I discuss the idea of Ava's transhumanism and the way that she (and all other cyborgs in the film) are mistreated and how this serves as an allegory for the systemic issues of racism, homophobia, misogyny, and more in society. To take a further look at this dynamic and how Ava ultimately shifts the power into her favor throughout the film, I look not only into the relationships Ava has with human figures but also that the humans have with one another, that Ava has with her fellow cyborg Kyoko, and that Kyoko has with the human figures of the film. All of these relationships and how they connect serve a critical purpose in formulating the argument that Ava (and Kyoko) as cyborgs serve as a metaphor for historically marginalized groups and the hardships they face. Viewing the cyborgs in *Ex Machina* as symbolic of othered figures in society is crucial for gaining more understanding of how to be a better ally and member of the human race to these marginalized groups as the shift to a more tolerant world continues.

“Redemption Reception: Body and Soul in Medieval Morality Play ‘Mankind’”
Presenter Abbey Mason, English major
Mentored by Dr. Leah Haught

In the middle ages it was a common construct to believe that the body and the soul were two separate faculties, but some medieval Christians held that the body was somehow inherently more sinful, or at least more capable of sin, than the soul. The primary vehicle I will use to explore this notion of the sinfulness of the body and the purity of the soul more thoroughly is the play, *Mankind*. *Mankind* is a medieval morality play; it consists of personified vices and virtues and a main character named *Mankind*, who is pretty clearly a stand-in for every man (the reader) and goes through a series of trial. It is ironic that *Mankind* is named a morality play seeing as it centers around the very religious notion of Christ's prevailing mercy in the lives of those willing to accept him. Ultimately, in *Mankind*, both body and soul are evidently stained by sin, and thus exist as separate entities, but as evidenced by the conclusion of the play can be united by their need for and reception of spiritual redemption. Since the play offers ideas of freedom held by Christianity, *Mankind* leaves the reader, who has likely identified with *Mankind* in some way, with a feeling of hope and a clear path towards redemption.

“Projecting Masculinity and Aesthetically Demoralizing Females in Ridley Scott's Blade Runner”
Presenter Cheyenne Miller, English major
Mentored by Dr. Lisa Crafton

Ridley Scott's 1982 film *Blade Runner* showcases from the position of a white male who polices women, ultimately forcing them to abandon any hope of freedom. Deckard represents a typical white male who adamantly remains guilty of projecting high-functioning and degrading masculinity onto female replicants. He seeks out to control these replicant women who will forcefully remain ever so willing to obey him while otherwise punishing female replicants that attempt to achieve any self-empowerment or independence. Deckard performs bouts of sickening corrective rape on Zhora, Racheal, and Pris to fearfully maintain the heteronormative police state that despises empowered women who struggle in a society which does not promote individual identity in the slightest. Scott cleverly depicts these three replicant women to assuage a specifically targeted male clientele, initially beginning by appealing to an average male audience, shifting over to a concise conservative male vantage and eventually then onto the targeted typical 80s-era audience. Even in death, two of the replicant women

are sexualized in their aesthetics, and the nature of their deaths are graphic, bloody, and filled with lengthened suffering emphasizing the male need for empowered women to struggle, suffer and submit. Will Brooker argues in his novel *The Blade Runner Experience: The Legacy of Science Fiction Classic*, “With this heightened capacity to deceive, we might say that the female replicant is the ultimate manifestation of the commonplace cultural positioning of women as duplicitous. It seems telling in this light that all the major women characters in *Blade Runner* [sic] are in fact replicants. Subsequently, when these women are ‘retired’ their deaths are prolonged and bloody punishments in comparison to those of the male replicants, leaving behind butchered bodies where their feminine charms, and the threat they represent, are well and truly razed” (159). In other words, these women classically represent a marginalized ‘other’ wherein they are considered as outcasts and shunned whenever they attempt anything that could bring them freedom. This assertion supports my argument concerning the overall aesthetics of their death scenes being portrayed as hyper-sexualized, deeming them as merely thoughtless and empty vessels for the satisfaction of the common male gaze. Another argument Brooker details are that the only female representation in the film that stands out whatsoever are feminine replicants that have been deemed unfit for this damned society. In a male-driven dystopian world which emphasizes males as the stronger power-driven force leaves minimal room for women to be empowered and instead leaves them perceived to be, and subsequently treated as, subservient and willing to serve their male counterparts.

“Children of Violence: Fatherhood, Vengeance, and the Shadows of Orestes in Dennis Lehane’s Live By Night”

*Presenter Kathryn Moore, Special Education major
Mentored by Dr. Alison Umminger*

This paper examines Dennis Lehane’s 2012 novel *Live By Night* in comparison to the *Oresteia* of Aeschylus, with the purpose of determining the themes in stories of fathers, sons, and the conflicts there between, have remained the same throughout literary history.

“Toxic Masculinity and Heroism in ‘Cúchulainn’s Boyhood Deeds’”

*Presenter Kelsey Mullinax, English major
Mentored by Dr. Leah Haught*

“Cuchulainn’s Boyhood Deeds” is a section of the legendary Irish epic *The Tain*. The text reveals troubling characteristics of heroic culture in early medieval Irish literature. Cuchulainn displays mannerisms that coincide with toxic masculinity such as defiance and destructiveness. In addition, the elders not only condone but reward the “manly” behavior of seven-year-old Cuchulainn. Due to his success at slaying the enemy, he is not held accountable or punished for his inappropriate actions. Furthermore, Cuchulainn is praised by his community and by those living during the Middle Ages, setting an expectation and a desired persona for young boys. Lastly, Cuchulainn is symbolic as the ideal hero for medieval Ireland and years beyond-- an idea that should be refuted today.

“Medieval Modernity”

*Presenter Julianna Olson, English major
Mentored by Dr. Leah Haught*

From discarded bond wives and sea witches, to bigamists and adulterous women, medieval literature depicts rebellious women as monstrous in a variety of texts ranging throughout the early and later parts of the Middle Ages. From elegies and epic poems to Romance poems and fabliauxs, despite their unique forms they all revolve around the othering of women who rebel against the societal constructs of womanhood in each respective time period. “The Wife’s Lament” from *The Exeter Book Elegies*, *Beowulf*, Marie de France’s “Bisclavret,” and Chaucer’s “The Miller’s Tale” all share similar themes of how gender is connected to monstrosity with portraying the struggles of female characters with female restriction, rage, and the resulting rebellion against their respective societies. Each medieval text brands the rebellious women as “monstrous” for lashing out against the patriarchal constructs attempt to force conformity to womanhood by controlling female narratives, bodies, and agency.

“Unstable Temporalities”

Presenter Julianna Olson, English major

Mentored by Dr. Leah Haught

In Mark Twain’s satirical novel, Hank Morgan observes lying gallant knights and foul-mouthed ladies in the “genteel” upper class when he is transported from the nineteenth century in America into medieval Britain. Hank witnesses the cruel and unusual punishments of prisoners and the lower-class citizens, the majority of whom are innocent of the accused crimes during his time in the medieval ages. After observing the treatment of prisoners during his adventures, Hank deems medieval society as apathetic compared to his more “civilized” nineteenth century birthplace in American society. However, Hank fails to recognize the shortcomings of his own idealized birthplace as he constantly compares nineteenth century civilization, government, and technological advancements to the more transparently primitive medieval era while blaming generational indoctrination as the culprit.

Twain uses Hank’s blindness toward the eerie parallels of criminal justice to critique nineteenth century American society’s intentional disregard of the similarities with the treatment of the prisoners in both time periods as being barbarous with the enforcement and acceptance of capital punishment for petty and even nonexistent crimes. Twain uses his character Hank’s accidental time travel into Britain’s medieval era so that he could use satire to critique nineteenth-century American society’s apathetic and cruel punishments on the impoverished in society who face capital punishment by the corrupt justice systems ruled by the upper classes. Twain recognizes that generational training and indoctrination of unethical laws are the roots to the core issues of societal imbalances of power with the class systems themselves, and that those class systems and their unethical principles result in the inane punishments and deaths of innocents while those in the upper class receive slaps on the wrists for crimes that lower classes are killed for. Twain combines the generational training, imbalances of power within class systems, and the torture and deaths of innocents to reveal that the justice system lacks the very thing it seeks to establish: justice. Even today, American society still inflicts harsher sentences and capital punishment for crimes that primarily target minorities. Unsurprisingly, many charged with capital punishment and executed have been proven innocent, too late, of course. Unless our current-day American society reviews, reflects, and revises laws that are harmful to minorities such as people of color, women, and the impoverished, then we will remain trapped in a time loop of cyclical

violence.

“In Safe Hands’: Despotism and Guilt in A Connecticut Yankee in King Arthur’s Court”

Presenter Ingrid Pritchett, English major

Mentored by Dr. Leah Haught

This essay addresses the role Hank’s guilt plays in terms of his transposition of Gilded Age American values onto an Arthurian-era society. Hank’s love of democracy conflicts with his almost absolute power and he inflicts what he feels is righteous judgment on Arthur’s knights to mask his own misgivings about his position. As Hank comes to enjoy his power more, his actions toward the knights as well as innocent civilians become more heinous and he begins to mirror the tyrannical nature of the system he abhors. The essay develops how unlimited power impacts even the most idealistic individuals and how humor and violence serve to mask Hank’s not-so-slow descent into the abyss of undeserved social position, namely aristocracy. I also analyze whether or not the fallibility of Hank’s “American” values proves that these ideals only exist in a vacuum and do not hold true under pressure.

“Human and Non-human Connections in E.T. the Extra-Terrestrial and Wall-E”

Presenter Gabriel Sherry, Social and Behavioral Health major

Mentored by Aaron Bremyer

Through careful comparison and analysis of E.T. the Extra-Terrestrial and Wall-E, this essay explores the many ways directors Spielberg and Morris use the commonalities found in their films to question social constructs around otherness. The essay demonstrates how both films use what is familiar—namely television, animals, and plants—to develop empathy in the audience and humanize non-human life. Lastly, my essay observes how both films overtly celebrate differences and being different. Both texts subtly challenge societal norms, centered on human and non-human connections, that are continually changing in the worlds of the films as well as the world outside them.

“Assimilation Through Translation: Linguistic Colonialism in The Piano”

Presenter Thalia Young, Biology major

Mentored by Dr. Rebecca Harrison

As film continuously portrays the colonization of nations throughout history, the languages of these nations are rarely shown on screen. Similarly, the women who are often privileged within the societies of these same films are the ones who follow the predetermined rules and language of society- ones which have been set for them by the men of the dominant culture. In *The Piano*, the dominant culture is Scottish - predictably European - and anything else is driven to assimilate through cultural practices, but especially through language. The Maori people, colonized by the Scottish, are forced to learn English and their own languages are ignored by the European people they interact with throughout the film. Ada, similarly, is asked to give up her own voice as well as having it forcibly taken away from her in order to join the culture of her husband and the women around her. Through both of these examples, the film illustrates the violence of stolen language as well as the colonialistic cycle which is responsible for these languages being destroyed.

History

“Spies on Hajj: A Story of ‘Seeing Like a State’”

Presenter Erica Beagles, English major

Mentored by Dr. Aimee Genell

Throughout 1830-1914, the expansion of cheap steamship travel allowed swarms of Muslims to crowd Mecca in order to participate in the Hajj pilgrimage. Many of these Muslims belonged to the French, British, Russian, and Dutch Empires, all of whom viewed Mecca as doubly threatening. The Ottomans lacked the infrastructure necessary to accommodate the influx of pilgrims, creating unsanitary conditions fruitful for infectious diseases like cholera that claimed an overwhelming amount of lives. At the same time, British officials were panicked about a potential loss of power due to Pan-Islamism, a proposed collective Islamic faith that Empires viewed as a challenge to European imperial rule. Historians have primarily examined the technological advancements of the steamship in relation to free travel and mass migration but overlook the spies employed by the British Commonwealth of Nations to monitor daily practices of pilgrims.

This paper examines three British spies, in particular, Christiann Snouck Hurgronje, Sir Richard Francis Burton, and M.Siddik Gümüş in order to depict the British's religious intolerance and strive for political security. The use of espionage on many of their subjects as a method of maintaining power and creating harmony within their population underscores the British's intention to manage Muslim subjects for taxation, conscription, and identification purposes, which reflects James Scott's concept of "seeing like a state."

“A Changing Mill Story: Crafting the Manchester Cotton Mill Narrative through ArcGIS Story Maps”

Presenter Annie Shirley, History major

Mentored by Dr. Ann McCleary

Since the late nineteenth century, the expansive textile industry has dominated the western side of Georgia. Surrounding these numerous mills springing up throughout the region, textile mill employees and owners created communities, as means of ensuring a committed workforce or as a response to a quickly industrializing South. The University of West Georgia Center for Public History manages the West Georgia Textile Heritage Trail, a cultural heritage initiative to interpret and promote the history of these textile mills and their communities. Since the project's genesis, the Textile Heritage Trail team has created numerous interpretive writings in public spaces to spread awareness of the history of these communities. More recently, the Center for Public History and the Department of Geosciences are moving forward with an interdisciplinary approach in using geographical information systems to tell these stories.

My project has focused on incorporating GIS data and other recently discovered sources with interpretive text existing on the Textile Heritage Trail website to tell more complete stories of these textile communities in a more fluid, engaging, and accessible way. Through using ArcGIS Story Maps to interpret the story of the mill community in Manchester, Georgia, I have been working on a model for how these community stories can be told through an interactive and engaging online map. I have relied on both historical documents from the town of Manchester as well as Sanborn Maps showing the community and Davidson's Blue Books detailing the status of the mill and

its contents throughout the twentieth century.

“Heresy and Orthodoxy in the Second Century”

Presenter Phillip Smitherman, History major

Mentored by Dr. Elaine MacKinnon

During the 2nd century A.D., there arose among the Christian community challenges to the Trinitarian beliefs that had been established by the Apostles in the 1st century A.D. There is debate in the historiography of Early Christianity about how much the orthodox position changed during this time. Historians who tend to be more conservative argue that there was a general consensus from the time of the Apostles onward of what orthodoxy was. Other more liberal historians argue that there were multiple competing views of orthodoxy that did not merge into a unified orthodoxy until the Council of Nicaea in 325. It is clear from reading the primary sources that there was a majority of Christians who held orthodox views of the Trinity. However, there were those who espoused views that conflicted with the orthodox conception of Christianity. Some of these groups, such as Gnosticism, were able to attract large numbers of followers, while others were much smaller. The reason that these cannot be viewed as legitimate alternatives to orthodox Christianity is because their positions were thoroughly denounced by orthodox writers such as Justin Martyr and Irenaeus. Even though there were rival interpretations of the Trinity, the orthodox view established by the Apostles remained Orthodoxy.

“The Impact of the White Horse Inn on the English Reformation”

Presenter Jedidiah Turner, History major

Mentored by Dr. Michael de Nie

This paper considers the scholarship on the origins of the English Reformation and references both of the major interpretations one which emphasized top-down coercion while the other focused on bottom-up popularity. After considering both sides, the paper offers an argument that interprets the origins of English Reformation as stemming from the Cambridge movement. That is, a selection from the middle class composed of clergy and academics were the catalysts for ideas crucial from the Continental Reformation particularly the Lutheran and other reformed branches of Protestants. These ideas were discussed by certain Englishmen such as Thomas Cranmer, Thomas Bilney, William Tyndale, Hugh Latimer, and Nicolas Ridley in the White Horse Inn in Cambridge. The paper examines the characters of these men through their positions and major accomplishments to make a solid connection between these men and ideas which became the English reformation. The paper then turns to examine the specific ideas and concepts that created the Reformation from Europe and how they became the central doctrines for which these men were willing to die. And finally, the paper considers a specific objection within the frame work of this middle class reformation interpretation. The overall argument of the paper is that the Cambridge men and their ideas were the actual seeds of the English Reformation.

“Japanese Internment in the United States”

Presenter Zoe Wheat, Mathematics major

Mentored by Dr. Aimee Genell

Racial tensions between Americans and citizens with Japanese heritage grew following the Japanese attack on Pearl Harbor. President Franklin Roosevelt signed

Executive Order 9066 in 1942 which established Japanese internment camps in the United States. Instead of adjusting immigration laws, or allowing Japanese-Americans to continue living in the United States like previously, the government sent those with Japanese heritage to internment camps on the west coast demoting them to subjects rather than citizens. Many historians analyze this issue through the lens of racial tensions being stirred by the war. I will be explaining this issue through the lens of political cartoons, and how they contributed to the racial tensions against the Japanese-Americans. Racist feelings about Japanese people in the United States during the 1940s were encouraged by Japanese internment camps and political cartoons, like those illustrated by Theodor Seuss Geisel, more commonly known as Dr. Seuss. By attacking the apathetic spirit of Americans leading up to the war and directly attacking the Japanese, political cartoons served as a more innocent means of spreading anti-Japanese propaganda. These racist feelings towards Japanese people in the United States promoted the idea that citizenship in the US was based more on loyalty to the country than to legality.

International Languages and Cultures

“A Look into the Circle between Artist and Viewer”

Presenter Eva Marchbanks, French and Art major

Mentored by Dr. Lisa Connell

The ever-diversifying world of art continues to create relationships between the artist, his or her work of art, and the viewer, all at once. Artwork creates an emotional connection to the viewer, creates and tells a fashioned story, and represents the artist. According to Serge Tisseron in “Education aux images,” images project an ideal on the viewer, who, in return, subconsciously regards the image with individual experiences in mind, thus “self-projecting” an ideal or pre-conceived notion back on the image (5). This paper looks at a variety of images in French culture, from contemporary street art to late 17th century painting and architecture, in order to discover just how much of art is self-fashioned and how this idea links to the connection between viewers, the artist, and the artwork, in order to influence perspective and emotion. The common goal of art over the centuries is to present ideas in a certain light and, by doing so, to create an interactive circle between the viewer, the work of art, and the artist.

Tisseron, Serge. “Education aux images : pourquoi ? comment ?” Question d’image. CRAC Valence, 2002.

“Karmen Geï and Ma Vie en Rose: An Exploration of Individuality in Heteronormative and Patriarchal Societies”

Presenter Rani Sharriff-Muhammad, Mass Communications major

Mentored by Dr. Lynn Anderson

Social conditioning is inevitable in socialized societies. This paper analyzes how Joseph Gai Ramaka’s Senegalese film, Karmen Geï and Alain Berliner’s Ma Vie en Rose explore how heteronormative and patriarchal social conditioning can be detrimental and constraining to an individual. In Gai Ramaka’s 2001 Senegalese film adaption, Karmen Geï, loosely based on George Bizet’s opera Carmen, the audience follows the alluring, vivacious, free Karmen Geï as she, like other Carmens that have come before, fights and resists laws, conventions, and human limitations in her desire to be free. In Alain Berliner’s 1997 film, Ma Vie en Rose, the audience takes a journey with a

seven-year-old transgender girl named Ludovic who searches for her identity in a town where she is not accepted. Both Karmen Gei and Ma Vie en Rose; feature protagonists who, with their grasps on gender and sexuality, resist the rigid heteronormative and patriarchal aspects present in their respective societies. Karmen's strong sexually fluid behaviors and desire for freedom speaks to Ludo's insistence on her personal identity, showing audiences a drive to establish an identity in a shortsighted society. Ultimately, this paper argues that heteronormative and patriarchal societies are social constructs that are developed through social conditioning and seeks to warn societies to be more cautious of imposing these restrictive norms.

“Fear and Hitler: Remembering the Nazi Campaign and Those Who Dared to Defy It”

*Presenter Francisco Stenger, German and Mass Communications major
Mentored by Dr. Felix Tweraser*

The Third Reich is associated with some of the most oppressive regimes in history. Under the leadership of Adolf Hitler, the Nazi Party was responsible for inciting World War II, as well as committing one of the most atrocious genocides known to man. The NSDAP (Nationalsozialistische Deutsche Arbeiterpartei) spread antisemitic and radically nationalist ideals throughout Europe, not just Germany. One of the biggest questions regarding the time is how a nation known for philosophers, writers, and artists allow a party as vile as the Nazis come to power?

The purpose of this essay is to clarify how the Third Reich was ever possible. We'll examine the global pressures that Germany was under that allowed radical nationalism to grow, the fear tactics that Hitler used to convince gather German support to his cause, and the historical significance of the few German citizens who dared to stand against the NSDAP. By understanding the historical background surrounding Hitler's rise to power, we can better understand how rapidly fear and propaganda can change a nation.

Philosophy

“Defy Reality: The Merits of a Virtual Realm”

*Presenter Joshua Dye, Philosophy major
Mentored by Dr. Robert Lane*

Can we defy reality through virtual reality (VR)? In *The Virtual and the Real*, David Chalmers defends a view that he calls virtual realism, according to which the virtual world exists in reality and possesses attributes that distinguish it from fiction. In this presentation, I use Susan Haack's work on fictionality and realism to help support Chalmers' idea of virtual realism. After explaining and defending virtual realism, I argue against Chalmers' normative claim that virtual reality has at most as much value as non-virtual reality; VR will allow one to have far more valuable experiences due to an extended agency within the virtual realm. Within this presentation, I provide metaphysical insight into virtual realism and promote the true value of virtual reality.

“The Existential Role of Others”

*Presenter Joshua Dye, Philosophy major
Mentored by Dr. Janet Donohoe*

What role do other people have in how we define ourselves? Using the existential

groundwork of Sartre's Existentialism is a Humanism, this presentation will examine two different existential texts' representations of other individuals in how one defines their essence. I will argue for the necessity of The Other in evaluating Sartre's existential slogan: "existence precedes essence". Fyodor Dostoevsky's Notes from the Underground utilizes two different characters, foil Zverkov and prostitute Liza, to distinguish The Other as both contrast and meaning to how one defines their essence. Simone De Beauvoir's The Second Sex uses the history of men's dominance over women to show how men can be of hindrance to how women define their essences; in opposition, De Beauvoir also explains how men have the potential to bolster and support women's ability to define their essences. This presentation will explain the role of other people in how one defines themselves, and its necessity when evaluating Sartre's existential slogan.

"The Epistemological Failures of Peirce's Pragmatic Maxim"
Presenter Brant Entrekin, Philosophy major
Mentored by Dr. Robert Lane

In his 1878 article, "How to Make Our Ideas Clear," American philosopher Charles Peirce proposed three degrees of clarity that one can have an idea. The third and highest of these degrees is achieved using the 'pragmatic maxim,' a scientific approach which proposes understanding an idea through sensible experience based on purposeful action being performed on the object in question. Peirce then used the pragmatic maxim to support his basic idealism- the philosophic belief that anything that is real can be represented by an idea.

However, Peirce's pragmatic maxim has several flaws which cast doubt onto Peirce's basic idealism. In this presentation, I define Peirce's degrees of clarity and how this leads into his conclusion of basic idealism. I then present Thomas Nagel's thought experiments on consciousness and my "problem of missing senses" to show flaws in Peirce's pragmatic maxim for clarifying all of reality. This then leads me to reject Peirce's basic idealism and presents an intriguing perspective on the limits of human knowledge.

"Existentialism: Sartre, Simone DeBeauvoir, and Homosexuality"
Presenter Trinity Rothwell, Philosophy major
Mentored by Dr. Janet Donohoe

In this presentation i examine the notions of Sartre's radical freedom and offer a critique of this structure due to how it is held exclusively by heterosexual white males, by comparing this structure to Simone De Beauvoir's critique of Sartre's positions from a women's perspective. From there i use the positing of women as the other created by Simone De Beauvoir in order to compare and contrast this notion of otherness with homosexuality, which Simone De Beauvoir declines has the same type of otherness as women due to the radically different sizes of these groups. From my critique of Simone De Beauvoir i expand on notions of the homosexual as other and explore not only why this is the case, but how this fits into the existential framework established by Sartre.

"Loving Rebellion: Relationships and the Absurd"
Presenter Avery Stanley, Philosophy and History major
Mentored by Dr. Janet Donohoe

At first glance, the works of Simone De Beauvoir and Albert Camus do not share much in common, but in actuality, they at least start from very similar philosophical bases.

Both of their philosophical systems deal with the lack of meaning in the world, but they handle the problem in very different ways. De Beauvoir accepts a more Sartrean conception of meaning-making. She suggests that it is through transcendence and one's choices in the world that one is able to create meaning. This structure as set out by De Beauvoir shows that women are limited in the choices they make and thus also in the role they play in making meaning. I find this structure to be flawed in that it does not take into account all forms of relationships. Camus' suggests a different structure wherein there is no meaning in the world and only absurdity. I discuss how this structure can be used to solve many of the problems of relationships within De Beauvoir's work, such as the emphasis of traditionally male roles and the exclusion of anything except heterosexual relationships in her conception. Camus gives an existential philosophy that necessitates that everyone is equal under the absurd, and to fight this absurdity we love the people around us, no matter what form that love takes.

“Analyzing Supernatural Claims using Peirce’s Definitions of “Real” and Other Related Terms”

Presenter Alan Valdes, Philosophy major

Mentored by Dr. Robert Lane

The term “supernatural” is vague and ill-defined. This paper seeks to establish a more concrete definition of the term. I argue that “supernatural” can be best defined as the inverse of the term “natural.” The definition of “natural” is: having existence in the real and observable universe. In order to establish the existence of such a universe, I describe “basic realism,” the belief that there is a real world. Additionally, in order to clarify what can be meant by “real,” I turn to Charles Sanders Peirce’s definitions of the word and a few other related terms.

I conclude that the definition of “natural” is equivalent to Peirce’s definition of “real.” Consequently, the best definition I can give for “supernatural” is: not real. This definition, however, contradicts different supernatural claims and does not reflect how the term is commonly used. With this in mind, I analyze a set of hypothetical supernatural claims that could conform to the various combinations of Peirce’s definitions. I conclude that the term “supernatural” is impossible to pin down concretely within Peirce’s definitions and is ultimately not useful when used to distinguish between claims made within them.

Science and Mathematics

Biology

“Assessing a Linear Correlation Model to Predict Glomerular Volume Given the Total Number of Olfactory Sensory Neurons Expressing One Odor Receptor Type”

Presenters Oddesy Allen, Psychology major; Taylor Burrell, Tyler Combs, Jessica Miller, and Ekemini Udom, Biology majors

Mentored by Dr. Melissa Johnson

Glomeruli are areas within the olfactory bulb where olfactory sensory neurons (OSNs) with the same odor receptor synapse with their target mitral cells. A recent publication has correlated glomerular volume with the total number of OSNs. As part of an ongoing research collaboration project, we counted the number of OSNs expressing the M72 receptor in serial sections taken from wildtype mice ($n = 11$), and then calculated the predicted volume of the M72 glomerulus based on the published linear correlation

model (625,298 μm^3). We also compared our mean number of M72-expressing OSNs per mouse with that of the published research in order to validate our use of the published correlation model. We found that the mean number of M72-expressing OSNs is 5599 ± 1403 (mean \pm SD). While our mean was in range of the published model (5599 vs. 5265), we had a slightly larger standard deviation (1403 vs. 906). This could be the result of using data collected by multiple individuals rather than a single person being responsible for all OSN counting. In the future, we plan to measure glomerular volume to see if we can use the published linear correlation model to predict total number of OSNs.

“Identification and Characterization of Three Novel Strains of Bacteria that Can be Used for Bioremediation of Cyclic Alkane, Cyclic Aromatic Hydrocarbons and Polyhydroxyalkanoates, Poster Presentation”

***Presenter Taylor Box, Biology major
Mentored by Dr. Mautusi Mitra***

Three different bacterial strains were isolated from the contaminated TAP (Tris Acetate Phosphate) media plates of the green micro-alga *Chlamydomonas reinhardtii* in our research lab. These bacterial strains were named based on the *Chlamydomonas* strains they contaminated: CC4533, Clip 185, and LMJ.SG0182. These bacterial were able to grow on the algal media plates as these strains could utilize acetate as an alternative carbon source like *Chlamydomonas*. Several microbiological tests were conducted to characterize the bacteria biochemically. We amplified and sequenced partially the 16S rRNA gene sequences of these three bacterial strains. The sequencing data showed that these three bacteria are novel strains of bacterial species: *Sphingobium yanoikuyae* strain PR86, *Microbacterium binotii* strain PK1-12M, and an uncultured bacterium clone LIB091_C05_1243 that is closely related to the genus *Acidovorax* sp. We tested the abilities of these three bacterial strains to utilize cyclic alkanes, mono and polycyclic-aromatic hydrocarbons, poly-hydroxyalkanoates, and car and lawn mower fresh and combusted engine oil as the sole carbon source on Tris Phosphate + 0.1% ammonium chloride media plates. Results show that both CC4533 and LMJ.SG0182 strains have the potential for bioremediation, with CC4533 being the most promising candidate. We will be presenting our molecular, biochemical and physiological results.

“Comparison of Ion Transport Expression in Lake Sturgeon”

***Presenter Caitlin Forkin, Biology major
Mentored by Dr. Janet Genz***

This project investigated ion uptake by fish endemic to Georgia, known as Lake Sturgeon (*Acipenser fulvescens*), which were acquired from a hatchery and naturally found in the Coosa River. For this investigation, identical recirculating tank systems provided separated environments for the two types of water treatments. Equal test groups were placed into the different water chemistries, one into the Coosa River and the other into the regular dechlorinated tap water. All subjects consumed the same type of food: Rangen, which is a commercial chow mix, and blood worm. The Coosa River water differs in ionic composition compared to the hatchery environment, with lower environmental $[\text{Ca}^{2+}]$ and higher concentrations of Zn^{+} and Mg^{2+} . The transporters of interest included $\text{Na}^{+}\text{-K}^{+}\text{-ATPase}$, epithelial Ca^{2+} channel, and $\text{Na}^{+}\text{-Mg}^{2+}$ cotransporter. Overall growth patterns, including weight, body length, and intestinal length and mass differed due to water chemistry. Similarly, gene expression was hypothesized to respond to environmental ion availability. Evidence of changes in

gene expression will support the hypothesis that fish in the Coosa River regulate ion transport in conjunction with available nutritional and environmental factors. In order to obtain the necessary genetic information, sampling points were assigned over 21 days at 0, 1, 10, and 21 days post-transfer. During each sampling period, we euthanized five fish per treatment for dissection and collected specific tissue types: gill, liver, and intestine. All tissues were stored at -80°C. During the analysis stage of the project RNA was isolated from both the gill and intestine samples, reverse transcribed into cDNA, and then analyzed for gene expression using RT-qPCR to analyze the effect of water chemistry from the two different exposure treatments, particularly ion transport factors in both of these ion transport organs. This data can be utilized to assist the hatcheries in better understanding the responses of Lake Sturgeon to environmental changes and analyzing whether the differing ion content in the Coosa river water is a factor in whole-animal energy distribution.

“Impacts of Prescribed Fire on Insect Diversity in Montane Long-leaf Pine Forest”
Presenters Caitlin Forkin and Janet Garcia, Biology majors
Mentored by Dr. Andrew Edelman

Restoration of southern longleaf (*Pinus palustris*) forests depends heavily on the use of prescribed fire. Frequent burning maintains open pine stands and their herbaceous understory by killing competing woody vegetation. Endangered bat communities also depend on public lands where longleaf pine restoration occurs, but their response to prescribed fire management is not clearly understood. Our objective is to assess how the availability of insects that bats feed on, are influenced by prescribed fire regimes in montane longleaf pine forests of northeastern Alabama. During May-August 2019, insect sampling was conducted at 73 sites in areas of the Shoal Creek Ranger District with short (1.8-3.5 year) and medium fire intervals (>3.5-8 year). Within each fire interval, fire recency impacts were examined by sampling sites that were <1-year post-fire, 1-year post-fire, and 2-3 year post-fire. At each site, we placed an elevated blacklight trap for 1 fair weather night and collected insects the following morning. The insects in each sample were oven-dried, identified to taxonomic order, counted, and weighed. Preliminary results suggest that insect biomass is greater at sites with short fire intervals compared to medium fire intervals. These data will provide forest managers with feedback on how forest restoration efforts using prescribed fire impact food resources that support the endangered bat community.

“Microscopic Details of Entomology”
Presenters Caitlin Forkin, Janet Garcia, and Dani Rewis; Biology majors
Mentored by Dr. Gregory Payne

Insects can be found in a variety of environments, some going unseen, either due to camouflage or microscopic proportions. These organisms are often taken for granted and unappreciated regarding their effect and influence on the environment, both regional and wide-spread. In addition to their ecological contributions, including decomposition, pollination, and food sources, insects also add another aspect to our natural world, beauty. When looking closely, the various structures of insects turn into a whimsical, geometrical, textured, and expressive display. All of which go unacknowledged in everyday life. This project is to bring attention to the intriguing and intricate detail of the various insect structures, from antenna types to body shapes, eye dimensions to tarsal detail, as well as the textures and patterns of wings. This artistic display will highlight a variety of insect orders all of which come from the Biology

Department's Insect Library, including Lepidoptera, Diptera, Hymenoptera, Odonata, Orthoptera, and Neuroptera, just to name a few. The images selected and displayed will bring necessary attention to the amazing detail and beauty that hides in plain sight.

“Identification and Characterization of Three Novel Strains of Bacteria that Can be Used for Bioremediation of Cyclic Alkane and Aromatic Hydrocarbons and Polyhydroxyalkanoates, Oral Presentation”

Presenter Jesse Gilpin, Biology major

Mentored by Dr. Mautusi Mitra

Three different bacterial strains were isolated from the contaminated TAP (Tris Acetate Phosphate) media plates of the green micro-alga *Chlamydomonas reinhardtii*. These bacterial strains were named based on the *Chlamydomonas* strains they contaminated: CC4533, Clip 185, and LMJ.SG0182. These bacterial strains were able to grow on the algal media plates because they could utilize acetate as an alternative carbon source like *Chlamydomonas*. Several microbiological tests were conducted to characterize the bacteria biochemically. We amplified and sequenced partially the 16S rRNA gene sequences of these three bacterial strains. The sequencing data showed that these three bacteria are novel strains of bacterial species: *Sphingobium* sp. strain MK41, *Microbacterium binotii*, and an uncultured bacterium clone LIB091_C05_1243 that is closely related to the genus *Acidovorax* sp. We tested the abilities of these three bacterial strains to utilize cyclic alkanes, poly- and monocyclic aromatic hydrocarbons, car and lawn mower engine fresh and used oils, and polyhydroxyalkanoates as the sole carbon source on TP (Tris Phosphate) + 0.1% ammonium chloride media plates. The results show that all three strains have the potential for bioremediation of toxic chemicals, with CC4533 being the most promising candidate. We will be presenting our molecular, biochemical and physiological results.

“Effects of Acid Scarification and Cold Stratification on *Desmodium* spp. Seed Germination Rates”

Presenters Jonah Hettmansperger and Kaylee Still

Mentored by Dr. Joseph J. Hendricks

Desmodium species may exhibit high N₂-fixation rates in pine (*Pinus* sp.) forests, thereby potentially increasing soil fertility and site productivity. However, studies to assess the rates and controls of *Desmodium* N₂-fixation have been hindered by the difficulty of germinating seeds collected from natural ecosystems. The objectives of this study were to assess the effects of acid scarification and cold stratification on the germination rates of seeds collected from *Desmodium laevigatum*, *D. marilandicum*, and *D. viridiflorum*. Seed pods for three species were collected from the Piedmont National Wildlife Refuge on October 11, 2019. The effects of seed type (clean, green hull, and brown hull), a 10 minute acid scarification treatment, and a 3 month -20°C cold stratification treatment were assessed in a complete factorial design. The clean, green hull, and brown hull seeds exhibited high germination rates for each species when scarified by acid. In contrast, the cold stratification treatment did not have a significant impact on seed germination rates for any of the species. These results indicate that both green and brown seed pods may be collected, that it is not essential to manually remove seeds from the indehiscent hulls, that it is beneficial to acid scarify the seeds, and that it is not necessary to cold stratify the seeds prior to planting or sowing in natural systems.

“Species Delimitation in a Biodiversity Hotspot: Evolutionary History of the Ringneck Snake”

Presenter Emily Miles, Biology major

Mentored by Dr. Frank Fontanella

Earth's biodiversity is in trouble. Global changes, from habitat loss and invasive species to anthropogenic climate change, have initiated the sixth great mass extinction event in Earth's history. Conservation management is compromised by the absence of information on what species exist, abundance, ecology, and biogeography and has a direct impact on how state and federal governments utilize limited funding. The California Floristic Province (CFP) (Fig. 1) is a “biodiversity hotspot” containing more than 1500 endemic vascular plant species and greater than 70% habitat loss. Biodiversity hotspots face the highest threats because their resources and species cannot be replicated or found in any other regions on the planet. Studies of widespread species throughout the CFP have inferred pronounced fine-scale genetic differences among populations resulting from the adaptation to local environment. Since species are fundamental units of study, inaccurate assessments of species diversity may lead to errors in analyses that use species as units and hinder conservation efforts. Throughout California, seven sub-species have been traditionally recognized within the ringneck snake genus *Diadophis* based on morphological characters. Recent molecular studies using mitochondrial DNA recognized three distinct lineages within the CFP, leading many herpetologists to abandon the traditional morphologically-based subspecies. In this study, we take an integrative approach to species delimitation by combining genetic, morphological, and ecological data to assess the species diversity within the ringneck snake genus *Diadophis* distributed throughout the California Floristic Province. We utilized present-day climate models to project changes in endemic species' range sizes, distribution, and diversity under future climate scenarios. Our results provide new insights into the biodiversity of *Diadophis* within the CFP and identify potential future range contractions or shifts due to climate change. These results can be used to inform conservation status assessments, prioritize habitat reserves, corridors, and essential microrefugia for conservation.

“Assessment of Larval Sturgeon Energy Allocation Using Respirometry”

Presenter Lindsey Monkiewicz, Biology

Mentored by Dr. Janet Genz

A recent study on juvenile lake sturgeon (*Acipenser fulvescens*) demonstrated that temperatures between 15-21 °C does not affect overall growth rate during rearing. However, no information is available regarding the energy budget of yolk-dependent larvae or the impacts of differences within this environmentally-relevant temperature range on maintenance cost. Therefore, this project investigated how differences in feeding and temperature during rearing impacts the resting metabolic rate of larval lake sturgeon. Larvae were reared at 15 °C and then measured at 15, 18, and 21 °C. Within those temperature groups, fish (n = 26) were measured during the endogenous feeding stage (6-15 dph) when nutritional energy is available only via the yolk, and after the transition to exogenous feeding (16-26 dph) (n=23). The larvae were tested for oxygen consumption using intermittent-flow respirometry. Raw data were utilized for mathematical analysis yielding the mass-specific resting metabolic rate of each individual larva. The larvae from both feeding groups reared at the higher temperature of 21 °C expended more energy than at 15 or 18 °C. There is a significant difference in

the fish reared at 15 °C dependent on feeding type, but not for 18 or 21 °C, suggesting that metabolic response to temperature variation is a substantial fraction of required energy required for maintenance, but not growth, in *A. fulvescens*.

“Analysis of Mitochondrial DNA Adaptations in Darter Fish”

Presenter Dani Rewis, Biology major

Mentored by Dr. Leos Kral

There are over 200 species of darters, a type of fish found primarily in rivers and streams in the Southeastern United States. Speciation is the cumulative result of mutation and selection. Eukaryotic organisms have two types of chromosomes: those located in the nucleus and those located in the mitochondria. In this study, the evolution of the mitochondrial chromosomes in several darter species was examined. The mitochondrial DNA from five darter species was sequenced, and the entire mitochondrial chromosome of each of these five species was assembled. The individual genes in these mitochondrial DNA sequences were then identified utilizing the annotated mitochondrial chromosomes from other related species obtained from GenBank as reference sequences. Mitochondrial DNA sequences from additional darter species sequenced and annotated by other researchers were obtained from the GenBank database. The types of evolution of the darter genes was then determined by MEME analysis. Results obtained from this analysis show that signs of adaptive evolution of some of the mitochondrial genes are detectable, indicating that certain mutations were likely selected during darter evolution to better adapt the various darter species to different river or stream environments.

Chemistry

“Binding of Cucurbit[n]uril, n = 5, 6, or 7, with Alkali Metal Ions Via ESI-MS”

Presenters Oreoluwa Adebajo, Chemistry major; Olivia Basant, Chemistry and Psychology major; Cameron Cummings, Chemistry major; Jeffery Davison, Chemistry major; Fatima Ghiathi, Psychology major; Kimora Hudson, undeclared major; Betelhem Lonse, Chemistry major; Kaitlin Watkins, Chemistry major; Anjelina Webb, Biology major; Phillip Wooten, Chemistry major; and Mailei Zhang-Smith, Chemistry major

Mentored by Dr. Farooq Khan

Cucurbit[n]urils, or CBn, where n = 5, 6, 7, 8 or 10 are “molecular containers” well-suited for binding of a wide array of molecules, and are of immense interest in drug delivery, photochemical reactions and catalysis. Of considerable interest in understanding the fundamental properties of these molecules are their binding properties with metal ions. In our study, we have explored the binding selectivities of CB5 with alkali metal ions via electrospray ionization (ESI) mass spectrometry in aqueous solutions. We find that CB5 binds with one or two alkali metal ions. The relative binding energies for CBn, n = 5, 6 or 7 were determined via collision-induced dissociation (CID) experiments, and found be $\text{Li}^+ > \text{Na}^+ > \text{K}^+ > \text{Rb}^+ > \text{Cs}^+$. Species containing CBn, two metal ions and chloride ions were also observed, which upon CID, result in the loss of a neutral MCl species.

“Regulating Redox and Spin State Behavior of bis-Terpy Fe(II) via Steric and Inductive Influence of Ligand Substituents”

Presenter Nathan Blackburn, Chemistry major

Mentored by Dr. Spencer Slattery

A series of complexes with the general formula $[\text{Fe}(\text{R-terpy})_2]^{2+}$ where R = Me, OCH₃, OCH₂CH₃, OCH(CH₃)₂, CH₃, C₂H₅, C₂Si(CH₃)₃, Cl, Br, and I... were synthetically prepared to investigate the steric and inductive influence these substituent groups on the 6' position of 2,2':6',2'-terpyridine (R-terpy) have on the electronic properties of Fe(II). All of the R-terpy ligands were characterized by way of ¹H and ¹³C NMR followed by coordination onto the metal center in a bis-manner. The Fe(III/II) redox couple of each complex was characterized by way of cyclic voltammetry in which their redox behavior was observed to correlate well with the substituents inductive influence. NMR methodology was used for measuring room temperature magnetic susceptibilities of each Fe(II) complex under solution conditions. Several of the Fe(II) complexes exhibited spin equilibrium (low and high spin states) that strongly correlated with the 6'-substituents steric influence.

“Green Chemistry with Supercritical CO₂ and Enzymes”

Presenter Seth Bradley, Chemistry major

Mentored by Dr. Megumi Fujita

Green chemistry is a practice to develop sustainable ways to carry out chemical processes. “Greening” the chemical industry has a big impact in reducing pollution, lessening dependency on petroleum, and increasing safety and efficiency. We are exploring the use of supercritical carbon dioxide (CO₂) and other plant-derived solvents as environmentally benign solvents in the place of toxic organic solvents derived from petroleum (e.g. hexane, toluene, and dichloromethane). We are investigating whether organic synthesis reactions catalyzed by enzymes can be carried out in these “green” alternative solvents. Enzymes are catalysts produced by a living organism, known for high efficiency and selectivity, and environmentally friendly. Enzymes usually only work in aqueous medium, within physiological temperature and pH range, and beyond that they usually denature. However, select immobilized enzymes are available commercially, and we are testing the scope and limitation of Novozym 435, an immobilized lipase in supercritical CO₂ and other plant-derived solvents. The reactions that we are testing are asymmetric esterification catalyzed by Novozym 435 in tandem with a ruthenium-based alcohol racemization catalyst. This type of reaction, if works, is useful in synthesizing pharmaceuticals.

“Textile Resistance Under Sonication and Dyeing”

Presenter Ann Cormier, Chemistry major

Mentored by Dr. Anne Gaquere-Parker and Dr. Marion Buzon

Polyester and Rayon are both synthetic fibers and as such, their physical properties can be customized to match the needs of the user in the textile industry. For instance, they are more resistant than most natural fibers and will easily be able to absorb different dyes. Polyester are made using chemical reaction that traditionally obtained from the petroleum industry. Its hydrophobicity does not make for a breathable fabric, meaning that it does not absorb water molecules when exposed to a high humidity environment. Rayon is a semi-synthetic fabric because it starts from a natural fiber that is then chemically modified. It is made from cellulose obtain from wood pulp or cotton. This project focus on studying the effects of ultrasounds, both from a sonication probe and a sonication bath, on the structure of these two types of fibers. We will show microscopic images before and after sonication. Eventually, the fibers will be dyed using sonication to enhance the process.

“GCMS Analysis of Electronic Cigarettes”
Presenter Maxwell Deen, Chemistry major
Mentored by Dr. Victoria Geisler

Electronic cigarettes (e-cigarettes) are growing in popularity. Concerns have been raised about the ingredients employed in the cartridges specifically the flavorings used. The e-liquids used in electronic cigarettes consist of propylene glycol, glycerin, nicotine, and chemical additives for flavoring. Our research has focused on developing a gas chromatography mass spectrometry (GCMS) method to analyze electronic cigarette solutions to determine their chemical components and to determine the concentration of nicotine in the pods.

“Design and Synthesis of Fe(II) Complexes Composed of a Novel Tridentate Ligand for Studying Spin State Transition Coupled to Proton Transfer”
Presenter Abigail Denny, Chemistry major
Mentored by Dr. Spencer Slattery

The design and synthesis of a tridentate ligand, 2-(1H-pyrazol-1-yl)-6-(1H-pyrazol-3-yl)pyridine, containing an acidic hydrogen was achieved in a two-step process where one step involves Suzuki Coupling. The ligand was coordinated around an Fe(II) center in a bis-manner. The Fe(III/II) redox behavior of the protonated and deprotonated Fe(II) complex was characterized by cyclic voltammetry under aprotic and protic (aqueous/ acetonitrile mix) solvent conditions. Using a modified Evans Method, spin state studies were conducted on the Fe(II) system at room temperature in solution phase. The study was carried out by shifting from the fully protonated to the fully deprotonated Fe(II) complex to observe a shift in its spins state which generates a change in the magnetic behavior.

“Antioxidant Activity of Fruits”
Presenters Anzley Irons, Chemistry major; and Garrett Womack, Biology major
Mentored by Dr. Victoria Geisler

There has been growing interest in the health benefits of foods containing antioxidants. In this experiment, 1,1-diphenyl-2-picrylhydrazyl (DPPH) was utilized to determine the amount of antioxidants found in fruits. DPPH is a stable free radical that displays a purple color. Once DPPH interacts with an antioxidant that can donate an electron, the free radical will be reduced and the color will change from purple to yellow. The IC50 (the concentration at which 50 % inhibition of free radical activity can be observed), were determined in a variety of samples that include blueberries, strawberries, raspberries, cherries, grapes and oranges. The results of this investigation will be presented.

“Halide-Functionalization of Lead Sulfide Quantum Dots for Conductive Thin Films”
Presenters Mike Martin and Haley Turner, Chemistry majors
Mentored by Dr. Martin McPhail

Lead sulfide quantum dots (PbS QDs) have shown great promise in recent years as sensitizers for next-generation solar cells and active layers for thin-film transistors. Controllable halide-functionalization of the surfaces of PbS QDs holds promise for improving the performance of QDs within these applications by passivating surface states and improving interdot charge transfer. This presentation will report on work to generate ultrathin, close-packed films of halide-functionalized PbS QDs suitable for incorporation into thin-film devices. Ultrathin films of oleate-capped PbS QDs were self-

assembled on a liquid subphase and subsequently ligand-exchanged using various tetraalkylammonium halide salts. Displacement of the native oleate by the halide was confirmed by measuring contraction of the film and by monitoring the concentration of displaced oleate in the liquid subphase with nuclear magnetic resonance spectroscopy. These results show that these halides are able to displace the native oleate and that the rate of film contraction is limited by this rate of oleate displacement. Comparisons of different halide salts show that the use of sterically bulky counterions facilitates oleate displacement. This work provides a general toolbox that will enable future studies of the effects of halide-functionalization of charge transport properties of QD thin films.

“Quantitative Analysis of Amino Acids in Soy Sauce: How Do They Affect the Taste?”

Presenter Lauren Ochoa, Chemistry major

Mentored by Dr. Megumi Fujita

Amino acids are the main contributors to the taste of soy sauce. In soy sauce alternatives, such as liquid aminos, coconut aminos, and tamari, are the amino acid composition similar, or different to that of regular soy sauce? How do they affect to their tastes? Would the composition be affected by the raw material (soybean or not, whether wheat was used or not), the production method (fermentation or acid-catalyzed hydrolysis), or the amount of salt? To address these questions, we are using HPLC (high-performance liquid chromatography) to detect and quantify amino acids in 15 different soy sauce and alternative products. The results are compared to the qualitative taste test results based on the tasting survey.

“Can In-Class Assignments Assist Students?”

Presenters Ellye Puckett, Biology and Chemistry major; and Kaitlin Watkins, Chemistry major

Mentored by Dr. Logan Leslie

Not all subdisciplines of chemistry are created equal when it comes to ease of understanding in the classroom. Some are more difficult and complex for students to grasp and learn effectively. The research group determined some of these challenging chemistry topics in relation to student learning and understanding through the use of peer-reviewed sources from archives and journals. Then, after assessing points of contention, the group identified potential causes of misunderstanding and lack of engagement. Each researcher designed a supplemental activity related to one of these challenging topics and applied it in a second-semester general chemistry classroom. These supplemental activities were created to try to combat concerns within the subdiscipline that impair or hinder student learning and understanding. The supplementary assignment was then given to one section of Chem 1212, while a second section was taught by traditional lecture alone. Then, identical assessment questions were created and incorporated into both sections' exam to determine whether the approach affected the students' ability to understand the topic or whether it had no effect. The results of this experiment will be discussed and analyzed in a poster presentation that is created by the research group.

“Water Availability in Sustaining Hydrogen Ion Migration”

Presenters Tate Reece, Mayowa Sonola, and Samuel Wright; Chemistry majors

Mentored by Dr. John Hansen

The solvation of a hydrogen ion (or proton), and its transport through solution, influences perhaps 60% of all chemical reactions and biological processes. The hydrogen ion in bulk water is thought to exist in two forms: the Zundel ion ($H_5O_2^+$) and the Eigen ion ($H_9O_4^+$). These solvated structures aid in the transfer of protons through an aqueous solution via a proton-hopping mechanism. The proton transfer process becomes increasingly interesting as we consider its transfer through the aqueous environment of a cell, which is crowded with many macromolecular structures that interfere with its intermolecular interactions (hydrogen bonding) and subsequent bulk structure.

When studying proton transfer, the complicated aqueous environment of the cell can be mimicked by supercooled solutions of glycerol and water. These solutions, which are homogenous at room temperatures, become increasingly heterogeneous as the temperature is lowered to near the glass transition, with islands of varying viscosity dispersed throughout. Proton transfer in this supercooled solution can be initiated with a very short laser pulse. We studied how these protons migrated through this solution, with limited availability of water to solvate the ions. The experiments discussed here use the rate of proton transfer to probe the mechanism of protons migrating through a heterogeneous medium. We present here how water mobility promotes proton transfer.

“Sonicating & Dyeing Natural Fibers: A Sonochemistry Experiment Based in the Chemistry of Textiles”

Presenter Abigail Watson, Chemistry major

Mentored by Dr. Anne Gaquere-Parker

Cotton and silk are both natural fibers, however, due to their physical properties, they may not meet all the needs encountered in the textile industry, such as lightfastness once dyed. For instance, heavy metals may be used as mordants to aid in the dyeing process. This project focuses on studying the effects of ultrasounds, both from a sonication probe and a sonication bath, on the structure of these two types of fibers before dyeing. Also, attempts will be made to enhance the dyeing process in a more environmentally safe way using ultrasounds and little or no mordant. Damage to the fiber structure will be monitored by light microscopy as a function of the sonication duration.

“Antioxidant Activity of Herbs, Spices, Vegetables and Dietary Supplements”

Presenter Princess Meonna Williams, Biology major

Mentored by Dr. Victoria Geisler

There has been growing interest in the health benefits of food containing antioxidants. In this study, 1,1-diphenyl-2-picrylhydrazyl (DPPH) was utilized in the determination of IC₅₀ (the concentration at which 50 % inhibition of free radical activity is observed) values for extracts of herbs, spices, vegetables and dietary supplements. DPPH is a stable free radical that displays a purple color. Once DPPH interacts with an antioxidant that can donate an electron, the free radical will be reduced and the color will change from purple to yellow. The IC₅₀ values were determined for a variety of samples that include rosemary, jalapeno, turmeric, kale, matcha green tea, ginger root, dandelion root, ginseng root, cocoa powder, thyme, cinnamon, broccoli, cumin, parsley and dietary supplements. The results of this investigation will be presented.

Computer Science

“Algorithmic Music Composition Using Scheme”

Presenter Dylan Knox, Computer Science major

Mentored by Dr. Steven Benzel

Music theory is the discipline of composing and studying music, often framed as systems and rules, such as scales, chords, and rhythms, as well as higher-level aspects like song structure.

This paper and accompanying program explore the relationships between music composition and music theory rudiments and computer programming using Scheme, a functional list processing language. The program relies on the strengths of the language, and interprets musical structures using functions on finite state machines implemented as linked lists. An intuitive interface for building musical components such as scales, chords, and measures is defined using functions that operate on sets of musical notes and/or time. These components are then used to build musical pieces, utilizing some degrees of randomness for diversity.

This research has found that functional languages in the list processing language family can build a powerful and intuitive interface for music composition and music theory. It is hoped that this work will lead to more study in the area of generating music using computers or technology, as well as extensions onto this implementation to expand the rules enforced when generating the songs to further create interesting music.

“A Comparative Study of Supervised Learning Algorithms to Predict Potential Drug Abuse”

Presenters Aaron Merrell, Tristen Rivera, and Justin Smith; Computer Science majors

Mentored by Dr. Ana Stanescu

Did you know that more than half of the American population who abused prescription opioids were also alcoholics? An important priority in confronting the drug abuse epidemic is prevention. In this study, we explored a variety of supervised machine learning methods and their applicability to the problem of identifying users at-risk of drug abuse. We used a dataset consisting of approximately 2,000 individuals who provided information about their substance use via an anonymous online survey. We represented each individual using demographic information, psychological test scores, and drug-use history including both illegal as well as prescribed medication in a numeric feature-vector format. We trained several supervised learning algorithms on the dataset and the resulting prediction models were able to achieve nearly 80% accuracy in identifying at-risk drug users. Our results show that these approaches are suitable for finding complex interactions in datasets and can cater to a user’s unique background and drug history, thus having the potential to help implement more effective narcotic prevention and rehabilitation programs, ultimately contributing to advancements in confronting the opioid crisis.

“Categorizing Polyhedral Dice Using Image Data”

Presenter Thomas Whaley, Computer Science major

Mentored by Dr. Ana Stanescu

Recognizing the number of sides that a dice has is a type of object recognition problem, and it is arguably a very difficult computer vision task mainly due to the complexity produced by an object’s position in the image, its size, lighting, relativity to viewer,

background, etc. Moreover, as the number of sides increases, dice categorization, either automated or by human eye, becomes even harder. In this work, we conduct an empirical analysis of several supervised machine learning algorithms applied to the problem of categorizing polyhedral dice. From a labeled dataset of 16,384 images, 15% of them is set aside for evaluating the final performance of the selected model and the rest is used in training using k-fold cross-validation. Finally, the best algorithm is selected and evaluated against the previously held-out test data. We found that an ensemble-based model predicts the number of sides the dice has in an image with 94% accuracy. This type of modeling can be especially useful in identifying small parts and sub-components from image data in production facilities. For example, the model could verify that parts on an assembly line are built without errors.

Geosciences

“Geochemistry of a Tufa Deposit at Pigeon Mountain, Georgia”

Presenter Ryan Dapkus, Geology major

Mentored by Dr. James Mayer

Tufa is actively accumulating in several streambeds on Pigeon Mountain, northwestern Georgia. This study examines tufa below a spring on Pocket Branch on the northwestern flank of Pigeon Mountain. We characterize spring and related surface water chemistry to determine spring water sources and assess the mechanism of carbonate deposition below the spring. Water samples were collected under low-flow conditions in late summer and analyzed for field parameters and major-ion chemistry. The spring issues from a chert- and dolostone-rich interval of the Mississippian Fort Payne Formation and subsequently flows over a series of small cascades. Calcium carbonate is deposited as a thick (10+ cm), stratified, porous apron on the cascades and as thin (up to 1 mm), dense coatings on stream cobbles in pools below the cascades. A thin layer of calcium carbonate precipitate also occurs locally on the water surface of pools. All waters are of calcium-bicarbonate type with Ca^{2+} and HCO_3^- concentrations ranging from 69 to 85 mg/L and 221 to 280 mg/L, respectively. Ca/Mg ratios range from 6.90 to 14.0. Log $p\text{CO}_2$ ranges from -2.90 to -1.77 atm. Most waters are oversaturated with respect to calcite but significant carbonate precipitation occurs only at the steepest portion of the creek, which coincides with a sharp drop in $p\text{CO}_2$. Springflow appears to be derived from the Fort Payne Formation and overlying Mississippian Limestone units. Tufa and cobble coatings are made of calcite with minor aragonite and consist of nearly pure calcium carbonate.

“A Complex Thermal and Mechanical History in a Triassic-aged Dike, As Evidenced by Textural Analyses”

Presenter Devin Fowler, Geology major

Mentored by Dr. Ryan Currier

Magma generated at depth in the Earth are transported towards the surface via magma-filled cracks. These features are referred to as dikes. Historically, magmatic intrusions have been viewed as simple, single-event systems. More recently, this view has been challenged with detailed studies revealing that most igneous systems have complex histories. This study focuses on one mafic dike, part of the Central Atlantic Magmatic Province. In northeastern Georgia, a largish mafic dike associated with CAMP is exposed in the Keystone Blue Quarry. Quarry operations have removed granite, leaving behind the dike now exposed in 3-dimensions. Samples were collected

at ~1 foot intervals across a ~17 foot thick section of the dike, near its center. From these samples, textural analyses have been performed. From these texturally analyses, the thermal history can be interpreted. Preliminary results indicate that the dike has an asymmetric thermal history. This cannot be explained via a simple, thermal model. Rather, a more complex history is necessary. It is suggested here that the dike grew through a number of pulses separated in time, with each subsequent pulse accumulating on the same side.

“Geohistory of Front Campus Drive”

***Presenter Tinaye Gibbons, History major
Mentored by Dr. Andy Walter***

The Geohistory of Front Campus Drive is a project between the Center for Public History and the Geosciences department. The University History Project, a project through the Center for Public History that aims to tell the history of the university since the beginning of its foundations. I have worked with the Geosciences department to use geographic information systems (GIS) to tell a change in the university through the buildings on Front Campus Drive. My project looks at the time frame the buildings were built to map the expansion of what was considered the main part of campus during its time. The change in the environment can reflect the growth of the university and how its history has changed along with it. I viewed different maps that were available to me, aerial, Sanborns, and hand drawn maps to create a map that reflected what was current to the time period. It's to understand the buildings within the context of their time on campus and to better understand the history of the university as a whole.

“Investigating Erosion of the Panamint Mountains Using Cosmogenic Nuclides in Sediment”

***Presenter Matthew Johnson, Geology major
Mentored by Dr. Cody Mason***

There are several factors that can control the erosion rates of mountains, such as tectonic uplift rate, amount of precipitation and thus associated erosion by water. However, to study this is difficult due to the large time scale of erosional processes, and our relatively short period of direct human observations. One useful tool frequently used to investigate erosion over >> human timescales, is the precise measurement of rare cosmogenic radionuclides (e.g. cosmogenic nuclides, for instance ^{10}Be) in sediment. By collecting sand samples from the mouth of streams along the western Panamint Mountains, California (USA) and analyzing quartz grains for cosmogenic ^{10}Be , we will be able to quantify the spatial pattern of erosion rates for much of the mountain range, over multi-millennial timescales. The techniques we will use works because as rocks slowly approach the surface of the Earth through the progressive removal of overburden (surface erosion), quartz minerals become increasingly bombarded with high energy particles known as cosmic rays. These high energy cosmic rays produce the rare isotope ^{10}Be in quartz through reactions with secondary cosmic ray neutrons, protons, and muons (Granger and Schaller, 2014). The longer quartz minerals stay near or at the surface, the higher the content of ^{10}Be becomes. With known production and decay rates for cosmogenic nuclides, the rate of erosion in a fluvial catchment can be calculated, and is inversely proportional to the concentration of ^{10}Be found in quartz sand collected from rivers exiting mountain catchments.

We performed field work during December and January of 2019-2020 to sample

sediment to quantify erosion in the Panamint Mountains, California. The next phase of our work will be to measure ^{10}Be in our samples, and to calculate erosion rates using the concentrations of ^{10}Be in sediment samples. The ultimate goal of this study is to examine how the rapid uplift of the Panamint Mountains, and subsidence of the Panamint Valley, affected the erosion rates in the area. After this information is attained, it then becomes possible to integrate those findings on a larger scale by looking at regional geology and comparing the results of our erosion rates to, for instance, documented uplift of the Panamint Mountains beginning at ~3-4 million years ago (Bidgoli et al., 2015). One catchment exiting the western Panamint Mountains has already been documented as having a rather stable erosion rate for over one million years (Mason and Romans, 2018). The new data gathered in this project will assist in clarifying the spatial variation in erosion rates, and will help quantify the erosional response and the magnitude of the erosion caused by known rates of tectonic uplift in Mountain ranges.

“Factors Influencing Concern for Climate Change”

Presenter Bryson King, Geography major

Mentored by Dr. Georgina DeWeese

After a steady growth in the acceptance of climate change, the U.S. public concern has polarized in recent decades. Environmentalists have been pushing for legislation to deal with climate change for years. Yet, for the American public, climate change is not a central issue and concern is constantly fluctuating. What's driving this change? The public's perception of climate change is complex and speculations on why the public's attitude might change ranges from personal experience to mass social psychology. Utilizing the online survey tool 'SurveyMonkey' I examined several factors that may account for any changes in the public's perception: 1) experience with extreme weather events, 2) level of education and 3) Scientific information. In addition to my survey, I analyzed whether media coverage and economic recession has a significant influence on the public's concern. A time-series analysis of the climate change threat index conducted by Robert J. Brulle, and J. Craig Jenkins reveals that media coverage has the largest effect on the level of public concern. Experience with extreme weather events has no effect on aggregate public opinion. An individual's educational achievement shows no correlation to an increase in overall concern while the promotion of scientific information has a minimal effect on public attitude. The implication would seem to be that while scientific advocacy has a minor effect on public concern, political mobilization and media coverage is the critical factor in influencing public opinion on climate change.

“Characterizing Metamorphosed Ultramafics in Carrollton, GA”

Presenter Samuel Kirkham, Geology major

Mentored by Dr. Marian Buzon

Metamorphosed ultramafic rocks in and near Carrollton, GA occur in isolated lenses, making them distinct from surrounding metapelitic rocks. The geologic literature of the region lacks in depth characterization and descriptions of these lenses. Early inspection of hand samples and thin sections of these rocks, using polarized light microscopy, indicates that these formed from pyroxene-rich protoliths, rather than peridotites, previously alluded in regional literature. Systematic testing via EPMA, XRF, ICP-MS and XRD was employed to secure a foundation of critical information and more accurately and extensively characterize these anomalous pods of rock. These rocks have undergone minimal to extensive weathering, resulting in a wide array of secondary

minerals and textures. Despite this, major- and trace- element concentrations continue to reflect an ultramafic origin. These data are being drawn upon for higher-stage analysis, refined interpretations regarding the protolith, emplacement of these rocks, and how this fits into the geologic history of the West Georgia region.

***“A High Resolution UWG Drone Orthophoto with OpenDroneMap Cluster”
Computing”***

***Presenters Patrick Mannella and Sawyer Steele, Geography majors
Mentored by Dr. Jeong Seong***

Our presentation focused on three objectives relative to capturing up to date drone imagery of university property and compiling it into one mosaic image. This application serves a practical purpose to the university by providing an accurate high resolution aerial map of campus. This mosaic image was created by using a commercial software called Pix4d. The next two objectives focus on the processing of the imagery using an open source imagery processing software called OpenDroneMap in a distributed computing environment. The first objective came by testing the various parameters offered by the software to produce the highest quality drone orthophoto map while maintaining the accuracy and integrity of the images. The Final objective is relative to using cluster computing to measure and improve performance of the OpenDroneMap software. This involves taking multiple nodes and using their processing power to increase the performance of image processing. We tested processing time against number of images as well as number of computing nodes. In sum drone imaging may provide timely information for various applications, and processing time may be reduced significantly by using a clustered computing environment.

“Hydrodynamics and Feeding Posture in the Ordovician Paracrinoid Platycystites”

***Presenter Leo Ouellette, Geology major
Mentored by Dr. Brad Deline***

Paracrinoids are a small group of Middle to Late Ordovician sessile benthic echinoderms. Although temporally and geographically restricted, they could be locally abundant in relatively shallow, largely suspension feeding communities. Paracrinoids are characterized by aberrant morphologies (relative to other echinoderms), such as asymmetric placement of the stem and the mouth and dramatic shifts through the clade in terms of ambulacral symmetry. At the extreme, several genera including Platycystites have a narrow body with a reduced ambulacral system consisting of two ambulacra with brachioles (feeding appendages) arising from the top edge of the theca. Complete individuals are rarely preserved, and hence the feeding posture and functional morphology of the group is poorly known. To better understand the role of paracrinoids within Ordovician ecosystems and explore how feeding performance varied in concert with morphological changes, we constructed 3-D digital models of the paracrinoid Platycystites and used these in computer simulations of water flow. Keeping all other aspects of the theca consistent, we constructed four models that varied in the posture of the stem (straight versus curved) and the brachioles (splayed versus straight). We then examined how these models functioned in unidirectional currents perpendicular and parallel to the long axis of the body.

Our results suggest that an orientation parallel to the current was optimal for drag reduction in Platycystites. Moreover, this posture slowed flow velocity near the brachioles, which would have enabled more effective feeding on particles suspended

in water. The posture of the stem had little to no effect on fluid flow surrounding the feeding structures. However, the posture of the brachioles did have an impact on flow patterns; models with straight brachioles dramatically slowed water on the upcurrent brachioles, producing an eddy that recirculated water on the downcurrent brachioles. Overall, recirculation was more uniformly distributed, thereby maximizing particle capture, in the model with straight brachioles oriented parallel to fluid flow. Based on the success of this method, we will explore how feeding posture changed with shifting morphology within this aberrant clade by constructing additional models of other paracrinoïd species.

“Morphological Evolution within Holocystitid Diploporitans”

Presenter Stephen Phillips, Geology major

Mentored by Dr. Brad Deline

Biogeography is an important driver of evolutionary trends, such that the morphological consequences of migrations and faunal invasions are vital in understanding large-scale evolutionary patterns. The holocystitids are diploporitan echinoderms typified by having food grooves that lack floor plates, which end with a single, large brachiole facet. The holocystitids are a locally abundant and largely North American clade of diploporitans that became established, likely following a migration from Europe. Following the Late Ordovician Mass Extinction, few lower tiered echinoderms with broad feeding structures survived such that the Holocystites fauna, particularly Holocystites, experienced a competitive release following the invasion.

To explore the evolutionary patterns that occurred during this migration, we constructed a novel morphological character suite. We characterized 24 individuals, from holocystitids and closely related diploporitan taxa, from seven genera and combined the morphological patterns with a recently published phylogeny to construct a phylomorphospace. This methodology allows for the visualization of morphology within an evolutionary framework.

“Stratigraphic Correlation and Signal Propagation Across Sedimentary System Segments Using U-Pb Detrital Zircon Geochronology: Insights from the Late Pleistocene Mississippi River and Deep-sea Fan”

Presenter Jourdan Speessen, Geology major

Mentored by Dr. Cody Mason

The Modern Mississippi River at ~37° north latitude is composed of three large tributaries – the Missouri River, the Upper Mississippi River, and the Ohio River. The courses of these rivers have changed dramatically during the last several 10s thousands of years. One such significant change in the Mississippi River’s course occurred about 24 ky ago, when the river avulsed from its position in the Western Lowlands of the Mississippi Valley to the Eastern Lowlands. This chronology is well established, yet what is unclear is whether the Mississippi’s course through the Western and later through the Eastern Lowlands represents a combined Missouri-Mississippi-Ohio River system, or if these rivers flowed apart through the Mississippi Valley en route to the Gulf of Mexico. In order to understand the spatial history of the major tributaries to the Mississippi River, we used sedimentary provenance to improve existing constraints on their boundaries. Then in our study location (Eastern Arkansas and western Mississippi) we performed vibracore sediment coring and power auguring to retrieve ancient buried sand from the Western and Eastern Lowlands of the Mississippi River Valley, which contain small

minerals called detrital zircons. Detrital zircons were separated from each sediment sample, and the U-Pb age of each of hundreds of detrital zircons were measured using laser ablation geochronology at the University of Texas, Austin. The populations of U-Pb ages in a sediment sample relate to the sediment source area, or tributary to the Mississippi River, the Missouri, Upper Mississippi, and Ohio Rivers. Based on the U-Pb age spectra from samples in the Western Lowlands, we found that our samples were most similar to the Missouri and Upper Mississippi Rivers. The U-Pb age spectra from a sample from the Eastern Lowlands suggests that sediment sources were a combination of the Missouri-Upper Mississippi River-and Ohio Rivers. However, the Missouri River was still the main source of sediment to each of the locations thousands of years ago.

We interpret our findings to mean that when our samples were deposited (~25 ka and ~15 ka), that the major tributaries for the Mississippi were the Missouri and lower Mississippi River tributaries. This discovery is significant in mapping the paleo Mississippi river and its behavior which could influence modern day decisions such as land development. If given the opportunity, further work would be deeper sediment samples and more wide spread sample areas spanning sights of interest or complex possible avulsions that do not yet have an established paleo tributary.

“Forest Management- Clear Cutting vs. Selective Cutting”

Presenter William Steele, Geography major

Mentored by Dr. Georgina DeWeese

My research contributed to debates that consider the different effects of clear cutting and selective cutting. I investigated which type of cutting would produce the healthiest forest in the years to come. My study area was on some family hunting land located in Newnan, Georgia, in two different areas. One area was clear cut, while the other area was selective cut. Both of these cutting methods were done 4 years ago, and that is plenty of time for new species to start growing. The majority of my data analysis came from Landsat imagery. I examined the NDVI of the areas to see how dense the vegetation is in the different areas. The areas that show the highest vegetation density were the areas that produced the healthiest forest. I also physically examined the two different areas and took notes of the different species. My results were surprising, I noticed significantly more growth in the clear cut areas rather than the selective cut areas. In conclusion, my initial hypothesis was incorrect. I felt that selective cutting an area would produce a much healthier forest in the following years, but it was actually clear cutting which produced the healthier forest. Although the initial stages of clear cutting has some detrimental effects on the environment, after a few years it produces the healthiest forest for all species.

Mathematics

“Signed Magic Rectangles”

Presenter Brandi Ellis, Mathematics major

Mentored by Dr. Abdollah Khodkar

A signed magic rectangle SMR($m, n; k, s$) is an $m \times n$ array with entries from X , where $X = \{0, \pm 1, \pm 2, \dots, \pm(mk-1)/2\}$ if mk is odd and $X = \{\pm 1, \pm 2, \dots, \pm mk/2\}$ if mk is even, such that precisely k cells in every row and s cells in every column are filled, every integer from set X appears exactly once in the array and the sum of each row and of each

column is zero. In this presentation we study the existence of an SMR($m,n;k,3$) for the case n even and $3|k$ or $3|n$.

Physics

“Viscosity of a Crowding Medium Obtained through Optical Trapping”

Presenter James Howard, Physics major

Mentored by Dr. Suvranta Tripathy

The dynamic viscoelasticity a cellular medium is mainly due to the crowding of a large number of interacting and non-interacting proteins. Our research presents how the viscosity of a medium is altered in the presence of globular proteins. Optical trapping is the experimental technique that we used. Optical trapping is a process of using a laser directed through several lenses and focused into our sample which is filled with beads. When the laser interacts with a bead it uses the momentum of light to create the equivalent of a potential well which holds the bead within a small area allowing us to study the effects, much like that of a spring. Using the variance of the bead's position found using a Position Sensing Diode, we can find the stiffness of this 'spring' that holds the bead within the laser by using the Equipartition Theory. This stiffness leads us to the viscosity which we verify using a second method known as the Passive power-spectrum technique. This technique uses a Fourier transformation of the position data to convert to a power spectrum, fitting this with the Lorentzian and finding the corner frequency will give us the stiffness of the trap, which we compare against the previous method to confirm our findings. We used a 980 nm infrared laser and Nikon inverted microscope to develop a synthetic approach to calculate the viscosity of a medium. This approach has enabled us to calculate the viscosity of several water and glycerol concentrations. The method has been extended to investigate the viscoelasticity of the medium with various concentrations of globular Polyethylene glycol proteins.

“Velocities of Chlamydomonas Reinhardtii Strains”

Presenters Justina Gga Kwaghe and Jordan Mount, Biology majors

Mentored by Dr. Suvranta Tripathy

Measurement of velocities of phototaxis of different *Chlamydomonas reinhardtii* strains using bright field video microscopy Justina Gga Kwaghe¹, Jordan Mount¹, Mautusi Mitra² and Suvranta Tripathy¹

1. Department of Physics, University of West-Georgia
2. Department of Biology, University of West-Georgia

Phototaxis is the ability of movement of a motile organism in response to light. *Chlamydomonas reinhardtii* is a photosynthetic unicellular biflagellated green microalga that shows both positive phototaxis (moving towards light) and negative phototaxis (moving away from the light). This research aimed to measure and, compare the velocities of a *Chlamydomonas* two different *Chlamydomonas* strains: 1) wild type strain, 4A+ which show both positive and negative phototaxis, a mutant strain, and 2) *bbs4*, which is exclusively phototaxis negative (only swims away from the light but cannot swim towards light). We recorded the motion of these *Chlamydomonas* strains using an inverted Nikon TE300 microscope with bright field microscopy and tracked the position of the swimming cells using LabVIEW. Our results show that mutant *Chlamydomonas* strain *bbs4* moved at a faster velocity than the wild type strains 4A+ .

“A Theoretical Approach to Understanding the Effect of Brownian Motion on a Particle within an Optical Trap”

Presenter Zachary Patterson-Goss, Physics major

Mentored by Dr. Javier E. Hasbun

Optical Tweezers (OT) have had great success in its ability to measure very small forces, especially Brownian motion (BM) of a tiny particle. However, theoretical simulations of BM may be difficult due to their random nature, which involves thermal forces acting on the particle. We investigate an analytic solution to the particle's motion under a single, low duration force to model the random thermal force. At a low Reynold's number, one may neglect the particle's mass to simplify the problem. All of this can help us increase our understanding of Brownian motion, which we also simulate numerically. We use one of Matlab's ODE solvers along with the Euler method to achieve numeric solutions to compare against.

“Investigation of ALQ3 Thin-films Using Spin Coating Technique”

Presenter Zachary Welch, Physics major

Mentored by Dr. Ajith DeSilva

We investigate the optical and electrical properties of Tris-(8-hydroxyquinoline) aluminum (Alq3), which has been used as the sole electron-transport material in various optoelectronic applications. The compound is highly emissive both in solution and thin-film configurations. Alq3 dissolved in CHCl3 reveals two absorption bands at ~259 and 388nm. When the solution endures reduction to millimolar concentrations, two vibronic progressions are resolved at ~334 and ~319nm. The thin-films were fabricated by depositing Alq3 onto borosilicate glass using the spin-coating method to achieve varying degrees of thickness. In thin-film samples, it is found that a prominent narrow absorption peak emerges at ~259 nm with a broad band at ~360 nm. The film fabrication method and optoelectronic properties are presented in detail.

Social Sciences

Anthropology

“Creating an Interconvertible Digital-physical Catalogue of Rare Histological Bone Samples for Use in Classroom Teaching and Student Learning in Forensics and Biological Anthropology”

Presenter Alec Ashmore, Biology major

Mentored by Dr. Isabel Maggiano

The BAFAL Lab and Field Coordinator is an SRAP-funded position in UWG's Biological and Forensic Anthropology Laboratory (BAFAL), a facility focusing on Forensic Science and Physical Anthropology. BAFAL hosts an analytical microscopy station, where modern human reference samples garnered in collaboration with the Autonomous University of Yucatan (UADY), Merida, Mexico, are curated. This collection includes human and non-human samples, diverse stages of bone development and growth, cases of heat exposure, as well as pathological and trauma-related lesions. While visual analysis of bone surfaces is a useful tool for analysis, more detailed information can be gained through microscopy. This does, for example, facilitate more reliable diagnoses of changes resulting from health insults. The current project presents parts of an interconvertible digital-physical teaching catalogue currently under development

at BAFAL, showcasing unique samples such as rickets (vitamin D deficiency induced bone disease), osteomyelitis (bone infection), and mandibular torus (benign bone growth in the mouth). Once finished, this teaching catalogue will supplement learning in classes and provide students with the opportunity of hands-on experience and to learn about questions such as: “How old was this individual?”, “Was this bone exposed to fire?”, “Is this human?”, or “Does disease differ between the past and the present?”.

“Perspective on the Usage of Icelandic and English in Iceland”

Presenter Paris Greene, Anthropology major

Mentored by Dr. Elizabeth Falconi

Icelandic is a language spoken in Iceland by roughly 330,000 people. It is derived from Old Norse, meaning that a fluent Icelandic speaker could understand almost all of the texts presented in the Viking Saga. The language is gaining speakers and influence worldwide, which is amazing, given its size. The accent and dialects of Icelandic vary only slightly, so that anyone learning one can easily understand anyone from any part of the country. In other nations, languages of this size can still have varying degrees of mutual intelligibility. English, even though taught and spoken throughout the country, takes a lesser role than the Icelandic language.

Icelandic speakers produce a plethora of music, slang, media, literature, and many other items, despite the relatively small national population. The presence of Icelandic media online is also extensive, as even though most websites and social media platforms do not have the ability to translate the interface into Icelandic, users still communicate primarily in the language on these apps. Even when new slang terms become popular from languages such as English, suffixes and accent marks based on Icelandic grammar rules transform these words into a new Icelandic form.

“Children of Immigrants and the Formation of National Identity”

Presenters Coleman Harrelson and Jacob Mikels, Anthropology majors

Mentored by Dr. Lisa Gezon

For this project we conducted interviews of immigrant children to determine how their perceptions of America and their country of heritage have been shaped by the American public education system and their home rearing. We examine how children of immigrants form their national identity and will pair our findings with the results of a Likert scale survey that examines attitudes toward national ideals and their linguistic links nationalism. We suspect that the children of immigrants have been exposed to a national American identity and national ideals linked to their national heritage. We will perform discourse analysis on the interviews to search for language distinctions such as “we” and “they” when discussing aspects related to nationalism and American identity. This project is important because the way an individual comes to identify within a society is shaped by their exposure to dual or multiple ideologies. Exposure will likely affect their level of inclusion (or exclusion) from that society. As cultural attitudes change over time so do the attitudes and traditions that encapsulate a national identity. With the inclusion of other heritages into American culture it is important to understand the formation of national identities and the role American ideals play in that formation.

“Perspectives on Life in a Nahuatl-speaking American Household”

Presenter Carla Mateo-Aguilar, Anthropology major

Mentored by Dr. Elizabeth Falconi

This study will explore the assimilation experiences of first-generation Nahuatl Mexicans and how they affect their children. Nahuatl is a language of the Uto-Aztecan language family. It was the predominant language spoken by the Aztecs during the Late Post classic period. Nahuatl is the native language of about 1.5 million people living in Central Mexico, who identify ethnically as Nahuas, or Mexicano, making it the most widely spoken indigenous language in that country. My own family members come from Ahuelicán, Guerrero, Mexico. The village is located in a rural area south of Mexico City. The population currently consists of just 332 people . My analysis is based on oral histories recorded during interviews with my extended family members about their experiences either growing up in Mexico or growing up in the U.S. Some key findings I will be discussing include the impact of strict gender roles and socially conservative ideologies within the community on the second generation. It will also include how it has had an impact on our own image and views today. This study is significant because it will shed light on the unique aspects of linguistic and cultural practices in a conservative indigenous family living in the U.S.

“Culture and Practice of Smoking as a Stigmatized Health Behavior: Generation and Gender”

***Presenter Chelsea Phillips, Social and Behavioral Health major
Mentored by Dr. Lisa Gezon***

Cigarette smoking remains a significant public health concern. It has become a stigmatized health behavior because it affects how healthcare decisions are made and whether individuals pursue health advice or not. Research shows past generations perspectives of smoking, which reveals how normalized this behavior was for everyone to smoke. I used qualitative interviews and surveys among faculty and students of UWG to learn about current perceptions of cigarette smoking. Participants included students ages [18-21] and faculty [middle aged and older]. I asked questions related to a scenario that focused on a woman smoking and recorded their response about the specific behavior. I found 2 key observations: generational and gender differences. My first observation highlighted different generations, concerning factors of who was considered more prevalent in smoking. A few interviewees agreed with generation being a significant factor due to them either being a part of that generation or know instances of such from family. Among younger interviewees, gender was a more significant factor for smoking being treated as a stigmatized behavior. When discussing gender within my surveys, I noticed how bad women became viewed when indulging in what's being classified now as cross sex behavior. The significance of this study is how gendered stereotypes shape an individual's perceptions of smoking and how it's becoming stigmatized.

“Attitudes and Experiences Around Role Reversal and Caregiving for Sick Relatives”

***Presenter Abigail Rodden, Anthropology major
Mentored by Dr. Elizabeth Falconi***

Caregiving, caring for children, partners, parents, or in-laws can be draining and difficult for both your physical and mental health. I conducted qualitative research through various interviews over the topic of caregiving, and the experiences surrounding individuals' time of being a caregiver. My goal for this research was to better understand the experiences of individuals taking on the role of caregiver. From the qualitative research I conducted I found various emotions and experiences linked with the title

of caregiver. Occasionally, caregivers feel stressed, a role reversal, or they feel it is an honorary life event. The role reversal occurs when the caregiver feels the role switch between parent and child. The child who is now grown has to take the role of caring for their parents and children on some occasion adding stress to their life, and slight resentment towards the parent as well as the siblings. Understanding the experience of these caregivers is important for mental health, and kinship relationships surrounding the caregiver.

“Space and Meaning in a Labyrinth”

Presenter Sarah Rogers, Anthropology major

Mentored by Dr. Marjorie Snipes

Labyrinths are constructed as paths with many bends meant to be walked as a pilgrimage. Historically, labyrinths represented artistic, entertainment, and devotional ideologies. Today, they are associated with meditation and self-care. In this paper based on ethnographic research, I examine the ways that individuals attach meaning to the experience of walking the labyrinth. How do individuals connect meaning with space and associate this meaning with their lives? Prior experience with meditation, spiritual practices, or walking labyrinths affects how individuals interpret and make use of the labyrinth. It can bring focus or relaxation to those who participate, regardless of prior experience. This research shows that those with meditation experience tend to enter the labyrinth with an intention and leave feeling accomplished, either through reaching a meditative state or a clearer mind. Those with more experience more easily and quickly associate the labyrinth as a meaningful space, whereas other participants are less likely to experience it as such. Looking at a labyrinth in this way provides a different perspective on meditation practice and what defines meaningful space. This project connects the concept of meaningful space to self-care by looking at establishing personal meaningful space for health and spiritual purposes.

Criminology

“Commonly Held Beliefs About Serial Murder: Fact or Fiction?”

Presenters Victoria Conner and Julissa Melendez, Criminology majors

Mentored by Dr. Gavin Lee

Serial murder is a phenomenon that has gripped the American psyche since the 1970s. A proliferation of true crime books, true crime tv shows, and the news media have led to the creation of several widely and strongly held beliefs about the phenomenon. This study found that while some commonly held beliefs are based in fact, most of them are actually false. Using a large database created at Radford University, the accuracy of these beliefs was examined. The sample from the database was drawn from those killers who operated in the United States, post World War II, and who committed three or more murders. For example, commonly held beliefs about the race of serial killers, their IQ, their motivation, number of victims, and whether or not they acted alone were found to be inaccurate.

“LGBTQ and the Juvenile and Criminal Justice System”

Presenter Amari Ephraim, Criminology and Psychology major

Mentored by Dr. Abigail Kolb

The Lesbian Gay Bisexual Transgender Queer (LGBTQ) community is overrepresented

in both the Juvenile and the Criminal Justice System. Only about 4 to 7% of the U.S. population identify as LGBTQ, but 20% make up the population in juvenile detention centers and about 7-8% of the prison population. Feminist and Queer theory attests that Collective Culture has discriminated against the LGBTQ community throughout history, and continues to do so via attitudes, policies, and institutions. The LGBTQ community may often experience family rejection, sexual orientation violence, and peer victimization at an early age, which increases the likelihood of coming into contact with the Juvenile Justice System at an early age, and more often. We can counteract these detrimental practices by using appropriate sentencing options, taking into account that some offenses may be survival crimes, and having more empathy for those who come from unhealthy home lives.

“Factors Associated with the Location of Serial Killing: Bivariate Analysis”
Presenters Meghan Ingersoll and Rachelmae Welch, Criminology majors
Mentored by Dr. Mateja Vuk

Disposal of serial murder victims is of importance to law enforcement and criminologists as there may be behaviors that predict the choice of the location of murder. Several studies have been pioneered in this area to provide insight to the reasoning behind murder locations, yet much is to be discovered within this topic of study. Some studies examined how factors such as the relationship with the victim, motives for killing, and spatial behavior of serial murderers are associated with the choice of death location. This study expands this area of research by identifying whether the method of killing, organized/disorganized killer profile, and employment status as an indication of spatial behavior are related to the location of a victim's death. The results suggest that there is a correlation between the location of killing and whether the murderer is organized/disorganized and the location of killing and the method of killing.

“Serial Killer Characteristics Predicting Organized or Disorganized Classification”
Presenters Madison Lancaster, Hannah Lawless, and Ashton Sconyers;
Criminology majors
Mentored by Dr. Lynn Pazzani

One of the most commonly used typologies for serial killers is whether they are considered organized or disorganized. In this study, we examine variables dealing with serial killers' backgrounds to determine whether or not these variables can be linked to whether the killers are classified as organized or disorganized. This examination uses a database maintained by Radford University and Florida Gulf Coast University, containing all known offenders who have killed two or more victims. Independent variables examined in association with the organized/disorganized classification include whether the killer had previous arrests, education level and IQ, the killers' abuse of alcohol, and whether or not they were raised by both of their birth parents. Previous arrest and alcohol abuse showed no statistically significant association to whether a killer was organized or disorganized. Offenders raised by both birth parents were more likely to be organized. Education and IQ were also associated with the outcome, with those who had a high school education or higher being more likely to be organized. Organized killers had a statistically significantly higher IQ than disorganized killers. Implications associated with these findings will be discussed.

Mass Communications

“Accounting for Additional Loss: Addressing the Mental Health Needs of Ghanaian Women Suffering Depression from Infertility Problems”

Presenter Georgia Antwi-Adjei, Nursing major

Mentored by Dr. Michael Hester

The west African country of Ghana is experiencing an interrelated rise in infertility and depression. Recent data from the Ghana Demographic and Health Survey reveals infertility rates as high as 15%^[i] (Oti-Boadi & Asante, 2017). Additionally, a survey on mental stresses faced by Ghanaian women suffering from infertility problems showed that 62% expressed dealing with symptoms of depression^[ii] (Alhassan, Ziblim, & Muntaka, 2014). Traditionally, religion was the only source of coping mechanisms available for these individuals. This research project reviews the literature on mental health services, identifying the key obstacles that limit access to necessary medication and therapy. It also explores how mental health professionals working in Ghana can successfully raise awareness of mental health in ways that respect religious beliefs and customs so as to maximize effective implementation of proposed treatments.

[i] Oti-Boadi, M., Oppong Asante, K. Psychological health and religious coping of Ghanaian women with infertility. *BioPsychoSocial Med* 11, 20 (2017). <https://doi.org/10.1186/s13030-017-0105-9> [

ii] Alhassan, A., Ziblim, A.R. & Muntaka, S. A survey on depression among infertile women in Ghana. *BMC Women’s Health* 14, 42 (2014). <https://doi.org/10.1186/1472-6874-14-42>

“Taking One for the Team: A study of NFL Cheerleading”

Presenter Iris Brimm, Mass Communications major

Mentored by Dr. Michael Hester

Cheerleaders are an integral part of the football experience in the United States. Although a sport in its own right, with intercollegiate and high school competitions measuring gymnastic prowess and synchronized dance routines, cheerleaders in the National Football League (NFL) live a very different experience. Twenty-six of the thirty-two NFL teams have cheerleading squads, with the Dallas Cowboys cheerleaders considered the most famous. This research project examines the job of NFL cheerleaders, detailing the selection process and analyzing the system of rules that govern behavior. Recent controversies involving disputes over the treatment of female cheerleaders by male fans, and lack of labor rights and protections taken for granted by other similarly-situated employees highlights the unique problems faced by NFL cheerleaders. The purpose of this study is to explore these issues with the intention of proposing feasible reforms.

“The Strength of the Wolf is the Pack: AAMI/Project Wolves Collaboration as a Model for Student-centered Campus Inclusion Initiatives”

Presenters Tyrec Farmer, English major; Blair Frost, Music major; Deanthony Holness, Political Science major; Chase Wilson, Mass Communications major; and J’Marques Woods, Sport Management major

Mentored by Dr. Michael Hester

The recent collaboration at UWG between Project Wolves (PW) and the African American Male Initiative (AAMI) is a success story with lessons for all of campus, and the larger community of Higher Education. PW is UWG’s Inclusive Postsecondary Education Program, providing support services and programming to students with

developmental and intellectual disabilities throughout their college experience to help ensure their success. UWG's AAMI is a learning community providing support services and programming to Black male students, primarily in their first year as an academic first-year program (FYP), to meet USG goals for increasing retention, progression, and graduation rates of African American men. In 2019-20, AAMI students have served as mentors for PW students. A panel of AAMI and PW students will discuss how this collaboration has benefited both programs, both in terms of creating bonds of friendships formed in the interpersonal interactions and in terms of contributing to a more inclusive campus climate. Employing qualitative methods of personal narratives and quantitative analysis of institutional RPG data, this research project outlines ways in which the AAMI/PW collaboration can serve as a model for student-centered campus inclusion initiatives – making UWG a better place to work, learn, and succeed.

“The Development of America’s Most Important Problem: Examining 2000-2016 Presidential Election Campaigns”

***Presenter Amanda Friend, Mass Communications major
Mentored by Dr. Soo Moon***

Purpose: The aim of this study is examining Most Important Problem (MIP) data collected over 5 election years. It analyzed relationships between the MIP's over the years, the differences in the MIP while different parties are in the White House, and if there is a correlation between the American Peoples MIP and economic trends.

Research Questions:

RQ1. What are the top 10 different issues for 2000, 2004, 2008, 2012, and 2016.

RQ2. Are there evident differences in MIP depending on who is in office?

RQ3. Do unemployment rates influence the frequency of “jobs” as a MIP?

Method: American National Election Studies (<https://electionstudies.org/>) 's dataset was analyzed using SPSS. I examined the frequencies and rank-order correlations. Unemployment data from the Bureau of Labor Statistics (<https://www.bls.gov/>) was gathered to show relationships to MIP unemployment issue data.

Results: The top 5 most recurring issues are economy, morals/religion, president, jobs, and healthcare. Though most of the issues are centered on money, the consistent salience of Morals/Religion was noteworthy. The data shows national unemployment rates cause increased frequency of MIP unemployment issues recorded. Over the 5 election years the party in office did not have any relationship with MIP issue differences.

Discussion: The analysis showed that MIP data reflected the real world situation, indeed. The respondents seemed to be more affected by the economic situation rather than the presidency. However, there's also discrepancy between the real world data and MIP. The effects of news media may account for the gap.

“From K-Pop to Bibimbap: The global rise, and growing misunderstanding of, Korean Culture”

***Presenter Yebeen Jang, Mass Communications major
Mentored by Dr. Michael Hester***

From K-Pop to Bibimbap, the popularity of aspects of Korean culture has grown worldwide. Even with a greater awareness of Korean culture in the US, however, there remains much misunderstanding. This research projects employs rhetorical theory

to investigate these cultural misunderstandings. The study examines four categories of Korean culture: music, food, technology, and the North/South divide. Analyzing discourses in these areas facilitates exploration the diversity of music beyond K-Pop; understanding the limits of cultural stereotypes helps explode the myth that dogmeat is a staple Korean dish, spur examination of South Korea as a global leader in technology, and dispel confusion over the two Koreas and US-Korean relations. Ultimately, this project aims to highlight how rhetorical theories of intercultural communication can broaden and deepen American understandings of Korean culture.

“Hip Hop, Don’t Stop: A Rhetorical Analysis of the Influence on Hip Hop from Social Media”

***Presenter Xauria Mann, Mass Communications major
Mentored by Dr. Michael Hester***

Social media has become one of the biggest influences on hip hop culture today. The explosions of social media and hip hop culture over the last fifteen years are intertwined. Each is an industry generating billions of dollars and attracting billions of followers. One example of this interrelationship is the way in which hip hop artists are able to gain notoriety through their music “going viral,” a uniquely 21st-century vehicle for mass communication. In my research, I will analyze the influence of social media on Hip Hop music. Viewed as a rhetorical event, the marketing and distribution of hip hop music via social media highlights the ways in which musical artists leverage decentralized and democratized social media to create a brand that attracts an audience. For example, Lil Nas X’s hit “Old Town Road” topped the Billboard Hot 100 hot chart for 17 weeks. What started as a parody led to him winning 2 grammys and exemplifies the power of social media. This study can help other artists with how to employ social media to generate popularity and helps us better understand how continuing developments in communication technology may influence the future of music as a form of public art.

“Preservation or Neglect? Pandemic Reporting Through News and Government Portrays Inaccurate Numbers To The Public”

***Presenter Brittany Mersfelder, Mass Communications major
Mentored by Dr. Michael Hester***

The coronavirus, or COVID-19, has become rampant around the world killing thousands. As this topic grows, so does the research into how this pandemic is being reported on. My project analyzes prior pandemics and whether accurate numbers have been reported on by government authorities, and if not, why not. The study examines death tolls reported by government authorities and news reports covering disease outbreaks. Other countries around the globe and their news and government reporting methods will also be examined. The expectations for the results will be either drastic or slightly incorrect. No country’s government has been known to report exact numbers of pandemics such as COVID-19. This topic addresses urgent public health concerns, dealing with human health and life expectancy, as well as the public’s trust in government.

“#FAKEtrends vs. Facts: Fighting Lies Online”

***Presenter Ashley Moore, Mass Communications major
Mentored by Dr. Michael Hester***

In the 21st century, more and more people are consuming news from social media

platforms, rather than cable news organizations. The timely manner, inexpensive costs, and ability to share and post content associated with news are key reasons for this shift (Shu, Sliva, Wang, Tang, & Liu 2017). However, the reliability of information from the Internet is questionable (Conroy, Rubin, & Chen 2016). The term “fake news” refers to information that is intentionally false, a form of propaganda (McIntyre 2018).

The rhetoric one uses while representing news through mass media technologies is used to identify differences between fake and genuine content (Tacchini, Ballarin, Della Vedova, Moret, & Alfaro 2017). The study focuses on the premise of both fake and genuine content as seen through social media; the platforms I will be researching are Facebook and Twitter. I will examine the rhetoric used on each platform, in comparison to a news story from a credible news source. My results will be outlined in the form of a poster presentation.

Sources:

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Tacchini, Eugenio, et al. Some Like It Hoax: Automated Fake News Detection In Social Networks, no. 1, 25 Apr. 2017, pp. 1–10., <https://arxiv.org/pdf/1704.07506.pdf>.

“Candles, Crosses, and Covens, Oh My! The Influence of American Horror Story on Nu Goth Fashion of the mid-2010s”

Presenter Michaela Wright, Mass Communications major

Mentored by Dr. Michael Hester

The Goth subculture dates back to at least the mid-1970’s, undergoing multiple iterations in the ensuing decades. In more recent years FX’s American Horror Story’s third season. Coven seems to have popularized a new style of Goth fashion, based on the characters, in particular big hats, round glasses, and Puritan/Victorian inspired dresses. This influence has also trickled into other styles and fashion over the past decade and is something many people found as inspiration or influence on their own personal style, me included. For my research, re-watch this particular season of American Horror Story and do research on the inspirational and the clothing items in the show, along with looking into Goth fashion brands like Killstar, Dolls Kill, Disturbia, Deandri and Punk Wave as a cross reference. I expect to see a number of clothing references and even visual aesthetic associations between the clothing from Coven and the Nu Goth fashion brands. This research will help those understand the aesthetic of Nu Goth fashion and end the stigma of individuals who identify as Goth as being Satan worshippers, instead of people who feel empowered embracing a dark aesthetic.

Political Science

“Public Schools Unwelcoming Immigrant Students”

Presenter Angie Lee-Montante, Political Science major

Mentored by Dr. Kathleen Barrett

There has been an influx of immigrant children in the United States enrolling in public schools but unable to speak English. Migrant caravans of Central Americans coming from El Salvador, Honduras, and Guatemala bring children who are forced by law to attend schools in the United States without knowing the language. What resources do public schools offer non-English speaking students to help them succeed? How are public schools helping immigrant students feel safe and welcomed in a new community after suffering trauma from their home countries or their journeys into the United States? As a volunteer at a local high school, I became aware of the issues that most students face such as large gaps in schooling and being placed in grades based on age not ability. Therefore, students are placed in special education classes despite not having a learning disability. For many of these students going to school in their countries was extremely dangerous where they experienced trauma from gangs, or their families could not afford their education. Once in the U.S, they are in a different school system but not offered the resources to understand what is being taught. Education is a right that should not be deprived because of language barriers. Students should not consider dropping out or be isolated by these obstacles. As the population of immigrant students continues to grow public schools need to accommodate to their needs and education.

“Divided Government: How a Supreme Court Confirmation Process of the 1860s Is Demonstrative of Contentious Trends”

***Presenter Kaitlin Montgomery, Speech-Language Pathology major
Mentored by Dr. Thomas Hunter***

Following the death of Supreme Court Justice Peter V. Daniel, this research focuses on the sequence of events that led to the nomination and confirmation of Supreme Court Justice Samuel Miller. The purpose of this research is to determine how the divisiveness of America’s government during the 1860s can be represented by the Supreme Court confirmation process. The information used in this study was drawn from original newspapers from the era. Supplemental comments are made from supporting books and articles. This study explores the background and decision process of each major political player in the confirmation process: President Buchanan, President Lincoln, and individuals within the Senate. All potential nominees and candidates are examined. Trends and happenings gleaned from confirmation processes give insight into the functioning and contentiousness of America’s government at different points in history. From this research, a thorough analysis of America’s government at one of the most pivotal times in history, during the Civil War, is possible.

“Peach State Poison”

***Presenter Erin Nalley, Political Science major
Mentored by Dr. J. Salvador Peralta***

What are the harmful effects of coal ash leaking into water supplies in Carroll County? To what extent is Georgia Power polluting and affecting water quality? In 2015, the EPA required coal-powered plants to monitor water quality near their plants. However, since 2018, the EPA has been directed to repeal previous decisions and not make it required for coal-powered plants to monitor their water levels. I will collect data from the EPA and environmental organizations to analyze the impact of emissions from coal-powered plants on water pollution in Georgia. I plan to analyze water pollution levels between 2015 and 2019 when the EPA instituted regulations requiring coal-powered plants to monitor water quality local to the plants. I expect to find a strong relationship between

an increase in water pollution and emissions from coal-powered plants. In particular, I expect to find that there is a strong relationship between coal-ash-contaminated water and coal-powered plants run by Georgia Power. Coal-powered plants pollute water sources, including major rivers and lakes. High levels of pollution could lead to plant closures and other potential job losses. Water pollution monitoring is important because, without it, we do not know exactly how much coal-powered plants affect our rivers and drinking water supply.

“Youth Civic Engagement”

Presenter Bhavin Patel, Political Science major
Mentored by Dr. Kathleen Barrett

I am requesting to present my research on “Youth Civic Engagement”, specifically why there is a need for more youth civic engagement within our communities. Youth civic engagement initiatives and services for young people are essential to empowering young people to develop their abilities and skills; engage in political, financial and social conversations; and become leaders in their society for positive change. Sadly, youth around the globe have limited opportunities to participate in these community events, leaving one of the biggest assets in the country untapped. And therefore the potential benefits are overlooked by youth and society alike.

Psychology

“Psychomanteum and Infrared Camera Anomalies”

Presenter Elena Mayfield, Psychology major
Mentored by Dr. Christine Simmonds-Moore

The purpose of this study is to examine anomalies in an infrared camera during psychomanteum sessions. A psychomanteum is used to facilitate interactions with the deceased, usually a loved one. During the session, the participant is asked to think of a deceased loved one during an intention period of fifteen minutes and mirror gaze for forty-five minutes. This study had thirty participants who completed a pre-session questionnaire, forty-five minutes of mirror gazing, and a post-session questionnaire. During the sessions, an infrared camera recorded the activity in front of the mirror. Data was also collected using a random number generator (RNG), voice recorder, and an EMF detector. Heart rate variability (HRV) was also recorded during the session and participants were asked to press a button on a keyboard if they had an experience during the session. Time stamps of anomalies on the camera are compared to the HRV, EMF, RNG, and participant data. Camera footage from the psychomanteum sessions is also compared to baseline footage and attempts to recreate the anomalies. When compared to baseline footage, there is an increase in anomalies during the psychomanteum sessions. 13% of the baseline videos had anomalies compared to 33% of the psychomanteum videos. There is also a difference in the characteristics of anomalies for both the baseline and session videos. This research is part of a larger study that is being run by Dr. Simmonds-Moore funded by the Bial Foundation.

“Processing Trauma: Expression of the Inner World”

Presenter Larissa Mcpherson, Psychology major
Mentored by Dr. Nisha Gupta

This presentation assesses how expressive arts therapies can be used by individuals to

process and heal from trauma. For many years, those within the therapy and counseling community have explored the different ways creative expression can be used to aid the process of mental healing. The forms of creative expression used by those suffering from trauma vary widely, including music and the visual arts. For the purposes of this presentation, I will focus on the effectiveness of the visual arts for mental processing and psychological healing. Understanding expressive arts therapies must begin with an understanding of what expression is and how the practice of being visually creative affects the brain. Therapists and counselors have long been discovering the effects this practice can have on the brain and how well traumatic experiences are processed through and integrated into experience. Practicing creativity can give clients an outlet to visualize how a traumatic experience has effected them and even help encourage them through the process of healing and personal growth. As the psychological community comes to understand the importance of expressive arts therapies, programs have been developed to train therapists in these modalities. This has shown to be effective in clients of all ages and some studies have even looked at how clients with combat-related PTSD can use expression in a therapeutic setting. It is important that therapists and counselors are trained in how to utilize the practice, and to educate the general public in how they can practice expressive arts even outside of a therapeutic setting and improve the mental health practices of the community at large.

Sociology

“Southern Attitudes Towards the LGBTQ+ Community”

Presenter Kathrynne Busbey, History major

Mentored by Dr. N. Jane McCandless

Studies have found that negative attitudes towards the LGBTQ+ community in the Deep South are explained by one's race, religion, and gender. However, few studies have focused upon whether or not these same variables explain attitudes towards the LGBTQ+ among college students who are enrolled in a mid-size university located in the deep south. The purpose of this study is to first, explore the attitudes of college students in the deep south towards the LGBTQ+ community and second, to determine if the variables of race, religion, and sex are correlated with these attitudes.

“African American College Students’ Narratives of Their High School Experience and Its Effect on Their Self-Perception”

Presenters Jawonna Coleman and Anika Reid, Anthropology majors

Mentored by Dr. Lisa Gezon

One of the most crucial points of development in a child's life occurs during high school. However, studies show that minority students are experiencing poor qualities of education which lead to higher chances of socioeconomic disparity among these students. Research also suggests that negative experiences during high school - specifically with teachers - shape a student's perception of themselves. The goal of our research is to identify interventions that could improve the quality of education for minority students by first understanding the factors which affect their educational experiences. We interviewed college students about their memories of the quality of their teacher-student relationships in high school to understand how it shaped their identity as students and individuals today, as well as to track how these experiences have encouraged or hindered their academic and interpersonal success. Interestingly, we found that our participants reported that the challenges they faced as minorities in

high school did not deter them, but instead motivated them to continue their education and strive for more in their lives which highlights the vaguely discussed topic of minority perseverance instead of failure. Therefore, it is important to discuss minority narratives of their educational experiences so that they can be understood and improved.

“Differential Use of Video Games Between Men and Women”

***Presenter Aaron Gann, Management Information Systems major
Mentored by Dr. N. Jane McCandless***

Research has shown that women and men play video games for similar reasons, e.g. socializing and escaping reality. However, the types of video games that men and women play differ, as does the amount of time spent playing these games. Because the popularity of playing video games has increased significantly in the past decade, scholars have written extensively about the relationship between playing video games and players' behaviors following this activity. The purpose of this project is to explore whether or not the relationship between playing video games and players' behaviors varies by gender. The author will employ both a review of the literature and nonparticipant observation to provide some insight into the question.

“Negative Effects of Media on Women’s Body Image”

***Presenter Justina Gga Kwaghe, Biology major
Mentored by Dr. N. Jane McCandless***

This presentation cumulates the results of previous studies on mass media, its depiction of beauty, and the effects on women’s body images. Negative consequences of portraying women as thin on magazines, advertisements, social media, and television are outlined with possible solutions to this growing issue.

“The Gender of Communication”

***Presenter Rebekah Rutledge, Anthropology major
Mentored by Dr. N. Jane McCandless***

Is language gendered? Do men and women really speak differently? These are questions that have been asked for years. From tone to word choice to sentence structure, there are certain language expectations that are assigned to each gender. Gendered communication is a topic that has been approached from many different fields of study throughout the years, which has led to varying viewpoints over what is true. The purpose of this research is to look at these conclusions within the literature across fields of study in order to examine how people’s viewpoints on the topic has changed. By examining the differences and similarities between the studies, we are able to become aware of how language expectations can affect both behaviors and language ideologies.

Past studies have pointed to the existence of gendered communication rules, however as time has passed it has become more obvious that this isn’t entirely correct. There are communication strategies that are connected with gendered expectations, but that doesn’t mean that they are always true in practice. The use of these strategies in practice, has been found to be heavily dependent on the context of conversations and the power structure between conversation participants. Gendered communication is a result of social expectations instead of actual linguistic use.

“A Social Leadership Journey”

Presenter Jeri Shaffer, Sociology major
Mentored by Dr. N. Jane McCandless

This work includes an examination of one woman's journey into and through poverty. Utilizing Pierre Bourdieu's habitus, social and cultural capital, along with the ABC-X model, the author will provide a detailed analysis of how moving from poverty to leadership unfolds and then argue that instead of eradicating people in poverty, we should consider them for leadership positions.

Education

Communication Sciences and Professional Counseling

“Maternal Verb Usage and Its Relationship With Lexical Diversity in Children with Autism Spectrum Disorder”

Presenters Sydney Carroll, Daylin Deyton, and Amanda Melville; Speech-Language Pathology majors
Mentored by Dr. Lama Farran

Early maternal verb input is associated with better language outcomes in typically developing children (Hadley, Rispoli, & Hsu, 2016). However, this topic has not been widely researched in children with autism spectrum disorder (ASD), a neurodevelopmental disorder characterized by social and linguistic deficits (American Psychiatric Association, 2013). This study examines the relationship between verb input of mothers and their children's lexical diversity (Malvern & Richards, 2002). Using audio-recordings collected in the families' homes through free-play interactions, we transcribed mother and child utterances in CLAN (MacWhinney, 2000) and computed proportion of maternal verb usage and children's D scores (measure of lexical diversity; Lai & Schwaneflugel, 2016). Maternal verb usage was represented by the amount of verbs per utterance that the mother used during the interaction while the child's lexical diversity consisted of the number of different words used in the language sample. Our results indicate that higher maternal verb usage is positively related to higher child lexical diversity. These findings may inform early language intervention practices for children with ASD.

“Novel Imitation Skills in Children at Risk for Autism Spectrum Disorder”

Presenter Jayla Davis, Speech-Language Pathology major
Mentored by Dr. Twyla Perryman

The role of imitation by children in social interactions is important because it facilitates back-and-forth exchanges with caregivers and peers and lays the foundation for social and cognitive development (Lowry, 2016). Through deferred imitation, children gain increasing experience about other people and the world, and demonstrate their capacity for representing stored mental images and knowledge (Warreyn, 2014; Paiget, 1962). Immediate imitation may help to facilitate play and language abilities (Brooke, 2008). Children with ASD are less likely to imitate a variety of acts compared to typically developing children and children with other developmental delays or disabilities (Gonsiorowski et al., 2015). By the age of 18 months, problems with imitation can discriminate infants with a later ASD diagnosis from infants with typical development. (Warreyn et al., 2014). The purpose of this research study is to examine the immediate and novel imitation skills in young children at-risk for Autism Spectrum Disorder (ASD).

This study examines children's ability to imitate an examiner's actions with toys and objects during an assessment. We found that children at-risk for ASD had poorer imitation skills overall and in particular with "novel" or atypical tasks with objects.

Educational Technology and Foundations

"Design Thinking Research Project"

***Presenters Karla Cruz and Mia Wilkerson, Early Childhood Education majors
Mentored by Dr. Lara Willox***

This poster will discuss the impact of a science, technology, engineering, and mathematics (STEM) summer camp on how students share their problem-solving process. The design thinking process includes the following steps: To empathize, define the problem, ideate, prototype, test, and share. Groups of K-5 students from two rural counties in Western Georgia created three different products: a name tag, an animal that had to adapt to a specific environment, and a chicken coop. Two of the products (i.e., the name tag and the animal) were completed at the beginning of the week while the chicken coop was created at the end of the week. For each product, the students followed the steps of the design thinking process to create their product and then shared their process. In the first set of products (i.e., the name tag and the animal), the majority of students' sharing focused on describing the type of product that they had created and the materials that they used to develop their product. On the last product (i.e., the chicken coop), the students still discussed the type of product and the materials used; however, the number of students that described the process for creating the product and the functions of their product increased. Based on their comments, students were more likely to share their design thinking process at the end of the week. We concluded that making students aware of the steps of design thinking and practicing these steps makes students more likely to share pertinent details of their thought process.

"Igniting a Spark"

***Presenter Taylor Robertson, Early Childhood Education major
Mentored by Dr. Thomas Peterson***

When working with at risk youth, many believe that there is no hope for those "trouble makers." Through the use of Cosmos, a way of telling our life's story, we are able to connect with those children to show them we are not very different. By doing this we are able to show the youth that they can accomplish whatever they want to in their life, that they do not have to go down the same path their parents went down, or continue on the path that has been laid before them. Through the Cosmos, we are all able to come together and ignite a spark to a wide range of possibilities for their futures.

"Virtual Reality in Education: Exploring the Trend"

***Presenter Ruthanna Zolnik, Speech-Language Pathology major
Mentored by Dr. Logan Arrington***

This presentation will discuss the importance of tracking trends in the field of education using an Open Educational Resource. The purpose of The Trends in Instructional Design and Technology (IDT) Database is to examine various trends and share surveys on the integration and adoption of trends in K-12. It is important because it provides quantitative data to users showcasing the extent to which trends are being used in

certain settings and attitudes being expressed by various groups.

As technology changes, so does the need to understand it. For example, when a new trend or technology comes along, administrators often jump on the technology bandwagon, attempting to implement the trend without carefully considering the value or consequences of doing so. The IDT Database attempts to answer questions concerning technology trends. Here are two sample questions that are used to demonstrate the value of this database, what is the usage of virtual reality in K-12, and what are the major benefits of using virtual reality in education. This database provides the tools necessary to see implementation of trends or attitudes, and by being aware of and using these tools, it will improve the learning experiences as well as a student's future professional practice.

Leadership, Research, and School Improvement

“The Role of Gender on Holistic Grief Effects Experienced by College Students”

Presenter Christiana Olaley, Biology major

Mentored by Dr. Mary Alice Varga

The purpose of this paper is to present findings from a survey that measured holistic grief effects college students experience when losing a loved one and whether grief effects vary based on gender. This is important to examine since approximately 35% of undergraduate students are within 24 months of bereavement (Pollard, Varga, Wheat, & McClam, 2017; Varga & Varga, 2019; Walker, Hathcoat, & Noppe, 2012). Holistic grief effects were measured using the Holistic Impact of Bereavement (Balk, 2010), which outlines the six dimensions students are affected by their grief (emotionally, physically, cognitively, behaviorally, interpersonally, and spiritually).. Students have reported various grief effects, primarily emotional and cognitive effects (Varga, 2015; Walker et al., 2012); however, recent studies have not examined holistic grief effects specific to gender. Initial studies into college student grief indicated women experience greater grief effects; and more recent research is warranted (LaGrand, 1981 & 1985). The researchers hypothesized that college students would experience grief effects in all six dimensions, primarily in the dimensions of emotional and cognitive effects. The researchers also hypothesized that female students would experience statistically significantly greater grief effects than male students, specifically in the dimensions of emotional and cognitive effects. A total of 508 students completed the survey. Findings indicated that approximately 81% (n = 412) of students experienced the loss of a significant person in their life due to death. Emotional and cognitive were the most grief effects experienced by students. Independent-samples t-tests found a statistically significant difference in the emotional, physical, cognitive, and behavioral grief effects experienced between female and male students with female students experiencing greater effects than male students. Implications for these findings are addressed along with recommendations for future research.

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Literacy and Special Education

"The Impact of Demographic Variables on Assessment Screeners for an Urban Head Start Program"

Presenters Chandler Davey and Dylan McGuire; Speech-Language Pathology majors

Mentored by Dr. Katy Green

The current proposal is a presentation on an undergraduate project investigating the effects of assessments for Head Start students at multiple education sites in Atlanta. Specifically, the aim of this proposed project is two-fold. First, the presenters will share analyzed data on the language screening scores from the Head Start students and how demographic variables (e.g., gender, race, socio-economic status) appear to impact those scores. Next, the education sites will also be analyzed, while examining possible significant differences between low-test scores and demographic variables. The UWG undergraduate students performed language screening for potential language delays through a standardized language screening kit- The Dial-4 Kit. This language screening kit assesses articulation, motor skills, vocabulary, and letter/sounds through several activities. The results may serve to help us better understand and further analyze/ study how demographic variables impact success in immediate and surrounding communities.

"Disproportionate Discipline Practices in Schools"

Presenter India Leslie, Psychology major

Mentored by Dr. Chelsea Morris

In alarming numbers, children are being disciplined in schools at disproportionate rates based on race/ethnicity, disability status, gender, and age. This includes the suspension, expulsion, arrest, and referral to law enforcement of children as young as three years old. The criminalization of the behavior of millions of children requires educators and other related professionals to examine their practices. Importantly, many of these children live in impoverished communities and/or may have experienced some form of trauma, emphasizing the need for appropriate intervention. School districts across the country utilize discipline policies that push students out of the classroom and into the criminal justice system. This causes many students to become accustomed to a criminalistic lifestyle because if when not in school, they have a higher chance of engaging in negative behaviors. In this poster, school discipline practices will be presented in an

effort to unpack the term “school-to-prison pipeline”. Infographics, data charts, and written text will display current Georgia discipline practice data compared to national rates. The poster will also include a review of existing policies and recommendations for addressing disproportionate discipline practices in school.

Sport Management, Wellness, and Physical Education

“Compensation For Competition”

Presenter Kenneth Alston, Sport Management major

Mentored by Dr. Young Ik Suh

The importance of the “One and Done” process, and how professional basketball could possibly benefit from its disbandment”

Abstract

The “One and Done” phrase has become a staple for college basketball and has changed the lives of athletes by allowing to chase their dreams less than a year removed from high school. “One and Done” has also become a topic of disapproval, especially when the decision to leave after 1 year turns out to be a bad one. In this study, we take a look at the importance of the “One and Done” process, and how professional basketball could possibly benefit from its disbandment. Identifying the research that proves the economical and analytical advantages of the One and Done athlete, as well as discussing how the leagues, athletes, and the world of basketball would change if the One and Done process was eradicated. Using data collected from all leagues and surveys with current and retired athletes, we’ll uncover the important of the process both economically and situational for athletes.

“Examining the Marketing Strategies in Sports”

Presenters Logan Baird, Jaylen Buckhanna, Ryan Cassiday, Da’Vonte Hughes, and Gerald McHenry; Sport Management majors

Mentored by Dr. Young Ik Suh

Marketing in Sport has been skewed towards males since the dawn of modern television. The amount of marketing done for men compared to women can be noticed on any type of sports media. No matter what sport is being televised the marketing is generally targeted towards men. In this paper, we will discuss the marketing strategies that differentiate male and female sports. The purpose of this study is to examine the difference in marketing tactics for men and women within the sports industry. We will utilize a quantitative research method to collect data. The five authors of this study will conduct surveys with students around campus and fans of women’s sports in general. We will use this data so that we can correlate the facts about how marketing impacts sports.

“Astros Cheating Scandal”

Presenters Cory Bartholomew, Tyler Garner, Cason Greathouse, and Lauren Parramore; Sport Management majors

Mentored by Dr. Young Ik Suh

Did the Astros Cheating Scandal Really Help Them Win the World Series in 2017?

Baseball is a sport that takes a lot of talent and practice. People who make it to the big leagues are known as the best baseball players in the world. While many of these

players may be the best in the world, it brings up the question, did it the Astros win when they cheated? The purpose of this study is to compare batting averages from the players at home vs. away, to see if there is any difference. We will use the batting averages from the 2017 postseason to determine whether or not the averages varied different each stadium. With these findings, we will determine whether or not the sign-stealing made a difference in the playoffs.

“Athletes’ Mental Health Awareness Inside and Outside of Sports”

***Presenters Morgan Bell, Damaris Crawford, Jordan Drake, Bailey Manning, and Jacob Mitchell; Sport Management majors
Mentored by Dr. Young Ik Suh***

All athletes go through unique challenges during their career whether its physical or emotional. Exercise positively impacts levels of serotonin, a chemical that helps regulate mental health but there are still several factors that trigger player depression, anxiety, and other health problems. The athlete’s mental health needs to be addressed more often and understood that it is not limited to athletes just because they are involved in physical activities. The purpose of this study is to see how mental health impacts player performance and if organizations take the health of players seriously. The authors will conduct surveys from current student-athletes and non-athletes of different ages at the University of West Georgia. With these findings, we will be able to examine how individuals manage their mental health and what they feel is necessary to spread awareness. Furthermore, based on the results, suggestions will be discussed for future research.

“Will Parents Still Allow Their Kids to Participate in Extracurricular Activities?”

***Presenter Barron Burns, Sport Management major
Mentored by Dr. Young Ik Suh***

Despite the new studies and discoveries on how sports can be harmful to one’s health and body in the long run, Will parents still allow their kids to participate in extracurricular activities?

Sports are a big part of the American culture, as a matter of fact sports play a significant role in others cultures around the world which they are played in other countries as well. Though sports are played based on the fun and excitement that it provides, the escape route it provides for young males and females when needed, or whether they are just simply being played for good quality exercise. Sports are still a risk on any level whether it’s on the little league, high school, collegiate, professional, or intramural level, so what are the chances one is willing to take when playing sports is what separate the fans/non-athletes from the real athletes. The purpose of this study is to first see why do parents let their kids play sports? And are they going to continue to let them participate in them despite these new studies and discoveries showing the short term and long term effect it can have on an athlete based on its dangerous physicality that comes with sports. We will conduct this research using quality research and six interviews from students at the University of West Georgia based on the perspective of current, former, and non-athletes from different generations. Collecting results from this research will give us a good perspective on the world’s opinion based on sports during this decade.

“Why Does Fantasy Football Bring in More Players Than Other Fantasy Sports”

Presenters Chris Clanton, Garrett Eason, and Alec Jerauld; Sport Management

majors

Mentored by Dr. Young Ik Suh

Fantasy sports have been a major attraction in the sports world, as well as the gambling world. But, compared to fantasy football, other fantasy sports like baseball and basketball don't even come close to matching the amount of players. The purpose of this study is to discover the potential reason behind the different player bases as well as the true numbers behind the assumption. The authors will survey 30 students on campus across different classifications at the University of West Georgia. With these findings we will be able to understand the differences in the fantasy sports as well as the reasoning behind the different sized player bases.

“Sources of Strength”

Presenters Mackenzie DiNatale and Megan Keller; Health and Community Wellness majors

Mentored by Dr. Duke Biber

Sources of Strength is an evidence-based program that helps prevent suicide, substance abuse, and bullying through positive social norming. The mission of Sources of Strength is “to prevent suicide by increasing help seeking behaviors and promoting connections between peers and caring adults” (Sources of Strength, n.d.). Sources of Strength focuses on 8 key factors to promote strength when students are experiencing difficulties, hardship, or struggle to effectively cope. The Sources of Strength curriculum promotes mentoring through family support, positive friends, mentors, healthy activities, generosity, spirituality, medical access, and mental health. Promoting strong supporters, activities, and positive caring individuals surrounding a group of students will allow students at risk to feel supported and cared about during times when they struggle most. By decreasing the amount of children that experience environments conducive to substance abuse or suicidal ideation, students can be better equipped to effectively cope and thrive. This poster presentation will outline the Sources of Strength program at UWG and in the Carrollton community as well as provide an overview of evaluation and implementation.

Discovering Sources of Strength . (n.d.). Retrieved from <https://sourcesofstrength.org/>

“Lack of Attention for Female Sports Compared to Male Sports”

Presenters Morgan Goree, Elberta McCarthy, Jazmine Santiago, and Alexandra Taylor; Sport Management majors

Mentored by Dr. Young Ik Suh

The debate pertaining to the lack of attention of female sports compared to male sports has become a large, important topic of discussion within the past few years. Many sports only consist of professional leagues for men and very few sports have a professional league for women. The purpose of this study is to investigate why male sports receive more attention than female sports do. The mission of this experiment is to identify the factors that influence the media coverage between male and female sports. The researchers will develop an anonymous survey/poll for sports fans at the University of West Georgia gathering their opinions on male sports compared to female sports. The findings and results that we retain will allow us to establish a better understanding as to why male sports receive more attention and interest than female sports.

“Health Coaching”

*Presenter Sarah Gross, Health and Community Wellness major
Mentored by Bridgette Stewart*

Health and wellness coaching (HWC) for lifestyle behavior change is emerging as a practice, role, and profession, in diverse health care, employee wellness, and community settings. Health and wellness professionals apply healthy lifestyle changes as a behavior change methodology for the prevention of such conditions as diabetes, hypertension, high cholesterol, and other chronic diseases. Health coaches can also assist clients in applying stress management techniques, financial wellness tips, and other social wellness practices. This presentation focuses on a deeper look at the roles and responsibilities of a health coach and how one can become certified as a health and wellness coach. We will also identify the process for conducting a coaching session following an evidence-based coaching model.

“Breaking the Counseling Stigma among College Students”

Presenters Christen Hardy and Kellani Lettsome, Health and Community Wellness majors

Mentored by Dr. Duke Biber and Gina Brandenburg

The purpose of this study is to examine the attitudes of college students toward seeking professional mental health help from a rural setting. The secondary purpose is to examine the relationship between mental health (e.g. self-compassion, stress, anxiety, depression) and attitudes towards seeking professional help. Participants will be asked to complete a quantitative survey on their smartphones through a link. Participants will include undergraduate college students in the state of Georgia. Students from the University of West Georgia and other schools nearby will be the target audience. Being on campus to talk to students while using other connections like social media, different organizations groups and class time has been very beneficial in gaining feedback on the surveys. Participants completed the Attitudes toward Seeking Professional Help Scale (ATSPH), Self-Compassion scale (SCS-12), and the College Adjustment Scale. All results will be analyzed using a correlation. We expect that there will be a correlation in students feeling inadequate at some point during their college experience along with a low number of individuals who actually are prepared to seek professional help. We hope to learn that through proper education awareness and mental health stigma reduction that these numbers change for the greater good of our society.

“Healthy Haralson Initiative”

Presenter Alicia Hollingsworth, Health and Community Wellness major

Mentored by Dr. Peter Stoepker

Tanner Health System is building a healthier community for citizens in the Haralson County area. The Healthy Haralson Initiative gives community suggestions for healthier habits and affordable care with funding through the Two Georgia Initiative. This initiative holds task forces, such as, Substance Misuse, Healthy Lifestyle and Education, Increasing Awareness of Existing Resources, Increasing Provider Resources, Senior Needs, and Youth Mental Health. The Healthy Haralson Initiative is a part of Tanner’s Get Healthy, Live Well program that uses health promotion, education, and develops sustainable conditions for people to adopt healthy lifestyles where they learn, work, and live. A Community Health Needs Assessment was performed to determine the greater needs in the county that will help people the most. In order to complete the assessment, leaders of the program created outreach, consultations, involvement of community

members, collaboration, and shared leadership. Leadership then presented their three-year plan designed to improve areas that need the most attention throughout the community. As an intern for Tanner, my involvement with Healthy Haralson is crucial to the community in ways such as, education, planning, health promotion, and leadership. Through these efforts we will continue to make Haralson County a better and brighter place for everyone.

“Coping Mechanisms Caused by Traumatic Events in College Students”
Presenter Elizabeth Palomera, Health and Community Wellness major
Mentored by Dr. Duke Biber

Background: According to the American Psychiatric Association, an estimated 1 in 11 people will be diagnosed with post-traumatic stress disorder in their lifetime (“What is PTSD?”, 2013). Living with thoughts and memories of past trauma can drive an individual to negative coping mechanisms, such as alcohol and drug use. Purpose/Question/Hypothesis: The purpose of this study is to observe the health effects as a result of negative coping mechanisms in response to past trauma in college students aged 18-24. By studying physical and mental effects past trauma has we can help students find more positive ways to cope and in turn improve health outcomes. Is there a significant relationship between trauma and health outcomes? If so, we hypothesize that substance use among trauma-exposed students will be higher. Methods: Participants for this research study will be obtained by administering quantitative surveys via email to college students aged 18-24 that are currently attending the University of West Georgia. Data Analysis: Data will be collected by analyzing quantitative surveys based off the Life Events Checklist and Daily Drinking Questionnaire from the DSM-5. Expectations: Researchers conducting this study expect to find that individuals with a trauma history are likely to have higher rates of alcohol consumption and drug use.

“The Plant-Based Diet Vs. Health”
Presenter Alexis Squires, Health and Community Wellness major
Mentored by Dr. Jamie Brandenburg

Healthy eating habits are a necessity for overall health. Food can be connected to culture, lifestyles, as well as emotions. Every factor of society is influenced by food. Families, school systems, and workplaces can have a large factor in eating habits and patterns being good or bad. Health care providers also have an impact on eating patterns and practices. Taking care of one’s body includes eating well, staying physically active, but also non- smoking practices. Health is also determined by access to social and economic resources, opportunities, quality and safety of schools, workplaces, homes, and neighborhoods, and overall communities. Nutrition is an important aspect of life that must be taken more seriously. A poor diet can lead to negative effects on the body. Making necessary changes to diet can lead to major health benefits. A plant-based diet emphasizes minimally processed foods. Limits animal products and heavily include vegetables, fruits, whole grains, legumes, seeds, and nuts, which should make up the majority of what is consumed. Changing completely to plant-based could save more lives and lower mortality rates. Chronic diseases are a result of diet and lifestyle, while the plant-based diet prevents diseases and overall creates good health. Food has the potential to take the place of medicine. Diet plays a significant role in chronic disease. Diet changes can impact the health of the nation. The purpose of this study is to prove that nutrition is a modifiable risk factor for chronic diseases. The study proves that chronic diseases can be prevented with proper lifestyle changes. To be

successful, regular exercise, a low-calorie diet is required. Preventing chronic disease through nutrition requires maintaining healthy body weight and staying physically active. Prevention overwhelmingly requires a diet rich in vegetables, legumes, fruits, and whole grains. It will take a population-based approach to address the challenges when it comes to all aspects of nutrition. Lifestyle change is not just a diet, but it does include healthier eating, increasing physical activity, and smoking cessation. To lower mortality rates, proper education on a plant-based diet is essential.

Keywords: Diet, Plant-based, Health, Lifestyle, Chronic Disease

Richards College of Business

Accounting and Finance

“The Effect of Recreational Green Space on Residential Property Values”

Presenter Carleen Burris, Finance major

Mentored by Dr. Heather Bono

Urban planners and policymakers are increasingly becoming aware of the impact that local amenities play in community development. Local and convenient entry to green spaces can have both positive and negative impacts on housing prices. The Silver Comet Trail is a linear park that spans across three Georgia counties: Polk, Cobb, and Paulding. The trail is 61.5 miles long and ends at the Alabama state line. It is built on out of use railroad lines. Prior studies indicate a positive impact on residential home values due to their close proximity to these types of green spaces. Thus, creating an amenity value for these properties. For example, in Matthew Gnagey and Therese Grijalva’s article (2017), “The impact of trails on property values: a spatial analysis”, using a spatial Durbin error model, they consistently found substantial premiums for properties located closer to trailheads. In this presentation, I analyze the impact that the Silver Comet Trail has on property values in one county (Cobb) using a hedonic model. I utilize market data from Cobb County Tax Assessor’s office from 2009-2019 along with GIS to examine the relationship between home prices in reference to the Silver Comet Trail.

“The ‘Backdoor’ Into A Roth IRA”

Presenter Olivia Neely, Accounting major

Mentored by Bruce Bird

As a 21-year-old college student, I have already begun to consider what type of retirement account I want to build throughout my career. The Roth IRA has stood out for many reasons, but unfortunately many young people do not even know what a Roth IRA is. A Roth IRA is a tax-advantage retirement account that allows you to withdraw your money tax-free. Your contributions are not tax deductible, but as soon as you begin to withdraw the money, you will not have to pay any kind of tax on it. The problem people are beginning to run into is the salary cap on the requirements to open a Roth IRA. Throughout my research I have begun to search and address the way around opening a Roth IRA if you do not qualify. I have found that there is in fact a legal way to receiving the tax-free benefits of a Roth IRA that some may refer to as the “backdoor” method. The most common approach is converting a traditional IRA to a Roth IRA. My presentation and paper will be a reflection of the different types of IRA accounts, how to obtain a Roth IRA through the backdoor method, and why one should consider a

Roth IRA retirement account.

Management

“Should Freedom of Speech be Accepted Universally?”

Presenters Andrea Nevil, Marketing major; and Allison Thomas, Management major

Mentored by Dr. Susana Velez-Castrillon

Abstract: Multinational companies (MNCs) face ethical dilemmas when dealing with countries that have different ethical standards and understanding of human rights from their home country. In 2019, examples of this situation were in the news about Disney and Google operations abroad. Using South Park’s “Band in China” (season 23 episode 02), we discuss issues created by censorship and how America’s view of freedom of speech is currently at the center of a debate: While the First Amendment should reflect universal values, many countries do not agree with this idea.

We show how MNCs can use the business ethics literature to guide decisions. Companies should train employees in Thomas Donaldson’s (1985) heuristic for decisions reconciling international norms. Donaldson’s heuristics is based on three questions: Is the conflict between countries rooted in economics or basic cultural differences? Is it necessary to engage in this practice in order to do business in this country? Does engaging in this practice violate fundamental human rights?

Although these questions might be difficult to answer, thinking about them should improve companies’ understanding of the conflict at hand, its root causes, and alternatives for dealing with the problem and focus on long-term issues their decisions might create.

Tanner Health System School of Nursing

Nursing

“What Attributes Do Nursing Students Perceive as Caring Behaviors Exhibited by Instructors?”

Presenter Victoria Davis, Nursing major

Mentored by Dr. Connie Barbour

Background: Nursing remains the most trusted profession for eighteen consecutive years with caring being a key attribute. However, caring is not a natural skill but is acquired and practiced throughout nursing education. As patients believe that nurses should care for their overall health and wellbeing, students believe professors should care for them and their learning. To instill caring behaviors in students, UWG Tanner Health System School of Nursing (THSSN) uses a caring science curriculum to emphasize the vital role caring plays in the development of the professional nurse. Nursing faculty know the importance of role modeling caring behaviors but often there is a disjunct between what faculty perceive as caring and what students perceive as caring. To better understand how students identify caring behaviors exhibited by instructors, a research study was conducted. The research question for this study was: What do students perceive as caring behaviors from faculty?

Methods: Q-methodology was used for the design of this study. Q-methodology,

developed by William Stephenson, is the science of subjectivity. Q-methodology contains both qualitative and quantitative components of research, making it a mixed-method design. It contains five steps, which include 1) development of the concourse, 2) development of Q-statements, 3) data collection of Q-sorts, 4) factor analysis, and 5) defining the factors into themed model sorts. This method was chosen because it provides more robust results when exploring individual's perspectives, attitudes, and beliefs. The framework used for this study was Duffy's Quality Caring Model used in the UWG THSSON caring science curriculum.

Results: This study consisted of two phases. Phase one was carried out in 2018-2019. Phase two was carried out in 2019-2020. This report will focus on phase two research results. Forty-three q-sorts were collected from junior and senior students on the Carrollton and Newnan campuses. After factor analysis, three factors were identified. Factor one consisted of 46% of participants, and the theme describing this factor is "content-clarity." Factor two, included 16% of participants, was themed "cheerleader." Factor three included 38% of participants and was themed "consumer-focused." Therefore, 90% of the participants' opinions were accounted for in this study. Overall, demographics showed that neither class, campus, age, nor gender impacted loadings.

Conclusion: The data collected from this study successfully identified what UWG THSSON students perceive as caring behaviors exhibited by faculty. The majority of students want faculty to be content-experts who are knowledgeable about content and are willing to explain difficult content in more detail. The second largest group also care about faculty being content-experts, but also believe faculty exhibit caring by helping students reach their goals of becoming a nurse. Lastly, the third-largest portion wants faculty to be vested in their learning through helping, kindness, and pushing them to do their best.

"The Importance of Community Health Nursing Needs Assessment"

Presenter Chelsea Hovious, Nursing major

Mentored by Marcia Davis

The purpose of this project is to develop pre-licensure nursing students' knowledge and practices that are grounded in scientific research. Scientific research implores students in the academic area to learn about evidence-based practice and models which encourages a culture of inquiry to implement after graduation as the novice nurse and throughout their career. Evidence-based practice will be defined as evidence that occurs from clinically based problem-solving. The clinical evidence is significant because it will assist students to develop problem-solving skills that improve patient care in the hospital and the community setting.

Today's pre-licensure nursing students are educated to use the nursing process alongside evidenced-based practices to affect change. By integrating these processes and incorporating the Plan Do Study Act model (Doc Mike Evans), the students plan and implement a needs assessment, study the results, and finally, create educational posters and pamphlets to educate patients. Students gain valuable knowledge on problem-solving which can evolve into evidenced-based practice that is grounded in scientific research.

This poster resulting from this project will describe how 3rd-semester pre-licensure nursing students collaborated to create educational tools as a result of implementing the Plan, Do, Study, Act model (Doc Mike Evans) in a community rotation at a faith-

based community clinic. This project is conducted by gathering data from patients by student nurses using a needs-based assessment.

This project highlights the nursing process and evidence-based practice to improve and encourage a culture of inquiry. The targeted goal for this project is to develop pre-licensure students' knowledge and practices that are grounded in scientific research (Bridges, 2015). Upon surveying the patients and obtaining data from the needs assessment, students integrate the results into a clinical problem and evaluate the patient-centered needs to develop educational tools. The outcome is assessed by the student nurses' ability to plan and implement a needs-based assessment using the Plan, Do, Study, Act model.

References

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