

## Abstracts

### Oral Presentation Abstracts

**Reid Brock** (Mentor: Bradley Blackwell) OP-E1

*Bioaccumulation and environmental transport of mercury in Alaskan salmon*

Mercury bioaccumulates in aquatic food webs, and fish consumption is the primary route of mercury exposure for humans. Alaska provides a unique region for studying mercury because many areas remain untouched, so most mercury will be naturally occurring or from the atmosphere. Samples of Chinook, chum, and pink salmon were collected from Baranof Island, Alaska and analyzed using a direct mercury analyzer (DMA-80). Mercury concentrations were compared to fish sex, length, weight, and age. Nitrogen stable isotopes were used to determine trophic level and explore whether trophic level influences mercury concentrations in Chinook. Additionally, mercury transport from salmon migrating from the ocean ecosystem to headwater streams was calculated. Even though mercury was present, Alaskan salmon have a low amount of mercury and are relatively safe to consume.

**Hannah Grace Wilson** (Mentor: Lawrence Bonds) OP-A3

*A Group of Crows is Called a Murder: Birds and Their Influence on Revenge Literature*

This literary analysis explores how media, literature, and fairytales use avians as symbols of revenge and allows readers to categorize their presence into three separate groups of characters: conscious actors, divine actors, and moving actors. These categories impact how characters acknowledge and react to the revenge birds enact upon them, going as far as to determine the nature of the story and its deeper meaning or main idea. Furthermore, in the case of conscious actors, avians can also provide a deeper examination into the mindset and psychological basis for which a bird's decisions are made. By taking a closer look at "The Juniper Tree," "The Rose Bush," Stardew Valley, "Olga of Kyiv," "Rime of the Ancient Mariner," "The Birds, the Beasts, and the Bats," and "Philomela the Nightengale," these categories reveal the true importance of bird symbolism in the concept of revenge and how the presence of avians can change the perception and meaning of revenge literature.

**Megan Keller** (Mentor: Joel Brant) OP-E2

*Effects of snake venom on types of mammalian blood.*

One of the most dangerous snakes found in Texas is the Western Diamondback Rattlesnakes, *Crotalus atrox*. As part of the pit viper family their venom contains hemorrhagic proteins that gives it a higher mortality rate than the other snakes in Texas. In the United States, about 150,000 dogs and cats are bitten by venomous snakes each year. With 20% of dogs, and 10% of cats dying due to hematologic complications, yet humans still use horse blood to manufacture antivenom. The experiment was designed to observe any differences between the efficacy *Crotalus atrox* venom has across the three mammalian species. This study collects and analyses data using centrifuged and lyophilized venom reconstituted to mimic the real potency of a snake bite(112.5mg/ml), and introducing it in vitro to the blood of animals at rates varying by body mass. Complete blood counts and blood smears were made every 30 minutes for a 5-hour duration, and compared using a mixed methods statistical analysis. Negative control uses no venom and the positive control uses three times the testing concentration. Results show under normal testing conditions that horses, while they might develop severe thrombocytopenia within the first hour, handle the venom the best showing the least amount of cell death overall. Dogs showed the highest level of red blood cell crenation and excretion of proteins into the interstitial fluid, thereby effecting the serum protein levels the greatest. Cats showed the most cell death with white blood cells reducing over 57% two hours post inoculation. These findings are meant to better inform those in the veterinary medicine careers, but are just a small piece to a very large study, and require more testing exchanging methods or materials until there is the least amount of variance or confounding variables present.

**Isaiah Alvarez, Kane Strohman, Matthew Pyle** (Mentor: Tikhon Bykov) OP-E3

*Nonlinear effects in vibrating strings observed through numerical analysis.*

This study explores the nonlinear effects in vibrating strings through numerical methods, specifically the Runge-Kutta (RK45) method. Nonlinear phenomena in vibrating strings are of significant interest due to their diverse applications in various fields such as engineering, physics, and music. By employing the RK45 numerical method, using MATLAB programming language, this research aims to accurately model and analyze the behavior of freely vibrating strings as well as vibrations under the influence of external driving force. The results are then compared to approximate analytical models. The study investigates the influence of frequency of external force, and material properties on the nonlinear behavior of vibrating strings. Transverse waves on a string exhibit an elliptical pattern. That pattern is precessing with time. By further investigation, a nonlinear resonance curve for amplitude vs. external angular frequency is formed signifying the existence of a steady and non-steady state. Through comprehensive simulations and analysis, insights into the complex dynamics of nonlinear vibrating strings are gained, contributing to a deeper understanding of their behavior and potential applications in the scientific and musical realm.

**Anthony Avina** (Mentor: Philip LeMasters) OP-B1

### *Building the Kingdom*

The Christian Protestant Reformation resulted in the creation of various denominations of Christianity throughout history. Every denomination has a different way of practicing their beliefs and interpreting the Bible. The most universal aspect of these denominations is the inclusion of worship in their faith. In 1 Corinthians the Apostle Paul talks about the spiritual gifts God uses to bless individuals and how they manifest themselves in everyone's lives. We will discuss how the Methodist Church utilizes these gifts that individuals within congregations are blessed with and how they utilize them to continue building up the Kingdom of Heaven on Earth.

**Jade Dickens** (Mentor: Philip LeMasters) OP-B2

### *Exploring the Divergent Views: Baptist and Protestant Perspectives on Baptism*

Baptism is a central sacrament in Christianity, but different denominations hold diverse beliefs and practices regarding its significance, mode of administration, and theological implications. Protestantism encompasses a broad spectrum of beliefs, including various views on baptism. Within this context, Baptist theology stands out distinctively with its own set of beliefs and practices regarding baptism. Understanding the differences between Protestant beliefs on baptism and Baptist views provides insight into the diversity within Christianity.

**Anyah Campbell, Tryelle Schilling, Adriana Ortega, Aidyn Camacho, Emilee Dominguez, Kendall Bearden** (Mentor: Philip LeMasters) OP-B3

### *Comparing the Gospels*

This presentation will examine key differences and similarities in how the four gospels of the New Testament portray the life and teachings of Jesus. While Matthew and Luke both describe Jesus' birth, each provides distinctive details not found in the other account. Matthew and Luke include different genealogies for Jesus, while Mark and John do not present his family tree or describe his birth. Luke, as a Gentile, especially emphasizes how Jesus ministered to those considered outsiders. John presents a similar theme in his description of Jesus' interaction with the Samaritan woman at the well in their conversation about "living water" in contrast with the Pharisee Nicodemus' inability to understand what it means to be "born again." The presentation will examine these and other points of similarity and difference between the gospels in how they describe the good news brought by Jesus.

**Gabriel Pyenta, Jackson Benard, Montgomery Cortez, Raul Gamez, Sunshyne Gwinn** (Mentor: Philip LeMasters) OP-B4

### *Jesus: The Unexpected Messiah*

The gospels of the New Testament describe Jesus as being a different type of Messiah than the Jews of first-century Palestine expected. This presentation will identify how Jesus did not fit dominant expectations for the ministry of the Messiah by drawing on several passages from the gospels. For example, he was not a military leader focused on delivering Israel from Roman occupation, but a gentle teacher of forgiveness and peace who died on a Roman cross. He ministered not only to his fellow Jews but also to healed Gentiles. He did not focus on blessing those considered righteous and law-abiding Jews but associated with tax collectors and sinners. He went against the legalism of the Pharisees by healing on the Sabbath. He also presented himself as the Son of God by forgiving sins and referring to himself as “Lord of the Sabbath,” which went against the belief that the Messiah would be merely a holy and powerful human being. This presentation will develop these points to show how Jesus defied many preconceptions about the identity and actions of the Messiah.

**Kaylee Worth, Halee Avant, Lillian Contreras, Alexandria Flores, Abagayle Haynes, Keatyn Lessner** (Mentor: Philip LeMasters) OP-B5

### *Exploring the Parallels Between Martyrs and Monks*

In the early years of Christianity, martyrdom and monasticism emerged as two powerful expressions of faithfulness to Jesus Christ. Often revered for their unwavering commitment to their faith even in the face of persecution and death, martyrs embody the ultimate sacrifice for their beliefs. Meanwhile, monks utilized a different form of sacrifice—renunciation of worldly pleasures to pursue divine communion by living an ascetic lifestyle. The profound connection between martyrs and monks within the realm of religious devotion and sacrifice demonstrates how faith was most important to these groups. Their acts of self-sacrifice and reliance on divine providence emphasize their unwavering faith, even when presented with challenges like temptation or death. Despite their apparent difference in how these individuals practiced, martyrs and monks share commonalities in their commitment to self-sacrifice, pursuit of spiritual excellence, and inspirational impact on others. The accounts of the martyrdom of Polycarp, Perpetua, and Felicitas all demonstrate that even when faced with death because of their faith, they would not back down. Polycarp would not speak ill of Jesus Christ and thus was killed by the sword for his faith. Perpetua and Felicitas are other examples of martyrs who faced brutal persecution, including imprisonment and eventual execution in the arena; however, they stayed loyal to their faith. Similarly, the ascetic lifestyle that the monks endure of willingly embracing hardships as a means of drawing closer to God can be related to that of the martyrs. The Desert Fathers taught how to resist temptations and that seeking out God will make those temptations feel simpler. Overall, martyrs and monks dedicated their entire lives to God and the salvation of others. Both martyrs and monks embody religious virtues, regardless of the outside forces or challenges they were presented with.

**Luke Mendez** (Mentor: Philip LeMasters) OP-C1

*Liturgical Effectiveness: A Critical Analysis of Worship and Formation in the Episcopal Church's Holy Eucharist Rite II*

This research project explores the effectiveness of worship in conveying the comprehensive narrative of God's story and ensuring correct spiritual formation within the primary worship service of a church, focusing on the Episcopal Church's Holy Eucharist Rite II. The guidelines for this research are based on literature read and discussed in Dr. LeMasters' "Worship and Liturgy" class. Prompted by critical reflections on liturgy as discussed in Simon Chan's "Liturgical Theology," and Robert E. Webber's book "Ancient-Future Worship," the study aims to evaluate how well the Holy Eucharist Rite II achieves its intended purposes of spiritual formation, realization of the church's mission, and glorification of God. The anticipated outcomes include a comprehensive criterion to evaluate the worship service, and a detailed critique of the Holy Eucharist Rite II, aiming to enhance understanding and practices within the Episcopal tradition.

**Jackson Young** (Mentor: Philip LeMasters) OP-C4

*Atonement Theory in Church Music*

How often do we think about the theology of the songs we sing in church? Do we analyze the lyrics of the songs we sing, and think about the impact they have on our theology? Most of the time the answer to this question will tend to be no. No one is necessarily at fault for this, it is pretty normal to sing what we're told on Sunday and move on with our lives. However, the theology we receive at Church (through music or preaching) has a big impact on our thinking. This presentation will focus on atonement theology in church music. Our theology of the atonement is crucial because Jesus' death and resurrection can be thought of as the climax of the Christian story. This is where atonement theories come in, as they try to answer this question: Why did Jesus die? While it is more agreed upon that Jesus lived and died, his purpose for doing so is more widely debated. The most common atonement theory found in church music is Penal Substitution. Penal Substitution argues that Jesus' death on the cross satisfied God's requirement for justice. According to this theory Jesus suffered the wrath of God the Father as a payment for humanity's sins. While Penal Substitution is a widely held theory, it can be quite problematic theologically. It paints the picture of God the Father as an angry deity that requires a payment for the sins of the world. This presentation will present a view of several different atonement theories, such as Christus Victor and Moral Influence. Other Atonement theories that are healthier do appear in church music as well, even if it isn't as common. By looking at how widespread Penal Substitution has become in church music we can start identifying it and resisting against it.

**Melissa Stevenson** (Mentor: Philip LeMasters) OP-C5

### *Methodist Communion: A Comparison*

Communion is an activity, a holy sacrament, that Methodists of all different styles participate in the first Sunday of every month. It is very clearly defined and written out in our *Book of Worship* and the *United Methodist Hymnal*. By writing very specific instructions for Communion and other services and sacraments, the *Book of Worship*, according to the Methodists in 1964's *Book of Worship*, is "designed to provide significant structure for the worship of the Church. It is not intended in any way to fetter the spontaneity or reject the reliance upon the Holy Spirit which have characterized United (and other) Methodist worship throughout its history". They cite the very specific instructions sent by John Wesley himself to early American Methodists in his book *The Sunday Service of the Methodist in North America* written in 1784. The 1964 Methodist *Book of Worship* goes on to say that this has made us "heirs of the deeply meaningful historic forms of devotion of the universal church". That what we do today for the Service of Holy Communion echoes what Methodists have been doing since 1784. But how have these liturgies changed over the years? Have we only changed the language to a more modern "You" instead of "Thou"? Or are the changes more fundamental to who we are as Methodists? This paper will demonstrate the differences and similarities between John Wesley's original instructions with the Methodist communion liturgy (prior 1965), to the United Methodist Communion liturgy of 1989, to what current Global Methodist churches are practicing today. These comparisons will shed light on where we have been and how that reflects on where we are today.

### **Yordanos Ayelework** (Mentor: Philip LeMasters) OP-C3

#### *Women in the Leadership of Orthodox Christian Worship*

While the role of women in Christian worship has become less restricted over the centuries, there are still limitations placed on the extent of their participation. In the Orthodox and Catholic Church, for instance, the ordination of women to the priesthood is prohibited. This research aims to explore these limitations in the context of the Orthodox Church and worship leadership roles, examining the theological, social, and cultural factors that contribute to the marginalization of women. It will focus on the rationale for the limitations of women's participation in worship leadership and the different interpretations of scripture that inform these attitudes.

### **Miguel Varelas** (Mentor: Philip LeMasters) OP-C2

#### *Active Participation: How The Word and The Sacraments Work Together*

The modern church is growing increasingly farther from the liturgical style of worship that the early Christian church practiced. With large emphasis on spontaneity and entertainment, a large part of liturgical worship has been lost and ignored in the modern church. Within the

context of worship within the church, the word and the sacrament work together to fulfill the “fullness” of liturgical worship. This is demonstrated in the way that the word “tells” the church what to do and the sacrament is the “doing” by the church. Contrary to individualistic worship, liturgical worship brings the church together to fulfill part of its purpose which is to worship and be in communion with God. Under this understanding, active participation in liturgical worship is crucial for the fullness of the word and sacrament to be fulfilled. One may know the word without doing the sacrament while alternatively, one may do the sacrament without knowing the word. This does not bring the fullness of what the wholeness of church worship is to look like. Instead, there should be a focus on the attitude of the individual to be in the role of a part of the church instead of the church being a part of the individual's worship. When the word is understood and the sacrament is done with understanding, the fullness of liturgical worship in the church will be fulfilled.

**Lyndsey Kaufmann** (Mentor: Ann-Marie Lopez) OP-A1

*There's Too Many Words on the Page: Reading through a Child's Eyes*

Reading lays the foundation for a child’s overall academic achievement and lifelong learning. It is a unique skill, a gateway that exposes new realms of knowledge, fosters critical thinking, and nurtures emotional development in young minds. Current statistics indicate, however, that 50% of children from low-income households begin first grade with a two year learning deficit and 90% of those will struggle with reading by the end of the fourth grade (Admin par. 5). Early elementary represents a pivotal stage in cognitive development, making it an opportune time to instill a genuine desire for reading. When a child actively reads, they are more inclined to explore diverse topics and embrace new ideas, fostering a continual progression in their intellectual development. This presentation provides an overview of the importance of reading in elementary schools, addressing how socioeconomic disparities and psychological factors, such as cognitive development and self-esteem, influence a child’s engagement in literacy. It outlines the impact a child’s motivation can have in their learning, as well as helpful strategies that promote the drive to read, including proven instructional methods integrating the fine arts. This discussion concludes with case studies that encourage educational equity, helpful intervention, enhanced learning conditions, and positive role models. America has shaped “a culture of reading poverty in which a vicious cycle of aliteracy has the potential to devolve into illiteracy for many students” (Miller 107). Urging educators, policymakers, and caregivers to prioritize effective reading strategies in a child’s formative years has the potential to change lives.

**Alysha Semien** (Mentor: Kevin Phillipson) OP-F1

*Empowering Educators, Saving Lives*

“Empowering Educators, Saving Lives” is a specialized CPR Training company dedicated to equipping educators and student within school districts with the essential skills to respond confidently and effectively in emergency situations. Our comprehensive curriculum goes beyond basic CPR techniques, incorporating AED usage, first aid skills, and tailored emergency response protocols for school environments. With certified instructors, hands-on training, and interactive learning experiences, we ensure participants feel prepared and empowered to act as first responders when every second counts. Our focus on school safety, community engagement, and innovative training methods sets us apart, fostering partnerships with educational institutions, local authorities, and parent-teacher organizations. Through our commitment to excellence and continuous support, we aim to make CPR training accessible, impactful, and lifesaving for educators and students alike. Join us in our mission to create safer school communities and save lives through proper CPR training "Done Right."

**Maxwell Roberts** (Mentor: Kevin Phillipson) OP-F2

#### *Drippin' Pour Pods*

“Drippin’ Pour Pods” is a unique business concept that’s introducing a solution, focused on resolving the issue of lengthy waiting times around dispensing adult beverages at professional venues and events. The innovative solution relies on leveraging current technological advancements to manufacture, state of the art, automated drink dispensing machines, as well as to develop a platform that’s centered around revolutionizing operations, and enhancing customer driven convenience. The signature “Drink Pods” will deliver improved operations through enabling, verified, online In-app Purchases that are redeemed in person, streamlining transactions through an automated system which, in turn, significantly reduce wait times. Unique value of the concept and product lies within the adaptability, mobility, and efficiency all while catering to the main issue of lengthy waiting times dispensing adult beverages at professional venues and events. Experience the convenience of tomorrow’s beverage service today through joining “Drippin Pour Pods” in revolutionizing event hospitality.

**Jaxon Batten** (Mentor: Kevin Phillipson) OP-F3

#### *An Innovative Direction: Geo-Dome Homes*

House and rent prices are dramatically rising, creating an opportunity for something innovative to take the market. With this in mind a very old housing concept might be solution. A geo-domestic dome is a collection of triangles put together to create a dome structure that is superior in many aspects. These homes are designed to be both elegant yet simple. The unique dome structure not only adds aesthetic appeal but also offers practical advantages such as increased energy efficiency, durability, and strength. The dome model proposed is set apart by its external insulation that doubles as roofing material. Through their unique in design and



construction, these geo-domestic dome homes offer a sustainable alternative to traditional housing.

**Eowyn Stewart** (Mentor: Ronnie Rama - *Abilene Christian University*) OP-A2

*A Royal View: Gardens as the Architecture of Luxury at Katsura Imperial Villa and Château d’Ancy-le-Franc*

During the 17th century, gardens were the architecture of the wealthy, a method of aestheticism, display, and control well suited to palaces. In the Katsura Imperial Villa, traditional Japanese architectural methods drew on ancient poetry and history to create a palace of natural beauty and royal legacy through its gardens. Its rooms bleed into gardens focused on the seasons and the landscape, creating a palace whose outer boundaries connect with its surroundings. Through its gardens, the Villa sparked a Japanese “renaissance” of ancient form and function in architecture. At the Château d’Ancy-le-Franc, complex and structured gardens create a set of “rooms” in which wealth and power can be displayed, and nature can be controlled. Through classical motifs and exotic plants, the garden as a location of curation in this palace shows the political and cultural extensions of French nobles. Both palaces utilize their gardens as a facet of architecture that enhances the building while reinforcing the narratives of power surrounding their residents.

**Bridgette Fly** (Mentor: David Wahl) OP-D1

*The World of Sex Trafficking Compiled into a Website*

This honors thesis is a combination of topics within the fields of Computer Science and Criminology. I developed a website with the capability to pull data from a database that I created and filled with relevant data that can be displayed for the user to view. The database was created using the MySQL Workbench using the language MySQL while the website itself was created using features from the languages HTML, CSS, JavaScript, and PHP. Each page of the website contains links to and from other pages to allow the flow of the website to make sense and allow for a pleasant user experience. For the Criminology section of my thesis, I decided to research the world of sex trafficking. Human trafficking is a violation of human rights and awareness of this crime is crucial for more than just punishing perpetrators of the crime. The identification of victims, social supports for vulnerable populations, and the educated creation of legislation are just a few things that would benefit from the spread of awareness about human trafficking as a whole. Spreading knowledge about sex trafficking is what my thesis is aimed to do. Combining the website that I created with all of the information I gathered, I made a site that contains comprehensible information about a dense and heavy topic so that the user is able to find all of the information in one place.

**Jack Miller** (Mentor: Robert Wallace) OP-A4

*Wrongful Conviction and the Death Penalty: The Racial Effect*

McMurry University Professor Robert Wallace asks us to consider the case of the Central Park Five, in which four young black men and one young Latino man were accused of murder and rape. They were sentenced to prison in 1989 because they all confessed their guilt. After thirteen years in prison, they were proven innocent in 2002. Wallace, an expert in wrongful conviction, takes the broader sociological “public issue” of this case and flips it on its head. These wrongful convictions are even more problematic if the sentence involves capital punishment. American sociologist Michael Radelet asks us, “The question people have been asking for 30 years is ‘Who deserves to die?’ The more important question is ‘Who deserves to kill?’ We make so many mistakes that the only clear lesson is that we do not deserve to kill” (Marshall 2009:3). Radelet’s research also shows that when you intersect the use of capital punishment and race, it is even more problematic. Leading civil rights expert Charles J. Ogletree describes the connection between race and capital punishment, stating, “In the modern era, many have characterized the use of capital punishment in America as ‘legal lynching,’ due to its historical inseparability from the issue of race” (Ogletree 2006:55). Sociologically speaking, “legal lynching” is clearly a public issue. Drawing on Ogletree’s research, criminologist David Garland (2007: 445-446) states that “race, social class, and the quality of legal counsel are the chief factors that structure outcomes, with the result that poorly represented blacks, convicted of atrocious crimes, against white victims, are the group most likely to be sentenced to death.” Garland also describes the “steep descending order of death sentence probability,” which indicates that if a white person murders a black person, the odds of capital punishment are much less than if a black murders a white.

**Jackson Young, Luke Mendez** (Mentor: Mark Waters) OP-D2

*The Dangers of Christian Nationalism*

Christian Nationalism is the idea that Christianity should dominate society. It places the Christian God as the ruler over the government, with his followers doing his will in different areas of society. Christian Nationalism is rooted in the 7 Mountain Mandate, which states that Christians aim to take over the 7 spheres of influence in our society: Religion, Family, Education, Government, Media, Arts and Entertainment, and Business. This isn’t just an ideology, but there are also real implications to this line of thinking that must be looked at critically. Education, for example, under Christian Nationalist rule would look quite different. Prayer would look different in schools and curriculum would likely shift to cater toward Christian teaching. It is important to note that Christian Nationalism does not represent all of Christianity. Rooted in Dominionism (A movement from the 1970s), Christian Nationalism is a fundamentalist movement. This distinction is important because it shows that it isn’t all Christians who want governmental power, but instead it’s a smaller minority of Christianity. Christianity is very internally diverse, and while there is a smaller group supporting Christian Nationalism, around

80-90% of Christians still reject it. Christian Nationalism is growing and is still relevant today. It is dangerous, and therefore it is very important for people to be informed about it and be able to see it in our government today. A great example of Christian Nationalism today is Donald Trump's "God Bless the USA Bible." The current relevance of Christian Nationalism is why this presentation is important, and in it Christian Nationalism will be looked at critically from a theological and practical perspective.

**Melissa Stevenson, Caleb Bush, Destiny Mathews, Dominic Carroll, Faez Mufti, Jasmine Hunter, Phoenix Jordan, Rylee Coleman, Presley Wilson** (Mentor: Mark Waters) OP-D3

*We Haven't Killed Each Other: Dialogue Across Difference*

Our group met together for Dialogue with the Other with Dr. Waters this semester. The members of our class are very different from one another, with differences in age, sexual orientation, gender identity, race, socioeconomic status, and family history. Our current political, racial, and economic climate says that these differences should pull us apart, creating canyons that we are unable to cross to find common ground. Our presentation will demonstrate that these differences not only make dialogue more interesting, but that they also give us room to grow and learn from one another, making us better students and better human beings. Our differences give our topics a richer understanding of the world whether we're talking about the death penalty, abortion, or simply if the world is a meeting pot, a salad or combination of the two. But the civil discourse of the outside world would tell us that our differences should not only make us dislike each other, they should make us distrust each other and make honest conversation an impossibility. But those differences can spark constructive problem-solving skills by allowing us to see other perspectives and create new pathways in life. We shall discuss and show our differences by expressing who we are and how we work together to discuss topics in a respectful and positive way.