

## COSS 2023 – CONCURRENT SESSIONS

### **C01. “Nosferatu: Sound, Shade and Stoker”**

**Time:** 10:30 - 10:50 a.m. | **Location:** Olin 124 | **Session Type:** Classic

Student Author(s): Paul Sternhagen

Mentored by: Dr. Gregory Carlson

F.W. Murnau's 1922 film *Nosferatu* has left an indelible mark on the practice of expressionism within the medium. This presentation will take a critical look at the technical aspects which have cemented the film's legacy, with a special emphasis on the variation between color grading and intertitles in various copies of the film. The presentation will also cover some of the history of the film, including its tenuous relationship with Stoker's *Dracula*, which resulted in many film reels being destroyed. All in all, the presentation will seek to prove that while there is no "definitive" edition of *Nosferatu*, there are certain silent era techniques used across many copies which lend to its timeless quality.

### **C02. “Pursuing Excellence in Music by Experience”**

**Time:** 10:50 - 11:10 a.m. | **Location:** Olin 124 | **Session Type:** Classic

Student Author(s): Jaxon Dewald

Mentored by: Russell Peterson

Becoming the best musician poses many great challenges, just like any other acquired skill in academia and the workforce. Time, dedication, commitment, discipline, patience, and other virtues are necessary in order to master any skill, and with my case it is playing music. However, a huge aspect that is often forgotten are real, hands-on experiences that model what we aspire to become in our craft. In our academic studies here on campus, there is only so much we can learn from digesting material from books, videos, and lectures; for a full spectrum of learning we need to travel outside of the campus and experience real events that relates to our future professions, something that cannot be obtained on campus. As a musician, performing in various locations and for different audiences gives new perspectives on the musician's ability to adapt to the needs and interests of local communities. I will discuss about my experience in competing in a national musicians' competition hosted by the Music Teachers' National Association (MTNA) and how my participation in travelling and competing enhanced my profession as a musician that could not have been achieved without the support and encouragement of Concordia College.

### **C03. “Practice What You Preach: Reconciling in Christ and Embodying Love”**

**Time:** 10:30 - 10:38am | **Location:** Morrie Jones C/D | **Session Type:** Nano

Student Author(s): Mikayla Lynn

Mentored by: Dr. Karla Knutson

My Ethnographic Essay project centers around the choir of Bethesda Church in Moorhead, MN, an ELCA, Reconciling in Christ affirming church. The goal of my project is to have open and welcoming conversations with members of the choir to discuss their experiences and views of the LGBT community, and how music can be used to bring people of different backgrounds together in a healing way. That healing was born and bred out of a desire for an ex-Christian (who stepped foot into a church for the

## COSS 2023 – CONCURRENT SESSIONS

first time in years to join this choir) to re-imagine what beliefs Christians (especially older ones) actually hold about queer individuals. I've conducted half of my interviews so far, and I've found common threads among interviewees. Countless LGBT people have experienced gut-wrenchingly painful trauma at the hands of the church, and at the hands of trusted Christian people in their life, usually friends and family. This project is meant to provide healing to LGBT folks that have left the church, been estranged from family, and have felt internal hatred for who they love. It is also for me, someone that's experienced all of these things. I anticipate that the responses to these results will aid in presenting a different perspective of the church. This project isn't meant to change people's religious beliefs, or tell them to go back to church. It's merely meant to diversify "what people think Christians believe," and highlight the myriad of ways that one can embody their faith. There are nine scripted questions that I've used in the interview process, and I would also add unscripted questions according to their responses. In addition to interviews, I write field notes to record my observations during Wednesday evening rehearsals.

### **C04. "Concordia Dining Services: How Did We Get Here?"**

**Time:** 10:38 - 10:46 a.m. | **Location:** Morrie Jones C/D | **Session Type:** Nano

**Student Author(s):** Aria Roberts

**Mentored by:** Dr. Joy Lintelman

Concordia Dining Services is an organization of constant changes and developments, working as quickly as possible to adapt to the needs of students, staff, and the Fargo-Moorhead community. The goal of this project is to provide a series of snapshots of Dining Services' history in comparison to current operations in order to educate students on how things have changed and why. These articles will focus on the following four areas: the Student Manager program, the design, construction, and use of Anderson Commons, catering and contracts, and the major accomplishments and viewpoints of the management team. Sources to supplement these articles include interviews with employees, archival documents such as newsletters, menus, advertisements, and photos, current paperwork and informational material provided by Dining Services, and written histories of Concordia College. Much of this information is overlooked or simply unknown to the general student body, and due to the limited knowledge and constantly evolving needs of students and community members many are quick to criticize Dining Services without first recognizing the work that has been done to get here. These articles, in combination with a virtual timeline, will provide students with a clearer picture of the changes Dining Services has made in their attempt to successfully serve the community and show that while there are always more improvements to be made, Dining Services' history proves that they aim to perfect the experiences of those they impact and will continue to try and serve the best possible.

## COSS 2023 – CONCURRENT SESSIONS

### **C05. “And Snap! It’s A Game Reacted!” – Chemist Mary Poppins; A General Guide to Click Chemistry”**

**Time:** 10:46 - 10:54 a.m. | **Location:** Morrie Jones C/D | **Session Type:** Nano

Student Author(s): Hannah Olson

Mentored by: Dr. Graeme Wyllie

In late 2022, Carolyn Bertozzi, Morten Meldal, and Barry Sharpless all won the Nobel prize in chemistry for their contributions in Click Chemistry. The use of Click Chemistry has exploded since its inception 20 years ago, but click reactions are not a focus of the current chemistry curriculum at any level. Click reactions are used in many organic, biological, and materials chemistry areas. These reactions have become invaluable for drug discovery as they allow for faster and more accurate results. Come find out the marvels of click chemistry and impress your friends with your newfound, Nobel prize worthy knowledge.

### **C06. “Connecting with the River: How the Red River is Becoming Worse with Pollution and What We Can Do to Help Fargo-Moorhead’s Valuable Water Source.”**

**Time:** 10:54 - 11:02 a.m. | **Location:** Morrie Jones C/D | **Session Type:** Nano

Student Author(s): Wyatt Line

Mentored by: Dr. Alexander Aldrich

This presentation will be given in Spanish.

The Red River is currently plagued with contamination that has been caused by human activity. The good news is that there are solutions we all can take to solve this problem in an efficient and environmentally-friendly manner. In order to gain an understanding of the river’s conditions, I interviewed the executive director of the Red River Keepers, a local organization advocating for the conservation and sustainability of the Red River. In order to properly express this topic in Spanish, I had to learn Spanish vocabulary related to the environment. Some of the reasons why the river is contaminated are due to people throwing trash in the river, levels of polluting chemicals in the water, and other contaminants that ended up in the river because people didn’t realize how pollutants travel. Organizations, like the Red River Keepers, host volunteer opportunities for people in the community to help make the river’s waters cleaner. There are many ways to help decontaminate the Red River, like educating local citizens about negative consequences of water pollution, creating volunteer opportunities to clean the river area, and proposing to local government officials ways to combat the ecological problem.

### **Nano Session Q&A**

**Time:** 11:02am - 11:10 a.m. | **Location:** Morrie Jones C/D | **Session Type:** Nano

### **C07. “Don't worry! Applied Mathematics is just problem solving: optimizing pick-up and drop off for the Great Plains Food Bank”**

**Time:** 10:30 - 11:10 a.m. | **Location:** Morrie Jones A/B | **Session Type:** Panel

Student Author(s): Emily Liddell, Leo Smith, Nick Perkins

Mentored by: Dr. Gregory Tanner

The multi-vehicle routing problem is a difficult optimization problem that has no easy solution. Several vehicles with the same list of necessary stops must be placed on individual routes that are optimal for some constraint (like time). This problem continues to plague many businesses, and we were paired with the Great Plains Food Bank to solve their multi-vehicle routing problem. The Retail Rescue branch of the Great Plains Food Bank had three trucks that were bringing back too much food at the end of the day, and they did not have enough time in their schedule to plan for unforeseen events. We created a program that generates new, optimized routes automatically for the Great Plains Food Bank. We used RStudio to create a genetic algorithm that generates new, randomized routes. We then created and ran a simulation on those routes to select the best fit route. This best route was exported for the client to use later. The routes we generated do not break any of the constraints we were given, and successfully minimized the amount of food brought back to the Great Plains Food Bank each day. The program is easy to run and customize, and the client was satisfied with our results.

### **C08. “The Dehumanizing Behavior of Sexually Objectifying Black Girls”**

**Time:** 10:30 - 10:50 a.m. | **Location:** Integrated Science Center 301 | **Session Type:** Classic

Student Author(s): Elicia Powell

Mentored by: Dr. Amy Watkin

I wrote an essay titled, Johnson's Dehumanizing Behavior of Sexually Objectifying Black Girls critiquing the novel, “Little Black Girl Lost” by Keith Johnson. The novel exemplifies the dehumanization of young black girls' experiences by turning them into sexual objects which not only leads to a lack of empathy for his main character who is a black girl in her adolescence, but to the black girls who are often objectified in a similar manner. I use instances where Johnson openly sexually objectifies his fifteen year old character and relate said instances to real life examples of how black girls are dehumanized in our society. Sexualization and objectification are and have been used continuously as tools to dehumanize Black people, especially Black women. In a journal I referenced frequently throughout my essay, “Revisiting the Jezebel Stereotype: The Impact of Target Race on Sexual Objectification” they state that “There is also much evidence to suggest that Black people are dehumanized by being likened to objects. One way in which this can occur is through being transformed into a sexual object, whereby the individual is reduced from being a person to the status of a mere instrument, who can then be used and consumed for the pleasure of others” (Anderson, Joel R., et al.). The way the author portrays the protagonist is notably problematic, with his descriptions of her body and the overt way he sexualizes her assaults. My critique shows how black girls are dehumanized by having our bodies objectified and assaults sexualized.

### **C09. “The Dangers of Empathizing with Toxic Masculinity in Media”**

**Time:** 10:50 - 11:10 a.m. | **Location:** Integrated Science Center 301 | **Session Type:** Classic

Student Author(s): Margrethe Hawthorne

Mentored by: Dr. Amy Watkin

Throughout our entire lives, we are presented with countless images of what it means to be a man: fathers, princes, boyfriends, brothers, friends, adventures, and heroes. However, rarely do we stop to question whether or not those images are healthy. Much of the media that we consume normalizes toxic masculinity and romanticizes abusive characters, which is detrimental to young people who internalize that toxic masculinity as a normal part of relationships. In *A Court of Thorns and Roses*, Sarah J. Maas calls attention to the dangers of empathizing with toxic masculinity through Tamlin and Feyre’s relationship. Toxic masculinity is a trope that is produced and consumed so casually in our society that it has become normalized. Part of the problem is that when toxic masculinity is romanticized in literature and media in general, people tend to latch on to the good and ignore the bad, meanwhile they are internalizing the entire message as normal. However, the truth of the matter is that there are nuances that are at play when discussing toxic masculinity. Toxic masculinity also can have negative effects on people of all genders. While a large concern exists that readers will see hyper-masculine characters in an abusive relationship context and normalize that behavior, there is also a fear that other toxic masculinity traits could be mimicked. After understanding the detrimental effects of toxic masculinity as portrayed in literature, we are better able to protect ourselves and our loved ones.

### **C10. “Community Through the Lens of Ethnography”**

**Time:** 10:30 - 11:10 a.m. | **Location:** Integrated Science Center 260 | **Session Type:** Panel

Student Author(s): Milton Hillegass, Caroline Becker, Gabriel Messa, Cheryn Lindsay

Mentored by: Dr. Karla Knutson

We aim to explore the concept of community and its various forms through an ethnographic lens. The panel discussion will include 4 panelists who will facilitate a comparison of diverse experiences and conclusions formed through the observation and documentation of communal micro-cultures. The ethnographic process requires researchers to remove their biases and pre-formed theses, which means that there is no uniting thesis at this stage of data collection. When constructing an ethnography, researchers typically use in-person observations, interviews, field notes, jottings, and integration/socialization into the micro-culture. Our panelists will have conducted up to 20-30 hours of in-person research to observe and document their respective micro-cultures. Through their discussion, they will shed light on the cultural similarities and differences between their micro-cultures and micro-social norms. Our panelists have gained insight from and about people and have documented their subtle diversities along the way. They will discuss various aspects related to community, such as what it is, how it forms, the diverse micro-cultures within communities, and their participation during the data collection process.

### **C11. “Culturing Neurons from Zebrafish Brain and Spinal Cord”**

**Time:** 10:30 - 10:50 a.m. | **Location:** Integrated Science Center 201 | **Session Type:** Classic

Student Author(s): Yvette Umutoiwase, Zimy Le

Mentored by: Dr. Krys Strand, Harshana De Silva Feelixge

The zebrafish (*Danio rerio*) is a widely used and established animal model in neuroscience, particularly in the identification of neurons and in vivo brain architecture. Our lab developed a tissue culture system for neurons that is focused on undergraduate students, providing them the opportunity to observe and study neuronal development and differentiation in vitro. This system minimizes the need for advanced molecular facilities and allows students to gain experience with animal models, tissue culture, and imaging techniques. We adapted sterile technique for the classroom and developed an efficient system for dissecting the whole adult zebrafish brain and spinal cord. To isolate zebrafish neurons, the whole brain was homogenized with collagenase, and spinal cord was homogenized using trypsin. The mixed population of cells was then cultured on adherent glass slides using a serum-free, neuron-specific medium. Within the first ten days of culture, we observed neurite outgrowth and early neural network formation on brain-derived neuronal cells. While neurons can be identified by their distinct morphology alone, we confirmed neurons in culture with immunofluorescence using neuronal-specific antibodies. In comparison, spinal cord-derived neuronal cultures did not show extending neurites under the same culturing conditions. Therefore, we tested various concentrations of neurotrophic growth factors to promote neuronal differentiation. Preliminary data showed differentiation of spinal cord neurons in the presence of neurotrophic factor TGF- $\beta$ 3 alone or TGF- $\beta$ 3 in combination with GDNF and BDNF.

### **C12. “Effect on Vivaldi Music on Zebrafish Behavior”**

**Time:** 10:50 - 11:10 a.m. | **Location:** Integrated Science Center 201 | **Session Type:** Classic

Student Author(s): Jessica Howard, Ian Scheele, Noah Jeppesen, Zimy Le

Mentored by: Dr. Krys Strand, Harshana De Silva Feelixge

This study used zebrafish (*Danio rerio*) subjects to explore whether passive environmental enrichment in the form of music affects anxiety levels, memory retention, and motor function. We hypothesized that music enrichment would decrease anxiety, lengthen the duration of memory retention, and improve motor function. To test this, leopard zebrafish, which display elevated levels of anxiety compared to striped wild type zebrafish, were exposed to two hours of Vivaldi music in major keys played from a computer twice daily for two weeks. Before and after this enrichment, we measured anxiety using the novel tank test, memory using the novel object recognition test, and motor function using the spin task. If our hypothesis is supported, we aim to explore the effects of environmental enrichment on models of neurological disorders such as multiple sclerosis, which include changes in cognition and mood.

### **C13. “Analysis of the Sublimation Product from Reacting Pyridine and Perfluoropyridine”**

**Time:** 11:25 - 11:45 a.m. | **Location:** Olin 124 | **Session Type:** Classic

Student Author(s): Hunter Colby

Mentored by: Dr. Darin Ulness

Perfluorinated compounds are a recent area of study for industrial purposes, often in the form of perfluoroalkanes. Perfluoropyridine possesses a region of low electron density called a  $\pi$ -hole created by the electron-withdrawing nature of its Fluorine atoms. Through reacting perfluoropyridine with weaker bases, characterization of its interactions is possible. Subjecting perfluoropyridine to pyridine yields a mixture of products that has proven challenging to separate, yet through sublimating the product mixture it is possible to isolate numerous compounds. Separation of perfluoropyridine products was achieved using sublimation and column chromatography. Spectroscopic analyses of these compounds proved that there are discernible products within the mixture, including one identified 4-amino-2,3,5,6-tetrafluoropyridine.

### **C14. “Investigating the Functionality of Protein 4Q7Q”**

**Time:** 11:45 a.m. - 12:05 p.m. | **Location:** Olin 124 | **Session Type:** Classic

Student Author(s): Hannah Olson, Jorgen Deitz, Reese Anderson

Mentored by: Dr. Julie Mach

There are over 3,500 proteins in the Protein Data Bank with known structure, but little is known about the function of these proteins. We investigated one of these proteins, 4Q7Q, to determine its functionality using the parameters and guidelines of the Biochemistry Authentic Scientific Inquiry Lab (BASIL) community Course-based Undergraduate Research Experience (CURE). We paired in silico bioinformatics techniques with in vitro methods to get results useful for the functional analysis of protein 4Q7Q. The in silico techniques used were SPRITE (a protein structural motif database searching program), BLAST, Pfam (servers that identify global sequence homologs), and Dali (a server that identifies global structural homologs). The in vitro experiments performed were expression of the protein using competent BL 21 E. coli cells, purification of the protein using Immobilized Metal Affinity Chromatography (IMAC), protein concentration determination using the Bradford assay technique, and assessing protein purity using SDS-PAGE. Based on preliminary data, 4Q7Q appears to be a Lipase, meaning it breaks down lipids, from the bacterial species *Chitinophaga pinensis* and is classified under the protein superfamily SGNH/GDSL of hydrolases. Future testing will be done to confirm that 4Q7Q functions as a hydrolase using a substrate specific enzyme activity assay, and an enzyme kinetics assay to determine the rate of the hydrolase reaction that 4Q7Q catalyzes.

## COSS 2023 – CONCURRENT SESSIONS

### **C15. “Looking Back to Look at the Future of Scotland: Grappling with History”**

**Time:** 11:25 - 11:33 a.m. | **Location:** Morrie Jones C/D | **Session Type:** Nano

**Student Author(s):** Laura Jensen, Eden Smith, Sydney Ingham, Rachel Hauschildt

**Mentored by:** Dr. Stephanie Ahlfeldt, Dr. Cindy Larson-Casselton

America has a long, storied history filled with inspiring figures and unforgettable victories. However, these have not come without substantial drawbacks. Today, Americans struggle to answer the question, "how can one honor history while acknowledging the horrors of the past and making progress as a country?" America is far from the first to have these issues. Scotland, as we know it today, is centuries old, and there are many different ways it has tried to deal with its own troubled past, both through the government and through personal action. I intend to discuss the actions that I witnessed as part of my week-long trip to the country. Conclusions will be presented in order to provide Americans with an example of ways, both good and bad, to have pride in one's country while honoring the victims of the past.

### **C16. “Looking Back to Look at the Future of Scotland; Governmental Systems”**

**Time:** 11:33 - 11:41 a.m. | **Location:** Morrie Jones C/D | **Session Type:** Nano

**Student Author(s):** Sydney Ingham, Rachel Hauschildt, Eden Smith, Laura Jensen

**Mentored by:** Dr. Stephanie Ahlfeldt, Dr. Cindy Larson-Casselton

The significance of this research is to compare Scotland's parliamentary system to the United States, allowing for a contrast to be made between each system. This project will encompass important parts of each country's governmental system such as different political affiliations, branches of legislature, and draw upon key similarities and differences within each category. This research addresses the problem of awareness and the conscious understanding of how one's government operates. It allows one to get a glimpse into how integral government processes are to running the world that we live in. It is proper to know how one's own government works, but especially to notice how it compares to another. Governmental systems are essential for understanding the society in which one lives, and should be understood to know the impact that one can have upon such governmental systems. The research for this project has been conducted by visiting the country of Scotland itself, and visiting its Parliament Building. There, research was conducted through interacting with informational exhibits. Further research will be conducted through analyzing knowledge gained in Scotland to information provided about the United States government. Finally, for the result, it is anticipated that individuals will learn how Scotland's governmental system operates in contrast to the United States.

### **C17. “Looking Back to Look at the Future with Scotland: Managing the Mental Health of Students”**

**Time:** 11:41 - 11:49 a.m. | **Location:** Morrie Jones C/D | **Session Type:** Nano

**Student Author(s):** Eden Smith, Laura Jensen, Rachel Hauschildt, Sydney Ingham

**Mentored by:** Dr. Stephanie Ahlfeldt, Dr. Cindy Larson-Casselton

I will be taking a look at mental health issues, specifically burn out, faced by students at Concordia and in Scotland. Scottish universities tend to be more open to changes within their systems in order to ease



## COSS 2023 – CONCURRENT SESSIONS

the burdens of their students, while Concordia is more hesitant to create change at such a large scale. By speaking to faculty and students at both the University of Edinburgh and Concordia, I gathered information about what factors play into each school's motivations for improving the experiences of their students, attitudes toward increasing access to mental health resources on campus, and what barriers each still face. It was found that Scottish universities are more open to change due to a ranking system amongst UK universities that impacts the funding each school gets. Concordia, who does not place as large of an importance on rankings, does not have as much of an incentive to create large scale change that improves the mental health of students. Through comparing these two systems, I hope to point out the shortcomings of Concordia in managing the mental health of students.

### **C18. “Looking Back to Look at the Future of Scotland; An indepth look at Accessibility in Scotland”**

**Time:** 11:49 - 11:57 a.m. | **Location:** Morrie Jones C/D | **Session Type:** Nano

Student Author(s): Rachel Hauschildt, Sydney Ingham, Eden Smith, Laura Jensen

Mentored by: Dr. Stephanie Ahlfeldt, Dr. Cindy Larson-Casselton

In the United States, there has been a heavy emphasis on creating accessible environments. Although some could make the argument that they have a long ways to go before ensuring accessibility for all, they have made great strides in progress on the basic level. Through a series of 10 different blog posts, different aspects of Scotland's bigger cities's accessibility will be noted, accessed, and evaluated. These topics will include handicap accessibility, food sensitivities, language, managing university, mental health resources, and navigating Scottish cities. With these topics, the idea of accessibility can be accessed through a variety of different levels to show that there is more to accessibility than the idealized visible disabilities. What I found is that Scotland's bigger cities have made progress in terms of creating more accessible environments, but the United States has set a standard that Scotland is behind on. When it comes to the cobblestone roads and the centuries-old buildings, it can be difficult to see if improvements can be possible for visible disabilities as well as those not visible.

### **Nano Session Q&A**

**Time:** 11:57 a.m. - 12:05 p.m. | **Location:** Morrie Jones C/D

### **C19. “Into the World of Musical Storytelling”**

**Time:** 11:25 a.m. - 12:05 p.m. | **Location:** Morrie Jones A/B | **Session Type:** Panel

Student Author(s): Erik Ault

Mentored by: Christian Boy

From the Jazz Age, through the Golden Age, and into our modern Contemporary Age—music has established itself as a medium to share a story. This research project dives into the connection the compositional technique, musical relationship, and evolution that musical theatre has innovated from in-person performances to film—specifically animation. In this research, through the analysis and dissection of major composers of their field, my objective is to share how their creative process can be applied, and how it shares both relevance and systemic similarities. With many culturally significant work, the two main composers of this analysis, application, and presentation are Alan Menken of Disney

## COSS 2023 – CONCURRENT SESSIONS

Animation Studios™ and Stephen Sondheim—a major composer of the Golden Age of Broadway. The ending mission of this project is to shed light on the evolution of musical storytelling in a changing world, and how it can be applied to composition today.

### **C20. “The Inspiration of CP Culture as a Celebrity Endorsement to Marketers”**

**Time:** 11:25 - 11:45 a.m. | **Location:** Integrated Science Center 301 | **Session Type:** Classic

Student Author(s): Yuehan Zhao

Mentored by: Dr. Jiani Jiang

Couple (“CP”) culture is becoming increasingly prevalent in China. The word “couple” came from the Japanese ACGN (Anime, Comics, Games, and Novels) fandom and was first used to describe two people in a romantic relationship (Bell, 2016). With various films and television widely disseminated, marketers began to bundle two stars together to propagandize a particular movie or TV series. The first-time use of CP culture as a marketing tool was by the early Korean agents - by placing two stars in the same dormitory to cultivate a relationship to increase the discussions of a TV show. In recent years, CP culture has become highly influential in the Chinese market. In addition to raising the exposure of film and TV productions, it has attracted major brands to collaborate with popular film and TV drama CP. This study will demonstrate that CP culture can positively influence marketers' promotional and sales efforts by applying different theories. The possibility of CP culture as a unique type of celebrity endorsement to influence purchase intention has yet to be discussed in previous studies. This paper will fill the gap in this area. Also, this research will include the literature review and implications from the managerial and theoretical sides that help Chinese marketers. Proposition 1: Consumers' romantic beliefs influenced by CP culture can decrease relationship satisfaction. Proposition 2: Consumers' relationship dissatisfaction can increase romantic media consumption with CP culture. Proposition 3: Consumers can increase purchase intention by building connections with CP culture in romantic media consumption.

### **C21. “Restorative and Reflective Nostalgia in Eighth and Ninth Generation Gaming”**

**Time:** 11:45 a.m. - 12:05 p.m. | **Location:** Integrated Science Center 301 | **Session Type:** Classic

Student Author(s): Belem Ortega, Abigail, Peterson

Mentored by: Dr. Indira Neill Hoch

Given the popularity of video games as a form of media, it is important to examine how they contribute to society in a multitude of ways. Nostalgia in gaming is especially relevant, as there has been a rise in various remakes, remasters, and retro-style games. Gaming evokes two types of nostalgia in players—restorative nostalgia and reflective nostalgia (Boym, 2001). Restorative nostalgia engages the actual act of restoring a home we long for. Reflective nostalgia focuses on feelings of longing or loss for a home we long for. Using these definitions of restorative and reflective nostalgia, we answer three research questions: 1. How do eighth and ninth generation digital gaming titles produce restorative nostalgia in players? 2. How do eighth and ninth generation digital gaming titles produce reflective nostalgia in players? 3. How do eighth and ninth generation digital gaming titles that are part of an ongoing series produce nostalgia of either restorative or reflective type in players? To answer these questions, we played two video games that felt particularly nostalgic to us: Dishonored and Five Nights at Freddy's 2.

## COSS 2023 – CONCURRENT SESSIONS

We played through Dishonored to completion, and FNaF 2 to as far as we could manage given the time constraints of our project. Taking field notes as we played each game, we identified aspects of the game that triggered either feelings of restorative nostalgia or reflective nostalgia for us. These play-throughs determined that restorative and reflective nostalgia exist in both games, from nostalgia for the COVID-19 pandemic in Dishonored and nostalgia for childhood experiences (specifically, the presence of animatronics) in FNaF 2.

### **C22. “EACH's Crab Race: The Development of Hermit Crab Care Guidelines and Habitat Construction”**

**Time:** 11:25 a.m. - 12:05 p.m. | **Location:** Integrated Science Center 260 | **Session Type:** Panel

Student Author(s): Emerson Ericksen

Mentored by: Dr. Krys Strand

Hermit crabs are one of the most abused pets in the exotic pet trade industry. With rampant misinformation being spread, often by large pet retail companies that seek to profit from the animals they mismarket, this project seeks to combat this issue. Research of proper care standards was conducted by compiling a multitude of credible sources, including utilizing scientific research articles and information gathered from reputable owners that have published their findings on the internet. Results of the project work include a detailed care guide that has been disseminated to the public through EACH's website and informational posters displayed publically at their habitat, ethical housing or the "crabhabitat" being created for EACH's hermit crabs, and the implementation of policies within EACH to only take in hermit crabs from a rescue or second-hand situations to help combat the rampant commercial exploitation of the species. Audience members will be invited to interact with some of the ISC animals after the presentation.

### **C23. “War Thunder: An Ethnographic Study”**

**Time:** 11:25 - 11:45 a.m. | **Location:** Integrated Science Center 201 | **Session Type:** Classic

Student Author(s): William Thurmer

Mentored by: Dr. Karla Knutson

War Thunder is a Massively Multiplayer Online (MMO) game that has had recent news coverage as a national security threat as some players have leaked classified military documents worldwide in hopes of making the vehicles in game more realistic. My ethnography hopes to find the makeup of the online community and understand what internal cultural pushes lead players to put themselves at risk by breaking laws, as well as the more seemingly mundane aspects of the culture, including what makes the game tick and the social codes players use to communicate with one another, and whether we should be concerned of War Thunder as a security threat. My hypothesis is that the community is far more diverse than what would be expected from the traditional “old boys club” that is military history and simulation and that the culture may be more representative of a global setting than other social media platforms that silently force people of the same ethnic and cultural background together. And ethnography on War Thunder may open a gateway to wider social studies of online spaces. My method is two and a half years of prior experience, extensive participant observation, and interviews with

players. My anticipated results will be a billet of data to work into pre-existing social theory as well as finding if War Thunder poses a national security threat.

### **C24. “The State of Pollution in the State of 10,000 Lakes”**

**Time:** 11:45 a.m. - 12:05 p.m. | **Location:** Integrated Science Center 201 | **Session Type:** Classic

Student Author(s): Sara Kampsen

Mentored by: Dr. Alexander Aldrich

In the state of 10,000 lakes, there is a huge problem of lake pollution. My project focuses on the contamination of lakes and the measures to prevent it in the Detroit Lakes Area. Detroit Lakes is a popular destination for lake life in the summer. This popularity can be seen through the major pollution seen in these lakes. I researched the amount of microplastics, sodium chloride, and nitrogen in the Detroit Lakes waters. The purpose of this project is to educate others on the importance of keeping our lakes clean. I collected soil samples in multiple lakes and counted the amount of microplastics found. The results concluded the most popular areas contain the most microplastics. I also conducted an interview with David Duffey, a hydrologist from the Pollution Control Agency in Detroit Lakes. Here I learned about other pollutants such as salt and nitrogen. Humans are the direct cause of contamination in lakes. The clothes we wear and the items we use cause mass amounts of microplastics. The street salts and the farm fertilizer cause chemical imbalances in lakes which kill fish. All these pollutants have negative effects on the ecosystem of the lakes which later on also affect humans; therefore, we must do something to stop it. It is crucial for the students of Concordia to be educated about the pollution of lakes, so they can help protect our world.

### **C25. “Chitosan-Alginate Bioplastics: A Potential Drug Delivery System? (Investigating Pharmaceutical Release and Uptake)”**

**Time:** 1:45 - 2:05 p.m. | **Location:** Olin 124 | **Session Type:** Classic

Student Author(s): Dustin Traffie

Mentored by: Dr. Graeme Wyllie

Chitosan-Alginate bioplastics are an example of a biodegradable plastic-like material formed from naturally occurring resources. These bioplastics, which are used in the General Chemistry II teaching lab at Concordia, are formed from chitosan (a derivative of chitin, a material found in lobster, shrimp and insect shells) and alginate (extracted from seaweed). Their potential as a pharmaceutical delivery system was investigated as the bioplastics showcase an ability to release materials, such as food dyes, added into them during formation, when subsequently placed in water or salt solutions. This past summer, I systematically experimented with the release of various antibacterial pharmaceuticals from chitosan-alginate bioplastics. The reverse reaction, uptake, that is materials being removed from the solution was also studied. The pharmaceuticals were either added to the bioplastics during formation so their release could be monitored over time, while other bioplastic samples (not containing pharmaceuticals) were placed in solutions of the pharmaceuticals to investigate whether they would remove these materials from their surrounding environment. Release and uptake studies utilized High Performance Liquid

## COSS 2023 – CONCURRENT SESSIONS

Chromatography (HPLC) for measurement and were carried out in a range of solutions: RO, salt water, and simulated stomach acid. The results of the studies will be discussed.

### **C26. “The Influence of Creative Therapy in Healthcare”**

**Time:** 2:05 - 2:25 p.m. | **Location:** Olin 124 | **Session Type:** Classic

Student Author(s): Ellia Dalzell

Mentored by: Dr. Shelly Gompf

Studies show creative therapy, such as painting, dancing, or writing, significantly improves physical, mental, and emotional well-being. Creative therapy in a clinical setting adds to the movement of implementing individualized, comprehensive care plans. When approaching creative therapy through a public health lens, it can also be noted creativity bridges cultural gaps, adapts to all populations, and promotes social equity and justice. The potential of healing through art is not being maximized in healthcare. There is a gap in education on the importance and benefits of creative therapy, as well as a gap in providers who can promote and implement creative practice as a form of preventative care. I began my research on this argument through secondary sources. I found fundamental information on the benefits of creative therapy for individuals in their day to day lives and through their healthcare journeys. I created a comprehensive list of creative contacts in the region and began an interview process. The interview list included art nonprofit directors, an art therapist, healthcare foundation leaders, individual artists, a deacon, healthcare providers, and healthcare system leaders. I am working in collaboration with several creative events happening on Concordia’s campus to study the effect of creative therapy on students. Additionally, I am meeting with a health-related organization in Fargo/Moorhead to learn about the implementation of creative practice with patients and their families. I anticipate insightful feedback from both opportunities and will formulate my research into a shared guide to help impact the practice of creative therapy in healthcare.

### **C27. “Redefining Success: How Generation Z is Challenging Traditional Standards Amidst Criticism”**

**Time:** 1:45 - 2:05 p.m. | **Location:** Morrie Jones C/D | **Session Type:** Classic

Student Author(s): Alexandra Klein

Mentored by: Dr. Kirsten Theye

In Jonathan Haidt’s book "The Coddling of the American Mind: How Good Intentions and Bad Ideas are Setting Up a Generation for Failure", Haidt brings up the argument that well-intentioned but misguided ideas have led to a culture of safetyism and intolerance on college campuses and in broader society. Haidt also claims that overprotective parenting, social media, and the decline of free speech have made Generation Z become overly sensitive and intolerant of opposing viewpoints. Generation Z is often described as being bad at taking in criticism, feeling entitled, being too soft, or can’t handle daily face-to-face interactions. By analyzing the thoughts of Jonathan Haidt, we are able to find stereotypes that aren’t necessarily true as well as the discrepancies in his work. Through the lens of rhetorical criticism, we can help Generation Z overcome obstacles and build a better future for themselves and society as a whole.

### **C28. “Promoting Leadership and Positive Change: An Organizational Development Project for Industrial-Organizational Psychology Courses”**

**Time:** 2:05 - 2:25 p.m. | **Location:** Morrie Jones C/D | **Session Type:** Nano

Student Author(s): Elshaddai Phiri

Mentored by: Dr. Anna Semanko

Within organizational settings, promoting positive leadership and change (a process known as organizational development) is critical. Organizational development can encourage a safe, productive, and inclusive organizational climate by reducing instances of unfair employment practices, counterproductive work behaviors, employee stress, and inadequate or unmeaningful work tasks (Bulger et al., 2020; Levy, 2013). Given that many undergraduate students are currently in or will soon enter the workforce (Semanko & Hinsz, 2022), an exercise was developed to convey important organizational development concepts to students enrolled in an Industrial-Organizational psychology course. The Organizational Development Project utilizes collaborative learning to explore a four-stage model of organizational development (i.e., assessment and diagnosis, development, implementation, evaluation and feedback; Bulger et al., 2020). In small groups, students worked together to create organizational improvement plans for hypothetical organizations. These improvement plans targeted several categories: 1) fair employment practices, 2) diversity, equity, and inclusion within the workplace, 3) employee safety and health, and 4) a topic of their choice. To explore the themes associated with completion of the Organizational Development Project, qualitative data analysis was conducted. Themes associated with the improvement plan categories will be presented, along with evidence-based information about the impact of collaborative learning. Discussion follows this Nano presentation.

### **C29. “Microlitter in water and sediment of North Dakota prairie potholes”**

**Time:** 1:45 - 2:25 p.m. | **Location:** Morrie Jones A/B | **Session Type:** Panel

Student Author(s): Luke Young, Sophie Schaumann

Mentored by: Dr. Jennifer Sweatman

Microlitter, low-density particles which include microplastics, are widely distributed across the environment as a result of the breakdown of larger debris, through wastewater effluent, or through atmospheric deposition. These microscopic particles can accumulate in areas where waterflow is low or static causing negative impacts to the local environment and wildlife. Prairie potholes are small, ephemeral wetlands that provide critical habitat for many species including waterfowl. Potholes are relatively static, generally only receiving water from overland inflow. As a result, they can act as a sink for microlitter. In our study, we assessed the water and soils of prairie potholes in three Wildlife Management Areas in Ramsey Co., ND. We collected three water and soil samples from three different potholes within each WMA (Ntot=27 for both water and soil samples). Water samples were filtered through a vacuum filtration apparatus. Soil samples were processed using a two-step density separation, digestion of organic material, and filtration following the same methods as the water samples. We ran blanks alongside our water/soil samples to correct our microlitter abundances for atmospheric contamination. These blanks were also treated as our control. All water and soil samples within the nine potholes sampled contained microlitter. Average microlitter abundances ranged from 0-5.93 particles per pothole. While we found higher abundances of microlitter in the sampled WMA's, they were not

## COSS 2023 – CONCURRENT SESSIONS

significantly different from each other or our blanks ( $\bar{x}$  = 0.22). Understanding the distribution of microlitter in the environment will broaden our understanding of the potential impacts on the flora and fauna of the Prairie Pothole region. Future studies will include larger sample sizes and polymer analyses to understand the distribution of microlitter across the region, the abundance of microplastics within the microlitter, and the types of plastics from which the microplastics are derived.

### **C30. “A Glimpse Into The Queer Intersectionality Of Concordia”**

**Time:** 1:45 - 2:05 p.m. | **Location:** Integrated Science Center 301 | **Session Type:** Classic

Student Author(s): Elicia Powell

Mentored by: Dr. Karla Knutson

I am writing an ethnographic essay about the LGBTQIA+ community on Concordia’s campus and the intersectionality of it all; race, gender, sexuality, etc. With current legislation being passed, even though MN has and continues to show support for the community it is still a scary time and I think it’s important now more than ever to show this perspective to serve as a reminder that queer lives matter. A brief description of ethnography is that it’s the scientific description of the customs of individual peoples and cultures. I am following a friend group of queer individuals of different sexualities, genders, ethnicities, and cultural backgrounds. I am studying their own personal stories, dynamics amongst each other, values, and lives on campus. I sit in on and observe spaces that are considered queer friendly on Concordia’s campus. For example there was a study room that was dedicated to inclusivity and had the LGBTQ+ flag and a bunch of books and movies created by queer people or about the queer community. I’m planning on observing SAGA meetings. The SAGA club closed during Covid times, but has recently opened back up. I have met with and interviewed Pride Network members to gain a better understanding of the environment Concordia wants to create for its queer students. I am interviewing a numerous number of members of the LGBTQIA+ community of a variety of backgrounds. My study is not meant to represent the entirety of Concordia’s LGBTQIA+ community’s experiences, but to show a glimpse into that experience.

### **C31. “A quantitative and qualitative pilot-study on overall knowledge and perceptions of the Title IX Act and Office at Concordia College.”**

**Time:** 2:05 - 2:25 p.m. | **Location:** Integrated Science Center 301 | **Session Type:** Classic

Student Author(s): Jake Thompson, Morgan LaRocque, Claire Bruland

Mentored by: Dr. Karla Knutson

Researchers have perceived an overall negative attitude held by peers towards the Title IX office on Concordia’s campus, fostering an interest in collecting broader opinions and perceptions of the office. The current study proposes a survey with open and closed ended questions that will be disseminated via email invitation via professors and students at Concordia College. Researchers hope to involve at least 100 students. Researchers hypothesize that there is insufficient general knowledge of the Title IX office’s purpose and scope, which has had unintended consequences of reduced usage and misuse of available resources. The goal of the study at hand is to present the information gleaned from the survey to the Title IX office to propose possible changes or improvements suggested from the results of the survey.

There is an additional goal of circulating this information among participants at COSS as to aid in dispelling unintended consequences and to serve to educate about the resources and procedures in place, should these issues arise in data collected.

### **C32. “Evaluating Employee Resource Groups: Four Pillars”**

**Time:** 1:45pm - 2:25pm | **Location:** Integrated Science Center 260 | **Session Type:** Panel

Student Author(s): Madelynn Schumacher

Mentored by: Dr. Kirsten Theye

There are many names for them: employee resource groups (ERGs), business resource networks, and affinity groups. These organizations are used to create safe spaces for collaboration based on an identity affiliation. ERGs have become commonplace in diversity and inclusion initiatives. Academic literature about ERGs is lacking empirical merit and justifies an examination. Much of the literature that exists is not rigorously academic and lacks empirical merit. This paper examines a variety of communication theories combined with an examination of major companies ERG web pages to identify characteristics that have the potential to positively affect experiences related to ERGs. This paper hypothesizes ERGs have the potential be helpful and inclusive when they are clear, visible, validating, and compensating. This study clearly defines these characteristics in connection with ERGs, and presents examples of their presence in major corporations ERG web pages. These are meant to serve as a potential starting point for an academic study.

### **C33. “Weighted Biquandle Polynomial Invariant”**

**Time:** 1:45 - 2:05 p.m. | **Location:** Integrated Science Center 201 | **Session Type:** Classic

Student Author(s): David Miller

Mentored by: Dr. Sarah Seger

Knot theory is the mathematical study of knots and a sub-field of topology. Virtual knot theory is an extension of knot theory which broadens how many objects we can study. To put it in perspective, there is only one 4-crossing classical knot but over 500 virtual knots with 4 crossings! However, with this broadened view of knot theory, it is more needed to distinguish between two knots. How we distinguish knots is through what we call invariants. Invariants are characteristics of knots that do not change if we mess the knot up. There is no perfect invariant, so we have invented a new way! Our research stems from biquandles, which uses algebraic operations on knots, and crossing weights which are derived from Gauss diagrams. From that, we were able to create a polynomial invariant. If a polynomial is zero, then we are unable to distinguish it from the unknot. Our polynomial is not the first, but it is one that gives us nonzero polynomials when other polynomial invariants give us zero like the Generalized Alexander Polynomial and the Z-Parity Polynomial. That means our operation gives us information about the knot that other invariants could not!



### **C34. “A look into Math REUs: Generating b-Prime FAL”**

**Time:** 2:05 - 2:25 p.m. | **Location:** Integrated Science Center 201 | **Session Type:** Classic

Student Author(s): Leah Mork

Mentored by: Dr. Rolland Trapp

This talk will be the description of a mathematics research project in a summer Research Experience for Undergrads. It will cover both the research process and the mathematical results that were produced. In an effort to enumerate fully augmented links that are not belted-sum decomposable (b-prime), this work will present an operation, called complete augmentation, on prime links that will produce all b-prime fully augmented links (FAL). A lemma proven by Jorge Calvo in 1985 will be vital in order to prove all completely augmented prime links will result in a b-prime FAL.

### **C35. “The Need for Increased Participation of Women in Computer Science”**

**Time:** 2:40 - 3:00 p.m. | **Location:** Olin 124 | **Session Type:** Classic

Student Author(s): Shristi Chapagain

Mentored by: Damian Lampl

The field of computer science has one of the largest gender disparities in participation, with women receiving just around 20% of undergraduate degrees in the field, which has been in decline for decades with few to little improvements in recent years. Stereotypes in the field of computer science such as a subject for “computer nerds” and “socially awkward people” make girls feel they do not fit in, affecting their decision to not choose computer science as their potential major. The disparities and the fact that computer science is a male-dominated field can deter girls from taking introductory computer science classes. Without enough role models in computer science, it becomes difficult for girls to see themselves working in the field. This research will examine how receiving guidance from a professional mentor and engaging in activities such as workshops, hackathons, and training can influence the career aspirations of individuals in the field of computer science. The findings from this research indicate a notable increase in the likelihood of women choosing computer science as a potential career as a result of participating in these activities.

### **C36. “Gender's Role In Nursing Burnout Levels”**

**Time:** 3:00 - 3:20 p.m. | **Location:** Olin 124 | **Session Type:** Classic

Student Author(s): Josie Johnson

Mentored by: Dr. Karla Knutson, Scott Olsen

One of the many issues presently burdening the American healthcare system is the nursing shortage. This shortage is partly due to COVID-19 pandemic’s exacerbation of existing problems within the healthcare system, one of which being the undervaluing of nurses and the work they do. The most critical aspect of any direct patient care role is one’s ability to empathize with the patient. Emotional connection between patients and providers improves health outcomes while in the hospital, and lack thereof is detrimental. However, the emotional labor of nurses is the most undervalued and under-supported aspect of their work in comparison to physical, technical, and serviceable labor. Research has

shown that nurses displaying emotional exhaustion and compassion fatigue are more likely to have increased burnout levels and that these rates are elevated in female nurses. Many studies briefly mention that the assumed reason for this increase in female nurses is due to higher levels of empathy in women. My research seeks to add to the conversation on emotional labor by elaborating on the societal forces that maintain gender binaries, and therefore the devaluation of “women’s work,” or professions that employ more feminine qualities like compassion, warmth, gentleness, tolerance, and sensitivity. I will use methods of literature review and textual analysis, utilizing psychological studies of nurses connecting concepts of empathy, emotional labor, and burnout, along with relevant gender scholarship. Though my focus is on the nursing profession, much of it can be applied to female-dominated professions in general, like teaching and social work.

**C37. “Mending the Broken Basket: The Vitality of the Earth and Kinship Among All Who Breathe in Ghosh’s *The Nutmeg’s Curse* and Hogan’s *People of the Whale*”**

**Time:** 2:40 - 3:00 p.m. | **Location:** Morrie Jones C/D | **Session Type:** Classic

Student Author(s): Amber Eken

Mentored by: Dr. Jonathan Steinwand

In my reading of Amitav Ghosh’s *The Nutmeg’s Curse* and Linda Hogan’s *People of the Whale* I see a common idea concerned with three essential relationships—the relationship between humans and the nonhuman, the relationship between one another as humans, and the relationship between humans and the human beings who have gone before. These relationships are often damaged among people today strongly due to colonialism. By braiding the three relationships into one through the languages of kinship and vitality, we may mend these connections and find ourselves, rewriting what it means to be human in a world so impacted by the history of colonialism. In *The Nutmeg’s Curse*, Ghosh argues that climate change is deeply intertwined with the rise and expansion of Western colonialism. He suggests that we must rethink our relationship with the Earth and with one another through recognizing the vitalism of the planet and listening to the stories of others with empathy, and this may rekindle an understanding of the kinship connecting us all. Hogan’s novel, *People of the Whale*, demonstrates how colonialism has damaged a fictional tribe and their relationships between each other, their ancestors, and the whales they used to hunt and love. One character struggles after returning from war to find himself and connect with those around him. Eventually, he learns to again see the vitality and kinship in the world, listening to the breaths and stories of all beings, and he finds himself through healing the three relationships that were severed through colonialism.

**C38. “Global Narratives, Local Stories: A Collection of Immigrant Narratives in the Journey to Normalizing Cross-Cultural Interaction”**

**Time:** 3:00 - 3:20 p.m. | **Location:** Morrie Jones C/D | **Session Type:** Classic

Student Author(s): Anna Kronbeck

Mentored by: Dr. Lisa Twomey

As the Midwest welcomes more immigrants to local communities every year, engagement between native residents and new members of the area is more important than ever. Many scholars in the area

## COSS 2023 – CONCURRENT SESSIONS

of cross-cultural interaction posit that contact between two groups reduces the prejudice between them. In an exploration of how and why immigrants wish to express their story, and in what ways communication between people of diverse backgrounds unites not only people but also communities, I collected immigrant narratives from Fargo-Moorhead and greater Minnesota communities throughout the summer of 2022. While this project could have been made with the hopes of gathering quantitative results, so many statistics of immigrants are left at that: statistics. The importance of recognizing the human story behind the numbers is often lost. The vibrant culture, perspective, and life that immigrants have brought and continue to bring into our communities is something that must be appreciated, and it all starts with a story. We must understand the barriers that exist between populations to move forward in a united way. Cross-cultural interaction benefits all groups involved by building a sense of unity and safety where differences and similarities can be shared alike. The goal of this project is to discover how to further normalize cross-cultural interaction and rhetoric surrounding it, breaking down barriers and teaching lessons of identity, intersectionality, understanding, and community through stories of twenty individuals from eighteen countries around the world.

### **C39. "Intersectionality in Literature"**

**Time:** 2:40 - 3:20 p.m. | **Location:** Morrie Jones A/B | **Session Type:** Panel

Student Author(s): Qwame Martin

Mentored by: Dr. Amy Watkin

Including more complex intersectional identities in literature, particularly in YA and Children's books, has significant benefits that can promote representation, inclusivity, critical thinking, and social justice. By providing a nuanced and complex portrayal of identity, literature can challenge stereotypes and promote empathy towards individuals with different identities. This can ultimately lead to greater activism and a more just and equitable society. Intersectionality is a concept that acknowledges that a person's identity is shaped by multiple factors, including but not limited to race, ethnicity, gender, sexual orientation, socioeconomic status, and ability. Including more complex intersectional identities in literature, particularly in YA and Children's books, has several significant benefits. In "The Hate U Give" by Angie Thomas, The novel follows and explores themes of race, police brutality, and activism, and features a complex portrayal of black identity. In "Aristotle and Dante Discover the Secrets of the Universe" by Benjamin Alire Sáenz, The novel explores themes of sexuality, race, and masculinity, and features a nuanced portrayal of queer and Latinx identities. In "The Poet X" by Elizabeth Acevedo a novel-in-verse follows and explores themes of religion, sexuality, and family, and features a powerful portrayal of a Latinx girl finding her voice. "The Power of Representation: Queer YA Literature as a Form of Validation for LGBTQ+ Teens" by Zara M. Wilkinson (2021) explores the impact of queer YA literature on LGBTQ+ teens. The study found that queer YA literature can provide validation, affirmation, and a sense of belonging for LGBTQ+ teens, and can also help non-LGBTQ+ teens develop empathy and understanding. The overall goal is to better understand how representations in literature better help students of color with comprehension and belonging within the classroom.

## COSS 2023 – CONCURRENT SESSIONS

### **C40. “The Creative Process of Interpreting Literature in a Second Language”**

**Time:** 2:40 - 3:00 p.m. | **Location:** Integrated Science Center 338 | **Session Type:** Classic

Student Author(s): Oliver Carriere

Mentored by: Dr. Lisa Twomey

Cien Años de Soledad by Gabriel García Márquez was written in 1967 and is one of the most well known Spanish novels ever written. The novel follows the long history of the Buendía family and the fictional town Macando. The book was written in a magical realism style, but has many elements that connect back to real events that occurred in Colombia. The goal of this presentation is to share the improvement in vocabulary that has occurred in the second language as well as display artwork that has been created to represent the different themes present.

### **C41. “Concordia Choir's: An Opportunity of a Lifetime.”**

**Time:** 3:00 - 3:20 p.m. | **Location:** Integrated Science Center 338 | **Session Type:** Classic

Student Author(s): Connie Xiong

Mentored by: Dr. Karla Knutson

Ethnography is the more taking of field research to observe a community of its growing culture, the togetherness of habits, and mutual differences. The very meaning of Ethnography sparked the idea of leads towards Concordia’s well-known Choirs that are entitled ‘best’ in the states. This project consists of the following getting to know better what goes on during the rehearsals and connections between student and teacher, as well as the ongoing development of a community of students singing together despite their differences in education and background. The project consists of the publicity of Concordia’s different choirs and the expectation of each when comparing music and non-music majors. By achieving the information, most of my time was spent joining the choir myself, singing with the choir, and observing them all simultaneously while taking notes. Other methods included were interviews with other members of the different ensembles as an offered perspective of either fresh (Freshmen Choir), communitive (Chapel Choir), or challenging (Concordia Choir). While all held similar keys, all displayed different interpretations of experiences between two other conductors. Overall, by gathering all information, there will be a gap opening of a new opportunity to understand better why Concordia choirs are seen as a “once in a lifetime” opportunity and why many students see the choir as a bonding experience.

### **C42. “Topography, Soil, Vegetation, and Air Temperature Study of Lifjell in Bø i Telemark, Norway”**

**Time:** 2:40 - 3:00 p.m. | **Location:** Integrated Science Center 301 | **Session Type:** Classic

Student Author(s): Rachel Andersen

Mentored by: Dr. Bryan Bishop

Alpine ecology is an area of study that focuses on the interactions between organisms and their surrounding environment in the alpine environment. The alpine is defined as the area beyond the tree line, usually higher up in mountainous areas where air temperatures are too cold to support tree life. The alpine is also defined by the limited growing season due to prolonged snow cover during the year

(Nagy and Grabherr, 1). Despite the lack of tree life, mosses, lichens, and small shrubs thrive in the alpine. It is these types of vegetation (lichens, mosses, and small shrubs) that characterize alpine ecosystems. Alpine ecosystems are critical environments, as they influence many environmental, economic, and social factors beyond the just alpine ecosystems (Beddrich et al., 2022). Alpine ecosystems are also important because they are hotspots for biodiversity, influence weather patterns, and provide large amounts of freshwater due to melting snow (Nagy and Grabherr, 7). As climate change worsens, studying and protecting alpine environments is becoming increasingly crucial as these areas are critically threatened by global warming. Alpine ecosystems are extremely sensitive to changes in temperature and are therefore good indicators of global warming (Frindte et al., 2019). The goal of this report is to describe field work done at Lifjell, an alpine environment. At Lifjell, topography, soil, vegetation, and air temperatures were studied. Through the field work done at Lifjell, it was found that all four of these elements are highly interconnected and interdependent on each other. The core elements of alpine ecology (topography, climate, snow, soil and vegetation) each play an essential role in the ecosystems and each element has a strong impact on the others. The alpine is a beautifully interconnected ecosystem, and further research must be done to fully understand the complexity of it as well as to protect it from further damages from climate change.

### **C43. “Should I Stay or Should I Grow Now?: Uncovering Auxin’s Role in Phyllotaxy”**

**Time:** 3:00 - 3:20 p.m. | **Location:** Integrated Science Center 301 | **Session Type:** Classic

Student Author(s): Joshua Weber, Katie Waugh

Mentored by: Dr. Mallorie Taylor-Teeple

By understanding how plants grow and organize themselves, we can unlock an opportunity to increase crop yield as a way to fight hunger. In this study that took place over the summer of 2022, we endeavored to use CRISPR-Cas9 and RNA interference to alter several Aux/IAA repressor proteins and upset the auxin pathway in two model organisms: the weed *Arabidopsis thaliana* and the grass *Brachypodium distachyon*. The auxin pathway involves the degradation of Aux/IAA repressor proteins to then activate specific developmental pathways at precise times and places within the plant, effectively driving the process of phyllotaxy. If we can disrupt a plant's normal auxin pathway and observe the changes, we can take a step toward better understanding plant growth and development. In addition to the normal, wild-type versions of *Arabidopsis* and *Brachypodium*, mutant *Arabidopsis* plants that are unable to produce a functional repressor protein were also grown. While these plants resemble non-mutant plants, we hope that breeding plants with multiple non-functional repressor proteins (double or triple mutants) will show a change in phyllotactic patterning. Complimenting this work, we endeavored to use CRISPR-Cas9 to genetically modify the plants' repressor proteins and prevent their degradation in response to auxin. Additionally, we engineered a way for a key repressor protein to escape RNA interference, further disturbing how auxin functions within the plant. Our work is done in the hope of altering the precise timing of the auxin, which may seem counterintuitive to our goal; however, by taking this initial step of disruption, we aspire to learn even more about phyllotaxy and auxin which brings us closer to the goal of improving crop yield by controlling plant organization.

### **C44. “Evaluating the Rhetorical Messages of Post-Graduate Workplaces using a Narrative Criticism Framework”**

**Time:** 2:40 - 3:20 p.m. | **Location:** Integrated Science Center 260 | **Session Type:** Panel

Student Author(s): Rachel Hauschildt

Mentored by: Dr. Indira Neill Hoch

In a post-covid workplace, there are two different narratives circulating about the success of a liberal arts education. The purpose of this research is to aid and prepare undergraduate students entering the workforce to understand what skills they will need to be prepared to talk about. Through the use of the Narrative Criticism framework, these narratives are evaluated on the effectiveness of their rhetorical messages. Various popular media articles, researched and peer-reviewed sources, and different Liberal Arts Colleges show different messages that confuse recent graduates entering the workforce. In this paper, these sources are compared and contrasted to find the true content of their messages in relation to the objectives of their narratives. Both pre-pandemic and post-pandemic articles are used to fully grasp what skills employers are looking for and what colleges are able to provide. As a result of this rhetoric, colleges are restructuring the measures by which they prepare students for entering the workforce. With all of this confusion, it can be difficult for all members involved to form expectations for students in an ever-evolving post-covid graduate workforce.

### **C45. “Behind the Scenes (A 21st Century Painting)”**

**Time:** 2:40 - 3:00 p.m. | **Location:** Integrated Science Center 201 | **Session Type:** Classic

Student Author(s): Ives Hilgers

Mentored by: Dr. Susan Lee

The creation of this painting seeks to find parallels between films and artists of the past, and how their influence on the art world can inspire current artists in the way we create artworks in the 21st century. The painting is a piece that incorporates elements of impressionism, surrealism, and references to cinema. The process involved in its creation is covered in a presentation format as well as the initial inspiration for the piece, its progression, and the symbolism and surreal elements incorporated in the artwork. In specific, I will be focusing on research done about Edward Hopper’s interiors and his voyeuristic view into people’s personal space and how we see their introspection. Additionally, I will speak about impressionist Edgar Degas's use of color and his concept of capturing performances. Finally, I will be looking into Federico Fellini’s film “La Strada” about nomadic life and performing for the crowd. The research for this painting was done by looking through many images of paintings by the two mentioned artists, and by reading books pertaining to the creation of "La Strada", the primary inspiration for the piece. The progression of the painting was shown by taking photographs at different stages of the painting, all the way until its completion. The result is a painting that is of the 21st century that speaks of now but shows references to past artists.

### **C46. “Philip Roth’s “Defender of the Faith” through a Double Consciousness Lens”**

**Time:** 3:00 - 3:20 p.m. | **Location:** Integrated Science Center 201 | **Session Type:** Classic

Student Author(s): Elizabeth Naugle

Mentored by: Dr. James Postema

Philip Roth’s short story “Defender of the Faith” appeared in his first collection of stories, *Goodbye Columbus*. Through research, Gillian Steinberg addresses one source for “Defender of the Faith,” which is a story of four sons from the Jewish Haggadah. Steinberg shows how Roth modernizes this traditional story, but only for readers familiar with Judaism; readers who don’t know the Haggadah would completely miss this aspect. This leads me to look at “Defender of the Faith” through a Double Consciousness lens, a concept identified by the early African American sociologist W.E.B. Du Bois. Double Consciousness is known for “twoness” of identity or belief. Looking through Roth’s “Defender of the Faith” in a Double Consciousness lens, we can see that Roth is creating this work for two audiences: the surface level of the story for a general audience, and his modernized version of the Haggadah for a Jewish audience. Roth’s work demonstrates the reality of Du Bois’ theory and illustrates that it can operate between any pairing of dominant and overlooked cultures.