



Book of Abstracts and Artist Statements



Abstracts and Artist Statements Guide

Listed by Faculty/Department of Study and Student Last Name, Alphabetically

Allied Health and Human Performance

| Student | Title | Format |
|--|--|--------|
| Andrew Eisner, Salia Pethick, Kristin Freh | Development of Chondromalacia Patellae (CP) in Martial Arts Athletes | Poster |

Anthropology / Political Science

| Student | Title | Format |
|------------------|---|--------------|
| Avery Annett | Alienation and Mass Society: An Exploration of The Modern Challenges to the Public Sphere in Hannah Arendt | Presentation |
| Courteney Brown | The Significance of Osteobiographies: Building a Life Narrative for the Individuals buried in the Royal Navy Hospital Cemetery (1793-1822) in Antigua | Presentation |
| Tristan Pederson | A Diachronic Perspective on the Materiality of Fur Trade Beads and Beading | Poster |
| Kennedy Garrett | Gender, Death and Dying in Medieval Europe | Presentation |
| Trisha Singh | Covid-19 Undermines Development in Child Labour | Presentation |
| Aron Tesfazgi | Identifying demographic factors associated with the transmission of COVID-19 in Canada | Presentation |

Biological Sciences

| Student | Title | Format |
|-----------------|--|--------------|
| Alexander Beke | Characterizing Aptamer-Ochratoxin A Interactions: Preliminary Work Towards the Construction of an Aptasensor | Presentation |
| Kyle Blacher | Assessing Neurotransmitter Levels in Zebrafish Brains following differential CO2 exposure through LC/MS Analysis | Poster |
| Noah Brooks | Isolation of Microsatellites from <i>Cypridium passerinum</i> by FIASCO | Presentation |
| Brooke Corbiere | Investigating Inhibitors of a Phosphatase Enzyme | Presentation |
| Quinn Eng | Rattle calls as individual identifiers in the North American red squirrel (<i>Tamiasciurus hudsonicus</i>) | Presentation |
| Erin Flathers | Population analysis of <i>Carcharodon carcharias</i> in localized areas surrounding South Africa using dorsal fin identification | Presentation |
| Jolie Hamel | Screening phytochemical extracts of invasive Albertan weeds for anti-biofilm properties | Presentation |
| Erika Jessen | Assessing the Spread and Establishment of Prussian Carp (<i>Carassius gibelio</i>) in Northern Alberta | Presentation |
| Alana Loutan | Characterization of an aptamer for AFB1: an attempt at aptasensor design and modular end labeling | Presentation |



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|-----------------------|--|--------------|
| Hailey Pon | The Effects of Hemin at Varying Concentrations on the Differentiation in Chronic Myeloid Leukemia (CML) Cell Line K562 | Presentation |
| Jennifer Roth | What northern pike (Esox lucius) stomach contents reveal about post-management community dynamics in Lac La Biche, Alberta | Presentation |
| Brittany Supina | Antimicrobial Screening of Phytochemicals Produced by Albertan Invasive Weeds | Presentation |
| Janine Van Der Linden | Effects of parasites on Cyphoderris monstrossa. | Presentation |
| Brittany Wiseman | Evaluating Gender Inequity in Medicine | Presentation |
| Brittany Wiseman | Identifying the Nuclear Localization Signal of the Arabidopsis Thaliana MADS Box Transcription Factor Flowering Locus C | Presentation |
| Brittany Wiseman | Ethics in research: An overview of universal ethics and the perpetuation of inequality in academia | Poster |
| Brittany Wiseman | Human chronic myelogenous leukemia K562 cells undergo erythrocytic differentiation and cell cycle interruption in response to PMEA (9-(2-Phosphonyl-methoxyethyl)-adenine) | Poster |

School of Business

| Student | Title | Format |
|-----------------|--|--------------|
| Alyssa Antonio | Student Demographic Research Insights for Hive Fit Co. | Presentation |
| Brady Bailey | The Sharing Economy: Do e-scooters make the cut? | Presentation |
| Sabrina Capito | Treat Yourself: Food Delivery Apps and The Interplay Between Justification for Use and Food Well-being | Presentation |
| Cory Efird | 3D Brain Segmentation: Extracting the Shape of the Human Hippocampus from Diffusion Magnetic Resonance Images | Presentation |
| Devon Fjellner | Prevalence of Economic Abuse in Alberta | Poster |
| Landon Kiltz | Copywriter Salary Trends: Past, Present, and Future | Presentation |
| Vasiliki Salmas | Event Essentials Strategic Marketing Plan: Marketing Options for Event Management Services & Software Providers in the COVID Digital Age | Poster |

Child and Youth Care

| Student | Title | Format |
|----------------|---|--------------|
| Elana Beaver | A Course-Based Qualitative Inquiry into the Lived Educational Experience of Child and Youth Care in Becoming More Authentic | Poster |
| Alysha Lakhani | Asian Diaspora and Indigenous Allyship | Presentation |

Computer Science

| Student | Title | Format |
|--------------|--|--------|
| Dylan Miller | Comparing Multiclass AUC ROC Methods | Poster |



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| Laroy Milton | Retinal Segmentation for Glaucoma Diagnosis Using Deep Learning | Presentation |
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Design

| Student | Title | Format |
|---------------------------|---|--------|
| Chloe Anna | MacEwan Book of the Year Design Series: "Foe" | Poster |
| Jay Berg | Album Design: Roya | Poster |
| Kessia Cherkewick | "Peter and Wendy" (Book Design) | Poster |
| Aldricia Chong | Foe Apparel Packaging | Poster |
| Aldricia Chong, et. al | Between Eternities: A Visual Representation of Einstein's Dreams, by Alan Lightman | Poster |
| Vik Chu | 19 April: A Typographic Interpretation of "Einstein's Dreams" by Alan Lightman | Poster |
| Vik Chu | Spectrograms: Record Album Design for Kevin Dean's "Going Down Slow" | Poster |
| Vik Chu | Welcome to the Installation: Package Design for MacEwan's Book of the Year "Foe" by Iain Reid | Poster |
| Vik Chu, et. al | Grasping Eternity: A Visual Representation of Einstein's Dreams, by Alan Lightman | Poster |
| Bridgette Crabbe | Altered Connection (Packaging Design/ Book of the Year "Foe") | Poster |
| Sohee Kim | Music Album Design "Kevin Dean" | Poster |
| Dana Kozak | Blood in the Sink: A Redesign of Foe's Dustjacket | Poster |
| Kennedy Kozak | Going Down Slow - A Snowy Take on Jazz and Blues | Poster |
| Kennedy Kozak | Three Towers Golden Ale - A Refreshing Take on 'Foe' by Iain Reid | Poster |
| Coralie Larochelle | The Adventures of Tom Bombadil — Book Design: Re-Designing Tolkien's "Poems from The Red Book" Into an Illustrated Book | Poster |
| Ashley Le | MacEwan Book of the Year Design Series: "Foe" | Poster |
| Anne Morin | "Where is the Foe" (Packaging / Book of the Year, "Foe") | Poster |
| Carolina Odashima | Chill and Jazz at the Lake: Record Package Design for Roya's "Breath & Being" | Poster |
| Carolina Odashima | Corporation of the Future: Brochure for the Book of the Year "Foe" | Poster |
| Carolina Odashima | Design Activism: Public Intervention to Raise Awareness of White Supremacy | Poster |
| Carolina Odashima, et. al | Lost in Eternity: A Visual Representation of Einstein's Dreams, by Alan Lightman | Poster |
| Alexi Pelly | The Happy Prince and Other Tales Book Design | Poster |
| Joselyn Rose | A Creative Redesign of Daemonologie | Poster |
| Abbey Smith | The Adventures of Sherlock Holmes (Book Design) | Poster |
| Hannah Steffes | "Anthem" By Ayn Rand (Book Design) | Poster |
| Hannah Steffes | Enlightenment (Dust Jacket / Book of the Year, "Foe" by Iain Reid) | Poster |



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| Hannah Steffes | Starry Night (Album Package Design / "Going Down Slow" by Kevin Dean) | Poster |
| Cézanne Trodden | Conscious - Record Cover Design for Roya Yazdanmehr | Poster |
| Cézanne Trodden | I Would Just Go - MacEwan Book of the Year Design Series | Poster |
| Zeus Wong | MacEwan Book of the Year Design Series: "Foe" | Poster |
| Grace Zimmer | "Husband in a Box" (Packaging / Book of the Year, "Foe") | Poster |
| Grace Zimmer | "Tree Rings" (Album Design Competition, Breath & Being Honourable Mention.) | Poster |

Engineering

| Student | Title | Format |
|----------------|--|--------------|
| Meagan Mancini | Development of a Problem-Solving Model from a Multi-Disciplinary Perspective | Presentation |
| Stuart Shelley | Use of Stored Snow for Summer Cooling Loads | Poster |

English

| Student | Title | Format |
|---------------|--|--------------|
| Amy St. Amand | Audience to Allies: Shared Terror and Cinematic Dread in Peele's Get Out (2017) | Presentation |
| Nathan Fuhrer | From Science as Solution to Science as Suspect: The Human-Science Relationship in Science-Fiction Canon | Presentation |
| Eric Huxley | The Marxist and Postmodern Representation of the Subaltern: Capitalist Othering in Richard Wright's Native Son and Aravind Adiga's The White Tiger | Presentation |
| Jaz Ramage | From Uncanny to Un-Haunting or: How I Learned to Stop Worrying and Love the Ghost | Presentation |
| Nooshin Walji | Sexual Violence During Partition in Bapsi Sidhwa's Cracking India and Deepa Mehta's Earth | Presentation |

Fine Arts

| Student | Title | Format |
|--------------------|--|--------------|
| Dylan Cave | Adapting to a virtual work using immersive audio with Copelli-AI | Presentation |
| Abbie Giesbrecht | You made the bed now lay in it | Presentation |
| Fiona Rintoul | Metis Folklore & Game Design | Presentation |
| Gracie Safranovich | Hierarchy of Consumers | Presentation |
| Xiaomei Yang | Poppies, Cultures, and Arts | Presentation |

Gender Studies

| Student | Title | Format |
|----------------|--|--------------|
| Juliana Kaneda | Graphic Sapphics: How Identity Shapes the Stories We See on Screen | Poster |
| Isha Leibel | Discourses of Female Masturbation in Human Sexuality Textbooks | Presentation |



Interdisciplinary Dialogue

| Student | Title | Format |
|-------------------|---|--------------|
| Daniel Beltranena | "Carry On": State Censorship and Denial of Spanish Influenza in Great Britain (1918-19) | Presentation |
| Milo Knauer | The Interdisciplinary Dialogue 2021 Student Photography Contest | Presentation |
| Julia-Rose Miller | A Plague of Racism: An Analysis of the Racialization of the Plague Throughout History | Presentation |

Mathematics and Statistics

| Student | Title | Format |
|-------------------|--|--------------|
| Talia Goa | Analysis of Alberta's Monthly Unemployment Rate 1976 - 2020 | Presentation |
| Anna Klick | In All Directions: Higher Dimensional Arithmetic Progressions in Meyer Sets | Presentation |
| Cassandra Lisitza | Examining Pressure Instability in the Troposphere in a Climate Change Scenario | Presentation |
| Kevin Olafson | Forecasting Amazon Stock Price | Presentation |
| Darren Paetz | The Sums of Integer Powers | Presentation |
| Maryam Saeed | Who doesn't watch Netflix? | Poster |
| Jordan Slessor | Sample Size Determination for Skewed and Heavy-Tailed Distributions | Presentation |

Nursing

| Student | Title | Format |
|--------------|--|--------------|
| Jadyn Scheck | Promoting Positive Change with Blood Glucose Entry Error and Documentation in Acute Care | Presentation |

Psychology

| Student | Title | Format |
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| Nicole Antunes | What lies behind a narcissist's selfie? The Implications of Grandiose and Vulnerable Narcissist's Instagram Usage | Presentation |
| Carley Aquin | Do Incremental Theories of Well-Being and Other Well-Being Beliefs Predict Prosocial Spending? | Presentation |
| Layton Byam | Undergraduate Student Experience of COVID-19 Anxiety: Opinions, Dysfunctional Beliefs, and Anxiety Symptoms | Poster |
| Haley Calder | The Effects of Word Length on Handwriting Perception | Poster |
| Caleb (Morgan) Chomay | Do Narcissists Trust Criminals? Narcissism and Trustworthiness Perceptions | Poster |
| Katie Demuynck | The Role of Psychological Flexibility in the Eudaimonic Activity Model | Presentation |
| Cassandra Elliott | Do Mental Health Apps Influence Stress or Affect in University Students- And Does Personality Matter? | Presentation |
| Darcy French | Unique Circumstances- and Family Stress: Having a Sibling with Prader-Willi Syndrome | Poster |



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| Mattise Gauthier | In the Shadows: Perceptions of In-Person, Phone & Cyberstalking | Poster |
| Ethan Hagen | The effects of microdosing LSD on behaviour in zebrafish (Danio rerio) | Presentation |
| Janine Heber | Individual Identification in American Pika | Poster |
| Miray Helmy | Empathy, Pet-Ownership and Self-Awareness | Presentation |
| Karyl Hidalgo | Associations Among Parental Attitudes on Technology, Digital Literacy, and Children's Learning Outcomes in the 2020 Pandemic | Presentation |
| Marguerite Himmen | Can Stalking Be Used as a Risk Factor in Predicting Rates, Severity, and Frequency of Intimate Partner Violence Recidivism? | Presentation |
| Celina Hulm | Living with Animals and Others During the COVID-19 Pandemic: Impacts on Mental Health | Poster |
| Kathryn Jelly | Barriers to twice-exceptional student engagement during COVID-19: A case-study of factors affecting school engagement | Presentation |
| Juliana Kaneda | A Tale of Tails: The description and potential function of tail-flagging behaviours in Eurasian red squirrels (Sciurus vulgaris). | Presentation |
| Brandon Krebs | Behind the Wall: How Age, Gender, and Type of Violence Influence Perceptions of Intimate Partner Violence | Presentation |
| Jessica Kumar | The Effects of Chronic Lysergic Acid Diethylamide Exposure and Withdrawal in Zebrafish | Presentation |
| Nathan Kyler | A Study of Mindset- Rethinking the Structure of Mindset and How Growth Mindset Interventions are Delivered | Poster |
| Chris Leathem | Sensitivity in Face Perception with Masked Faces | Poster |
| Morgan McCloy | Can singing help me relax? The effect of music on perceived stress | Presentation |
| Emmett McCurdy | Materialism and Awe | Presentation |
| Ada Nieminen | Can't Stress This Enough: Can Biofeedback Increase the use of Stress Interventions? | Presentation |
| Hadla Omar | If You Change Your Mind: Relationship Between Implicit Theory and Materialism | Poster |
| Sydney Parkinson | Longitudinal Examination of Causal and Maintaining Dysfunctional Beliefs in Generalized Anxiety Disorder | Poster |
| Sarah Piers & Rosalia Scavuzzo | The Phrase "Committed Suicide" is Judged as More Applicable to Suicides Depicted as Immoral | Poster |
| Jade Radke | Using TAGteach to Increase Creative Play Behavior in Children with Autism | Presentation |
| Ronak Rai | How Increasing Task Pressure Impacts Narcissistic Admiration and Rivalry | Poster |
| Gabriela Rivas | IDIOMA E IDENTIDAD DE GÉNERO: IS LIFE SATISFACTION INFLUENCED BY GENDERED LANGUAGE? | Presentation |



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| Jill Rogers | Bottoms Up: Interpretations of Consent and Culpability with Alcohol Use in Sexual Assault Scenarios | Presentation |
| Rosalia Scavuzzo | How Has Student Productivity Been Impacted by the Covid-19 Pandemic? | Poster |
| Sam Smith-Ackerl | Comparing the Role of Sexual Practice in Shaping Perception of Consent and Cue Interpretation | Poster |
| Sam Smith-Ackerl | Examining the Effect of Mask Use on Speech and Face Perception | Poster |
| Brianna Soderquist | Exploring How Agentic and Antagonistic Narcissism Affects Scene Recognition | Presentation |
| Shivani Solanki | Anxiety in the Learning Environment | Presentation |
| Samantha Sydor | Rattle calls as individual identifiers in the North American red squirrel (Tamiasciurus hudsonicus): rural vs urban habitat. | Poster |
| Pichomay (Jennel) Taing | The Perception of Gender in Handwritten Words. | Presentation |
| Mackenzie Thomas | Risk Assessment and Criminogenic Needs Based on Sexual Assault Typologies | Poster |
| Mackenzie Thomas, et. al | Perceptions of Community Notifications in Canada | Poster |
| Madison Twa | Crazy and Caucasian? The Influence of Race, Gender, and Crime Variables on Perceptions of Criminal Responsibility | Poster |
| Annalise Walker | Manslaughter Sentencing Disparities Between Aboriginal and Non-Aboriginal Offenders in Canada | Poster |
| Tiffany Unrau | The Role of Metacognitions in Health Anxiety | Presentation |

Physical Sciences

| Student | Title | Format |
|-----------------|--|--------------|
| Jannah Aizon | Messengers from the Asteroid Belt: A Study of Diogenites Northwest Africa 10268 and 7464 | Presentation |
| Nicole Cubacub | Microplastics pollution in sediments of stormwater retention ponds in Edmonton, AB | Presentation |
| Ryan Gallagher | Sorption of trace Ciprofloxacin to environmental media | Presentation |
| Brooklyn Miller | Cataloguing Retrogressive Thaw Slumps along the Old Crow River, YT: Proposing Regional Controls on Retrogressive Thaw Slump Formation and Growth | Presentation |
| Randa Tunalli | Molecular Docking and Dynamics of CePNKP Phosphatase Binding to the ss-5-Mer TCCTC | Presentation |

Sociology

| Student | Title | Format |
|------------------|--|--------------|
| Hazel Gray | Dominant Racial Discourses in Social Media Through the Lens of Black Representation in Film | Presentation |
| Nicole Houle | Research Proposal: A Gender Gap or Gender Difference? Gender and Political Participation in Canada | Presentation |
| Joslin Jefferson | Snapshots of the Youth Climate Strike in 2019 and 2020 | Presentation |



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| Laura Nguyen | Colourblind Racism Discourses in YouTube Review Videos of "Just Mercy" | Presentation |
| Dorothy Reynolds | Challenges and Support for LGBTQ2A+ At-Risk Youth | Presentation |
| Dorothy Reynolds | How Those with Close Connections with LGBTQ2S+ Talk About That Community | Presentation |
| Elaine Tran | #StopAsianHate: A Critical Discourse Analysis of Anti-Asian Racism During the COVID-19 Pandemic in Online Canadian News Media | Presentation |
| Christine Zolondek | Mothering During the COVID-19 Pandemic | Presentation |



Abstracts and Artist Statements

Allied Health and Human Performance

Development of Chondromalacia Patellae (CP) in Martial Arts Athletes

By Andrew Eisner, Salia Pethick, Kristin Freh

Attention to the development of Chondromalacia Patellae (CP) in endurance and aerobic athletes has developed, yet its progression in martial arts and anaerobic activities remains overlooked³. Chondromalacia Patellae characterized by the degeneration of cartilage behind the patella through excessive wear on the patellofemoral joint. This wear is a result of imbalanced and improper mechanics of the knee, hip, and foot in the greater kinetic chain^{4,5}. Although cases of CP progression are well documented, its progression in non-aerobic athletes has not been granted the same attention³. Indiscriminate cartilaginous degeneration in aerobic and non-aerobic athletes ensues from universal mechanics of the musculoskeletal system⁴. Likened to how aerobic athletes are affected, repetitive stresses exerted on the body in martial arts can ultimately result in CP if an athlete's body is compromised by vulnerable mechanics of the kinetic chain³. Chondromalacia Patellae is insidious as it develops in subtle misalignments of obscured joint structures²; although martial artists and runners are exposed to different stresses and actions, they share the same kinetic relationships intrinsically governed by the musculoskeletal system. Functional, therapeutic, and morphological studies conclude CP is a chronic structural affliction. Imbalances of muscular strength, ligamentous integrity, and bone morphology each contribute to excessive pressure which causes cartilage wear and chronic knee pain associated with CP⁵. Its severity can be mitigated, or its progression reversed through correcting improper mechanics. Surrounding musculature can be strengthened to manage structural or functional imbalances through isotonic resistance training, isometric exercises, and isokinetic rehabilitation^{1,2,5}. In addition to functionally balancing the patellofemoral joint, stabilization of the knee and the kinetic chain can be achieved with patellar tracking sleeves, orthotics, or a variety of surgical modalities⁵. Further study needs to be directed towards diversifying current understandings of CP beyond aerobic athletics, and martial arts provides a frontier where this can be achieved.

Department: Allied Health and Human Performance
Faculty Mentor: Dr. Dave Kato

Anthropology / Political Science

Alienation and Mass Society: An Exploration of The Modern Challenges to the Public Sphere in Hannah Arendt

By Avery Annett

As one of the most seminal thinkers of the 20th century, Hannah Arendt is often commended for her immense contributions to the discourses surrounding politics, technology, and the ways in



which human interaction has been altered by or has itself altered these concepts. Arendt lived during an era in which countless institutions and ways of understanding the world were challenged, adapted, or destroyed, allowing her to have an especially astute understanding of what it meant to live in the “modern” age. Though Arendt does not seem to form a solitary systemic political philosophy throughout her works, there are numerous facets of thought that appear time and time again throughout her larger arguments. Of these consistent concerns, Arendt develops extensive theories on the emergence of what she has deemed “mass society”; this phenomenon, brought forth through decades of progress in technology as well as unexpected political developments, has presented the new and unique concern of what may happen to human beings’ capacity for action in a severely restricted public sphere which is consistently challenged by the transformative and all-absorbing social sphere. Through an exploration of Arendt’s lectures, essays, and capstone works, one may begin to understand the ways in which modernity has challenged the very foundation of political engagement for human beings as well as the resulting consequences for each living being seeking to disclose themselves as an individual.

Major: Honours Political Science
Minor: English
Faculty Mentor: Dr. Gaelan Murphy

The Significance of Osteobiographies: Building a Life Narrative for the Individuals buried in the Royal Navy Hospital Cemetery (1793-1822) in Antigua

By Courteney Brown

To better understand the past holistically, osteobiographies provide an excellent framework for bioarchaeologists. Through building an osteobiography, many lines of evidence need to be analyzed, such as the mortuary, social and historical context of a site, and skeletal data. This paper looks at multiple lines of evidence required to build an osteobiography, using a cemetery in Antigua as a case study. In Antigua, a site on the English Harbour was excavated from 1998-2001, where 30 suspected naval soldiers were buried. This site was located behind a Naval Hospital that ran from 1793-1822 AD during the Napoleonic Wars. Many researchers have studied this site since 2001, attempting to learn more about the history of this site, considering there was little historical documentation recovered. While using the Antigua cemetery as a case study, I will expand on how different lines of evidence are used to analyze the geographic origins of individuals, skeletal data, and the social, mortuary, and historical context of the site. The objective of this paper is to discuss the significance of osteobiographies to bioarchaeology, while highlighting some of the limitations associated with creating osteobiographies.

Major: Honours Anthropology
Minor: Biological Sciences
Faculty Mentor: Dr. Treena Swanston



A Diachronic Perspective on the Materiality of Fur Trade Beads and Beading

By Tristan Pederson

Glass trade beads were common items of the historical North American fur trade. This paper focuses on better contextualizing glass beads in trade, in fur trade society, and to fur trade archaeology, using a small assemblage excavated from a Nadleh Whut'en house near to Fort Fraser, British Columbia. While beads were not essential to the physical survival of their Indigenous recipients, they were useful to the European traders in establishing reciprocal relationships vital to their success and survival. In fur trade society, glass trade beads were items of materiality that came to be entangled with events, experiences and Indigenous women's identity. They may thus be useful for further understanding Indigenous women who were excluded from primary historical documents.

Major: Anthropology

Minor: Gender Studies

Faculty Mentor: Dr. Paul Prince

Gender, Death and Dying in Medieval Europe

By Kennedy Garrett

This presentation will examine three medieval mystics; Hadewijch, Marguerite Porete, and Meister Eckhart; Christian mystics who wrote about death during the high and late Middle Ages, specifically the idea of self-annihilation. And how this idea was influenced and influenced gender in Medieval Europe. These three mystics share many similarities as they all dealt with the idea of self-annihilation, albeit in different way, and they all wrote and or preached in the vernacular of the area in which they lived. Despite the similarities between these figures they each came to a very different fate. This presentation will explore why that was the case, the difference in their ideas and how these ideas were influenced by gender.

Major: History

Minor: English

Faculty Mentor: Dr. Sean Hannan

Covid-19 Undermines Development in Child Labour

By Trisha Singh

The following independent study seeks to research specific countries that are known to have high amounts of child labour such as Bangladesh, Ethiopia and Ghana as a form of compiled case studies. The different countries were selected because of the different industries of child labour that they are involved in such as textiles, mining and chocolate farming. Information will be gathered through a variety of reliable sources and scholarly reports. Due to the broad scope of this topic, investigation will also be done in the gender disparities and the role globalized supply chains play in the issue to determine their significance. This topic will be explored



through the constructivist framework through the Norm Cycle Theory as to how these practices have become endorsed in these developing countries. By attaining the knowledge on the major contributions to child labour, examinations will be given to how Covid-19 regresses the progress that has been made to combat against child labour. All in all, this topic is crucial for it is a direct indicator of the progress a country is making towards development. Furthermore, child labour is a demand on the human rights of these children who have had their opportunities stolen from them.

Major: Honours Political Science
Faculty Mentor: Dr. Chaldeans Mensah

Identifying demographic factors associated with the transmission of COVID-19 in Canada

By Aron Tesfazgi

Since the 2019 eruption of the COVID-19 pandemic, behavioral and health related issues have impacted people significantly. As a result, mortality and morbidity rates have increased. Therefore, for my project I am looking at the impact of COVID-19 on specific socio-demographic factors in Canada, such as age group, biological sex, and location. I am also looking at how transmission patterns of COVID-19 have unfolded across all Canadian provinces and how these patterns are linked to human behaviors that have changed as a result of public health restrictions that have either been followed (isolating, mask wearing, social distancing, washing and sanitizing hands) or ignored (socializing and circulating misinformation about the pandemic). A preliminary assessment of the data revealed that COVID-19 cases increased significantly in Canada between October 16th (N= 2767) and November 30th (N=4924). During this time, more males became infected, especially in the age group 70-80 years. In conclusion, I will discuss the limitations of this research and the potential ways to reduce the outbreak.

Major: Honours Anthropology
Faculty Mentor: Dr. Treena Swanston

Biological Sciences

Characterizing Aptamer-Ochratoxin A Interactions; Preliminary Work Towards the Construction of an Aptasensor

By Alexander Beke

Ochratoxin A is a secondary metabolite of Fungi that is correlated to kidney and liver damage, along with immune suppression, developmental defects, and cancer progression. Often, Ochratoxin A can be found as a contaminant of foods like barley, oats, rye, wheat, coffee beans, and wine. Given its many negative qualities, it is necessary to identify Ochratoxin A, to ultimately remove it from common household consumables. Currently, antibodies are used to



identify Ochratoxin A, however, an alternative detection method employs aptamers in conjunction with a detection method like chemiluminescence or fluorescence (among others). Aptamers are single-stranded nucleotide sequences that bind to a specific ligand. In this study, a previously characterized aptamer that detects Ochratoxin A is used, and the aptamer-toxin interactions were assessed, with the intention of adding a DNase sequence to the oligonucleotide, to enable toxin-detection. Native and denaturing gels were used to determine whether aptamer-toxin interactions alter the nucleotide's running speed – no significant results were acquired. Similarly, the aptamer was titrated with Ochratoxin A (0X, 2.5X, 5X, 10X, and 20X) and run on a native gel; even the largest concentration of Ochratoxin A (20X) did not change the nucleotide's running speed. Next, an absorption spectrum was produced using the toxin titration concentrations - results were inconclusive. DMS probing was performed using the toxin titration concentrations to characterize the binding of guanine residues within the aptamer to Ochratoxin A. With the aptamer-toxin interactions characterized, future research can construct the aptamer-DNase oligonucleotide and test its ability to detect the toxin's presence.

Major: Honours Biological Sciences
Faculty Mentor: Dr. Nina Bernstein

Assessing Neurotransmitter Levels in Zebrafish Brains following differential CO₂ exposure through LC/MS Analysis

By Kyle Blacher

Neurotransmitters are endogenous chemicals that enable neurotransmission, which is the transmission of nerve impulses between neurons, or a neuron and a muscle fiber or other structure. Therefore, neurotransmission is important in affecting actions as well as behaviours and it is crucial that the balance of neurotransmitters is maintained in an organism for proper functioning. Climate change is increasing atmospheric concentration of carbon dioxide (CO₂) at a drastic rate. This has led to a cascade of negative effects, one of which is the absorption of CO₂ into aquatic systems resulting in a decrease in pH and turning the water more acidic. Previous studies found that zebrafish exhibit increased anxiety-like behaviour when exposed to increased levels of CO₂. To determine if the changes in anxiety-like behaviour observed were due to alterations in neurotransmitter levels induced by the increased concentrations of CO₂, this project will quantify the concentrations of various neurotransmitters in the brains of these CO₂ exposed zebrafish. We will use high performance liquid chromatography to separate neurotransmitters based on chemical properties, paired with mass spectrometry to quantify neurotransmitter concentrations. Comparison between the neurotransmitter concentration profiles and the observed behaviour will not only help better the understanding of the effects of acidification on zebrafish behaviour, but the potential impacts of acidification caused by climate change on other aquatic organisms as well.

Major: Biological Sciences
Minor: Chemistry
Faculty Mentor: Dr. Matthew Ross



Isolation of Microsatellites from *Cypripedium passerinum* by FIASCO

By Noah Brooks

With the current rate of biodiversity loss in plants, it is essential to develop and combine in situ and ex situ methods for an integrated approach to plant conservation. Central to integrated conservation approaches is the necessity for assessing genetic diversity within the threatened population. Among the tools available to assess genetic diversity is microsatellite analysis. Microsatellites are variable number tandem repeats, or short repetitive sequences, that are useful due to their abundance within the genome, high mutation rate, and high levels of polymorphism. This project aimed to develop microsatellite markers for the vulnerable orchid, *Cypripedium passerinum*, for the purpose of assessing genetic diversity in populations within the Wagner Natural Area, Alberta, Canada. Fast Isolation by AFLP of Sequences Containing Repeats (FIASCO) was used to generate an (AC)_n microsatellite enriched library from DNA samples of *C. passerinum*. A total of 84 clones from this library were isolated for sequence analysis to identify inherent microsatellite sequences. Primers designed to amplify the identified microsatellite sequences will be useful tools in assessing the genetic diversity of *C. passerinum* populations and can be applied to closely related species such as *C. pubescens*. Such genetic diversity assessment will inform conservation efforts of this threatened terrestrial orchid species.

Major: Honours Biological Sciences
Minor: Anthropology
Faculty Mentor: Dr. David McFadyen

Investigating Inhibitors of a Phosphatase Enzyme

By Brooke Corbiere

Alkaline phosphatases are enzymes responsible for dephosphorylation of phosphate monoesters. They are involved in numerous biological processes but play a particularly important role in bone development and liver function. Abnormal levels of these enzymes can have detrimental effects on the corresponding processes. This study involved enzyme kinetic studies on bovine alkaline phosphatase to test the effects of substrate and enzyme concentrations, pH, and the addition of known and novel inhibitors. Increased substrate and enzyme concentrations increased the rate of catalysis and allowed for the determination of kinetic constants; K_m and V_{max} . The optimal pH was determined to be approx. 10, and from comparison of rates of catalysis between uninhibited and inhibited assays, the mode of inhibition was determined to be competitive for the known inhibitors: EDTA and phosphate. Several novel thiazole-based inhibitors with different substitution patterns were also synthesized and tested for their efficacy.

Major: Biological Sciences
Minor: Chemistry
Faculty Mentor: Dr. Tina Bott



Rattle calls as individual identifiers in the North American red squirrel (*Tamiasciurus hudsonicus*).

By Quinn Eng

The rattle calls of North American red squirrels (*Tamiasciurus hudsonicus*) have been theorized to serve as signals of aggressive territorial intent. These calls are produced by males and females periodically when another is trespassing within the territory or in response to another rattle. However, sometimes individuals rattle in the absence of any obvious stimuli. An alternative explanation for the red squirrel's rattle call is the need to self-identify, which is often crucial to minimize costly encounters with neighbour and stranger conspecifics, as well as potentially identify intruders and mates. Individual squirrels were trapped and released, at Whitemud Creek, in various locations both within and outside of territory boundaries. Upon release squirrels were monitored for 10 minutes and all rattle vocalizations were recorded. Results indicate that squirrels reliably produced calls, within 10 minutes of release, both within and outside of their territory. These results suggest that the rattle call may function as a form of self identification and not predominantly as an aggressive territorial call.

Major: Biological Sciences

Minor: Physical Science

Faculty Mentor: Dr. Shannon Digweed

Population analysis of *Carcharodon carcharias* in localized areas surrounding South Africa using dorsal fin identification

By Erin Flathers

The great white shark (*Carcharodon carcharias*) is a marine apex predator with a global distribution. In recent years, the number of white sharks has drastically declined as a consequence of anthropogenic activities such as illegal/targeted fishing, bycatch, and habitat disruption. Until recently, research on sharks has been lacking, resulting in an information gap on shark populations. This study aims to analyze the current population distribution of white sharks in the wild, to fill the research gap on white shark data, and to use this information to inform policies makers for improvements in white shark conservation measures. White shark population distribution between Gansbaai, Struisbaai/De Hoop, Mossel Bay, and Algoa Bay, South Africa, will be estimated using dorsal fin identification, in which dorsal fin photos taken of sharks encountered in the area will be organized into a coded database for matching the presence of the same animals in different areas. The anticipated outcome of this study is an indication of the population dispersal along the South African coastline, to promote knowledge based improvement of existing marine conservation and fishing management strategies.

Major: Honours Biological Sciences

Faculty Mentor: Dr. Ross Shaw



Screening phytochemical extracts of invasive Albertan weeds for anti-biofilm properties

By Jolie Hamel

Biofilms, complex bacterial communities encased in a secreted matrix, are highly pervasive and problematic in health care settings. This lifestyle allows bacteria to anchor in a particular location and provides high intrinsic antibiotic resistance to the biofilm community, rendering biofilm infections difficult to remove once established. Effective anti-biofilm compounds for clinical use are lacking and are urgently needed. Plants may be an excellent natural source of anti-biofilm compounds given the prevalence of phytochemicals used as a defence mechanism. However, despite their rich phytochemical diversity, plants, and invasive weeds especially, have remained understudied for their anti-biofilm properties. In this study, we screened phytochemical extracts from invasive Albertan weeds for anti-biofilm properties against *Escherichia coli*, *Bacillus licheniformis*, *Pseudomonas aeruginosa*, and *Staphylococcus aureus* biofilms by testing the capability of the plant extracts to inhibit biofilm formation. Single-species adherent biofilms were grown in liquid culture in 96-well microtiter plates, and were exposed to increasing concentrations of a single plant extract during biofilm formation. To quantify total biofilm biomass, biofilms were stained with crystal violet and absorbance was measured at 595 nm. Preliminary analysis identified novel anti-biofilm activity in tested extracts, including an ethyl acetate extract from Leafy Spurge flowers and leaves. This work will contribute to existing knowledge of phytochemicals with anti-biofilm properties, which can be further developed into therapeutic treatments. In addition, this project provides preliminary identification of these compounds in invasive Albertan weeds, laying the groundwork for future studies on these extracts.

Major: Honours Biological Sciences
Faculty Mentor: Dr. Kimberley Harcombe

Assessing the Spread and Establishment of Prussian Carp (*Carassius gibelio*) in Northern Alberta

By Erika Jessen

The Prussian carp (*Carassius gibelio*) has proven to be a dangerous invasive freshwater fish species. Native to Asia and eastern Europe, it has since come to dominate many of the lakes, ponds, rivers, and streams of Europe and Asia, causing a swath of ecological damage by outcompeting native taxa, degrading environmental conditions, and reducing biodiversity. Within the last two decades, the Prussian carp has also been introduced into Alberta and has since spread into the province's rivers and lakes, including the Red Deer, Bow, and South Saskatchewan river systems Lacombe lake. Most research relating to Prussian carp distribution in North America has focused exclusively on water bodies in southern Alberta. My ongoing undergraduate research project seeks to expand the search for Prussian carp into northern Alberta, specifically the lakes and ponds in the Edmonton area, using both visual and molecular



methods. The visual method involved the use of a Trident Underwater Drone to collect video footage of 12 ponds and lakes in the Edmonton, St. Albert, and Beaumont jurisdictions during the spring and summer months of 2020. 4 lakes and ponds of particular concern were further selected to undergo environmental DNA (eDNA) analysis wherein two water samples were taken from each pond or lake and run through a 0.2 μm pore Cellulose Nitrate filter. The filters were m pore Cellulose Nitrate filter. The filters were then sent off to a lab at the University of Alberta to determine if Prussian carp and Goldfish DNA is present in the water samples collected. From the drone footage, several native fish taxa were observed in the surveyed water bodies. Additionally, there was no solid indication that any invasive fish species, including Prussian carp, were present. The results of the eDNA analysis similarly indicate that the absence of Prussian carp from the areas sampled. Put together, these results suggest that Prussian carp have yet to spread into northern Alberta. These finding ultimately highlight the role anthropogenic vectors have in the spread of Prussian carp, as well as the continued need to enact and enforce laws and policies that will slow their spread across the province.

Major: Honours Biological Sciences

Minor: Anthropology

Faculty Mentors: Dr. Mrinal Das and Dr. Ross Shaw

Characterization of an aptamer for AFB1: an attempt at aptasensor design and modular end labeling

By Alana Loutan

Aptamers are nucleic acid-based ligand binding molecules that are capable of strong and specific binding to small molecule, protein, or whole cell ligands. These versatile nucleic acids can be paired with visualization techniques to create sensors which are aptly named aptasensors. This research project was aimed at developing a colorimetric DNA-based aptasensor for the detection of aflatoxin B1 (AFB1) by pairing it with DNAzyme in a same-strand split design. To properly design the aptasensor, characterization experiments were carried out. These included a native gel to test for conformational change, UV absorption spectra, and DMS probing. The native gel and UV absorption spectra were low in resolution and did not provide valuable information regarding conformational change. DMS probing is a type of fingerprinting experiment that allowed for the elucidation of AFB1 binding sites on the aptamer. An end-labeling technique was required for the DMS probing. Since MacEwan University is not equipped for radioactive end labeling, a modular fluorescent labeling technique was developed. This technique involved a 5'-fluorescently labeled "probe" molecule ligated to the aptamer by use of an adaptor oligonucleotide (complementary to both the probe and 3' end of the aptamer), T4 PNK and T4 DNA ligase. Overall, our end labeling technique was functional and DMS probing allowed for aptamer characterization, but time did not allow for the aptasensor to be designed and tested. Now that the aptamer has been characterized, aptasensor design and testing may be carried out in a future project and the end labeling technique may be used in future aptamer research.



Major: Honours Biological Sciences
Minor: Chemistry
Faculty Mentor: Dr. Nina Bernstein

The Effects of Hemin at Varying Concentrations on the Differentiation in Chronic Myeloid Leukemia (CML) Cell Line K562

By Hailey Pon

Chronic myeloid leukemia (CML) results from a chromosomal abnormality that leads to uncontrolled division of red blood cell precursors. Typically, these cells undergo erythrocytic differentiation during the production of new blood cells. However, due to uncontrolled cell division, these immature and non-functional cells are unable to undergo differentiation and, as a result, build up in the bone marrow. Hemin, a compound derived from blood, has been shown to induce differentiation in CML cells stopping their uncontrolled division by making these cells mortal. This study aimed to further characterize hemin and determine the optimal concentration that can induce differentiation in a CML cell line, K562, as evidenced by an increase in the expression of the molecular marker gamma-globin. To identify the optimal hemin concentration, the rate of proliferation and the level of gamma-globin expression were monitored in response to hemin concentrations of 20 μM , 40 μM , 60 μM , and 80 μM with DMSO or dilute NaOH as the solvents. We performed a growth curve analysis and assessed the level of hemoglobin expression using benzidine staining. A clear trend was observed for hemin in DMSO, showing that concentrations of 40 μM and higher decreased cell proliferation and viability. In addition, an increase in benzidine staining was seen between DMSO and 20 μM hemin, indicating elevated levels of hemoglobin expression. To verify that the observed increase in hemoglobin level corresponds to increased expression of gamma-globin, western blotting was used. Overall, it was determined that the optimal concentration for hemin to induce differentiation in K562 cells may be solvent-dependent but falls between 20 μM - 60 μM . These findings will help characterize differentiation therapy as an alternative treatment for CML, in which cells are induced to undergo differentiation and then controlled cell death. This development is important since current treatments (Imatinib and related compounds) are susceptible to loss of efficacy due to the development of drug resistance.

Major: Biological Sciences
Minor: Psychology
Faculty Mentor: Dr. Nina Bernstein

What northern pike (*Esox lucius*) stomach contents reveal about post-management community dynamics in Lac La Biche, Alberta

By Jennifer Roth

Predator density within freshwater lakes is often manipulated to restore commercially important species; however, such management may inadvertently result in dietary shifts of existing predator populations. The 2005 Fisheries Restoration Program in Lac La Biche, Alberta, was



established to recover walleye (*Sander vitreus*) populations through both bird culls and intensive stocking. Although walleye abundance increased dramatically, other dominant piscivores' responses to management actions, namely the Northern pike (*Esox lucius*), were less clear. To avoid high interspecific competition for prey fish, pike may shift their diets to incorporate a greater abundance of invertebrates. However, the overall importance of invertivory is community-dependent and remains understudied. To elucidate how pike feeding and community interactions have changed in response to management in Lac La Biche, a stomach content analysis was performed on 121 pike stomachs sampled during Fall Walleye Index Netting Surveys between 2009 and 2013. Piscivory was the most common feeding style (34.1% \pm 4.7% SE), with yellow perch (*Perca flavescens*) and coregonids the most common prey. Invertivory and mixed-feeding remained relatively uncommon and stable (4.6% \pm 2.1% SE and 16.3% \pm 2.6% SE, respectively). Although invertebrates represent a valuable supplement, pure invertivory as a specialization remains uncommon in this population during the sampled years.

Major: Honours Biological Sciences

Faculty Mentors: Dr. David Locky and Dr. Mrinal Das

Antimicrobial Screening of Phytochemicals Produced by Albertan Invasive Weeds

By Brittany Supina

Antibiotic resistance has rendered many clinically-used antibiotics ineffective, creating an urgent need for new antimicrobial agents. Phytochemicals (secondary metabolites produced by plants) are produced in response to environmental stressors, and can inhibit the growth of bacteria, fungi and surrounding plants. Therefore, these phytochemicals offer an alternative source of antimicrobial compounds. The diversity and abundance of phytochemicals produced by plants can increase during the invasion of new habitats, making invasive weeds strong candidates for antimicrobial discovery. Despite this increase in phytochemical production, invasive plant species are often overlooked in favour of medicinal and edible plants, and few studies have characterized their antimicrobial activity. In this research, we used successive Soxhlet extractions with hexane, ethyl acetate, and methanol to extract the phytochemicals from Albertan invasive weed species collected from the Edmonton area. Using Kirby-Bauer disk diffusion assays, extracts were assessed for their ability to inhibit the growth of tester bacterial species including *Escherichia coli*, *Bacillus subtilis*, *Pseudomonas aeruginosa*, and *Staphylococcus aureus*, which represent a range of common pathogens and bacterial types. Preliminary characterizations of extracts from multiple plant species, including common tansy (*Tanacetum vulgare*) and woolly burdock (*Arctium tomentosum*), showed promising inhibitory activity against several bacterial species, warranting further investigation. This study provides a starting point for further bioactivity and chemical characterizations of Albertan invasive weeds and highlights these invasive plant species as potential leads for the development of new antimicrobial treatments.

Major: Biological Sciences



Minor: English and Chemistry
Faculty Mentors: Dr. Kimberley Harcombe and Dr. Tina Bott

Effects of parasites on *Cyphoderris monstrossa*.

By Janine Van Der Linden

Parasitism is the most successful feeding strategy in nature with an estimated 50% of species being parasitic. Gregarines are endoparasites living mostly in the midgut of invertebrates. Gregarines can have a positive and/or negative effect on its host depending on various factors such as environmental conditions. *Cyphoderris monstrossa*, an orthoptera, has a mating strategy in which the female feeds on the hind wings of males during mating. This mating strategy has shown to be energetically costly to males. Parasitism is also costly to species and combined with a costly mating strategy can be deadly to a species. Gregarines are very host specific and to date no research has been done on parasitism in *Cyphoderris monstrossa*. This study determined what effects these parasites have on male *Cyphoderris* in terms of 1) their body size, 2) body condition in terms of weight, 3) spermatophore production, and 4) their attractiveness. Since damaged hindwings indicate mating success, an increase in damage can indicate male attractiveness and thus can be used to determine the effects of parasites on male attractiveness. Thirty-seven specimens were measured and dissected and found that 37% of specimens were infected with infection ranging between 1 and 88000 and was determined that gregarines infect the digestive tract, specifically the midgut and into the hindgut. This study determined that gregarines do not affect the overall size, attractiveness, body condition, and spermatophore production of *Cyphoderris monstrossa*.

Major: Biological Sciences
Minor: Earth and Planetary Science
Faculty Mentor: Dr. Kevin Judge

Evaluating Gender Inequity in Medicine

By Brittany Wiseman

I examine the existing inequalities in healthcare and medicine in regards to gendered variation in treatment and access to medical resources or information. My goal of this independent research project is to identify specific areas of healthcare where there is variation in the quality of care received by patients as a result of their gender identity. I have employed an online survey that was distributed to a variety of platforms, with all genders encouraged to participate. The responses from this anonymous survey were compiled and examined in order to identify specific trends and areas of concern within the healthcare system. The survey predominantly consisted of short answer questions that were scored based on severity of response, with those responses then sorted according to the gender identity of the respondent. Special attention was paid to instances of marginalization, unequal access to resources or medical information, and any other form of discrimination, where there was variation in the quality of treatment received in medical settings in response to the gender of the patient. The results from the survey were then



examined in the context of existing literature which discusses inequality in healthcare and medicine, and a statistical analysis was performed based on the data obtained.

Major: Honours - Molecular & Cellular Biology
Minor: Anthropology
Faculty Mentors: Dr. Katie Biittner and Dr. Monica Davis

Identifying the Nuclear Localization Signal of the Arabidopsis Thaliana MADS Box Transcription Factor Flowering Locus C

By Brittany Wiseman

The goal of this undergraduate honours research project is to design a research strategy to identify the Nuclear Localization Signal (NLS) of the Arabidopsis thaliana MADS box transcription factor Flowering Locus C (FLC), and to begin the cloning and plant transformation of key controls required for this objective. Nuclear localization of proteins requires a specific amino acid sequence, called the Nuclear Localization Signal (NLS). The NLS of FLC has not yet been characterized, though previous work on Arabidopsis has established conserved structural-functional domains within FLC. The NLS within other MADS box proteins varies in its specific sequence, but is generally located within the MADS box domain around the N-terminal region of the polypeptide, which is a conserved region amongst MADS box proteins. I have created an FLC gene construct to be used with the GreenGate cloning system which will ultimately serve as a positive control showing nuclear localization in planta. I have also established the components necessary for the creation of a negative control line of Arabidopsis expressing GFP alone, which is not expected to nuclearly localize. Finally, I have completed a literature review to explore the existing understanding of NLS structure in general, in MADS box transcription factor proteins, and in other plant transcription factors, to propose mutations that might disrupt the NLS sequence within FLC. This work aims to fill a knowledge gap in regards to the mechanism of nuclear localization of FLC and will ultimately contribute to our understanding of nuclear localization in general.

Major: Honours - Molecular & Cellular Biology
Minor: Anthropology
Faculty Mentor: Dr. Melissa Hills

Ethics in research: An overview of universal ethics and the perpetuation of inequality in academia

By Brittany Wiseman

Ethics govern how research can be conducted, though there are limitations to how effective codes of conduct can be in ensuring that research practice is truly ethical in all situations. Though practices have improved, there are several considerations that must still be met to ensure that research is both beneficial and respectful to all involved. The historical lack of repercussions that have accompanied Western research practice has functioned to further disadvantage certain groups, such as Indigenous People, People of Color, and women, and has



allowed for sexism, harassment, and discrimination to continue. This research project addresses the problems associated with “universal” research ethics, the disconnect that exists in the construction and ideological view of ethics between disciplines, and the ways that Western research practice has been shaped, including how the hierarchy present in academic institutions continues to marginalize and disadvantage certain groups of people, with particular emphasis on the perpetuation of racism and sexism.

Major: Honours - Molecular & Cellular Biology
Minor: Anthropology
Faculty Mentors: Dr. Katie Biittner and Dr. Monica Davis

Human chronic myelogenous leukemia K562 cells undergo erythrocytic differentiation and cell cycle interruption in response to PMEA (9-(2-Phosphonyl-methoxyethyl)-adenine)

By Brittany Wiseman

Disruption during cellular differentiation can cause hematopoietic stem cells to proliferate uncontrollably, resulting in the development of cancer. Differentiation therapies are being investigated as a type of cancer treatment which involve inducing agents that promote the differentiation of cancer cells into those with similar properties to normal blood cells. These cells can then undergo apoptosis at an accelerated and controlled rate compared to cancer cells, making this a potential therapeutic technique. In this study, the ability of human chronic myelogenous leukemia K562 cells to undergo cellular differentiation in response to the inducing agent 9-(2-Phosphonyl-methoxy ethyl)-adenine (PMEA) is investigated. PMEA has previously been shown to disrupt cell replication, and promote erythrocytic differentiation in K562 cells. In order to further test the effectiveness of this inducer, cell proliferation was measured with a cell growth curve, hemoglobin presence was measured with benzidine staining, and gamma-globin expression (a protein subunit of fetal hemoglobin) was measured in both induced and uninduced K562 cell cultures via RT-qPCR and western blotting. The results indicate that PMEA slows cell replication, and promotes hemoglobin (and subsequently gamma-globin) expression in treated cells. In summary, the findings support the conclusion that PMEA is able to promote erythrocytic differentiation in K562 cells, and provides information that supports differentiation therapies as a method for cancer treatment.

Major: Honours - Molecular & Cellular Biology
Minor: Anthropology
Faculty Mentors: Dr. Kim Harcombe and Dr. Nina Bernstein

School of Business

Student Demographic Research Insights for Hive Fit Co.

By Alyssa Antonio



An analysis of the viability of captivating post-secondary students within Edmonton to participate at a class-specific fitness institution. The presentation will entail an explanation of the marketing problem, followed by the qualitative and quantitative research design and dedicated solutions found.

Major: Marketing

Faculty Mentor: Fernando Angulo-Ruiz

The Sharing Economy: Do e-scooters make the cut?

By Brady Bailey

Sharing is as old as civilization itself. Corporations are now taking an old idea and creating a strategic model with the help of technology. This modern sharing economy, while having roots in sustainable practices, can often be mistaken as an inherently sustainable business model. In this paper, we present the outcomes of a project on e-scooters as an example that emphasizes the potential impacts and characteristics of a business operating within the sharing economy. To understand and gain public opinion, a survey was conducted gathering 222 responses regarding e-scooter usage in Edmonton, Alberta. Another source of information was the interview with a top executive of Lime Scooters, an e-scooter company operating in Edmonton. We found that while online platforms make resource sharing between peers easier to access, they are not always economically sustainable. Literature review on life-cycle analysis of e-scooters revealed that environmental sustainability is also not ingrained in practice, and careful consideration of business operations is needed to mitigate potentially negative impacts. In addition, thoughtful policies need to be considered and put into place in-order to encourage public and private trust. Overall, the sharing economy can be quite effective in creating a sense of community and social sustainability, but it should not be graded as a wholly sustainable practice without evidence.

Major: Accounting

Faculty Mentor: Dr. Rohit Jindal

Treat Yourself: Food Delivery Apps and The Interplay Between Justification for Use and Food Well-being

By Sabrina Capito

This paper examines the relationship between justification for use and well-being in respect to mobile food delivery apps (FDA). Adopting an interpretivist qualitative approach, the study offers contributions to the FDA and food well-being literature by uncovering four groups of licensing effects that consumers use in justifying FDA use. Those licensing effects can have either positive or negative influence on consumers' well-being depending on the degree to which consumers engage in self-regulation, awareness, and conscious managing of their relationship with food. The study also unravels the importance of dealing with the tensions between FDA use and well-being by shedding light on feelings of guilt and financial anxiety related to FDA use.



Keywords: food delivery apps, licensing effect, justification, food well-being, eudaimonia

Major: Marketing

Faculty Mentor: Dr. Alben Pergelova

3D Brain Segmentation: Extracting the Shape of the Human Hippocampus from Diffusion Magnetic Resonance Images

By Cory Efird

A new protocol for high resolution diffusion imaging of the human brain was recently developed at the Peter S. Allen MR Research Centre. This protocol enables the capture of microstructural details in the hippocampus that are not visible in typical anatomical MRI. We developed a new deep learning network that extracts the hippocampus shape from the diffusion images. This will enable studies on the effects of aging and disease on the hippocampus.

Majors: Computing Science and Math

Faculty Mentor: Dr. Dana Cobzas

Prevalence of Economic Abuse in Alberta

By Devon Fjellner

Introduction Intimate Partner Violence (“IPV”) is an umbrella term, capturing any form of abuse against a current or former intimate partner. A subset of IPV is financial abuse, also known as economic abuse in which abusers deliberately “interfere with their partner’s ability to acquire, use, and maintain economic resources” (Adams et al., 2008, p. 564). To date, most studies explore the phenomenon in the context of male violence against women. Economic abuse enables the male abuser to keep his victim from leaving the relationship and perpetuate other forms of IPV. Economic abuse is a widespread issue with multiple subsets, being economic control, sabotage, and exploitation. In this study, we seek to determine if economic abuse is a gendered issue.

Major: Legal Studies

Faculty Mentor: Dr. McKay White

Copywriter Salary Trends: Past, Present, and Future

By Landon Kiltz

The researchers of this study attempted to learn more about the gender wage gap and why it affects the copywriter industry in particular. This initial inquiry led to testing for potential reasons for this discrepancy in pay such as personality, skills, and education. The target population for the research was copywriting professionals. The sampling for the survey was judgmental which allowed us to design a survey that was more accommodating to questions involving compensation. From our analysis, we confirmed that there is a statistically significant difference between male and female compensation, however, we also determined that years of experience



is highly correlated with a larger salary. After 10 years there is a substantial increase in earnings. This finding is related to the price determinants that are used. High-earning copywriters price their projects based on outputs such as sales revenue generated by the copy.

Major: Marketing

Faculty Mentor: Dr. Fernando Angulo-Ruiz

Event Essentials Strategic Marketing Plan; Marketing Options for Event Management Services & Software Providers in the COVID Digital Age

By Vasiliki Salmas

Our objective was to detect feasible and effective strategic marketing options for our community partner Event Essentials (EE), an event management software provider operating out of California, U.S.A.. These strategic marketing options were chosen based on market research, internal and external analyses, and the client's needs that were presented to us. Along with the implementation of the strategic options, our team curated targeting, positioning, and communications strategies that would fit within the strategic marketing plan for optimal results. The market research we conducted initially consisted of both secondary and primary data sources. After our initial proposal, our team decided to weigh the value of our primary data more heavily when evaluating the proposed strategic options. This data was richer and better suited the client's issue(s). We obtained the primary data in interviews with a convenience sample of potential clients in the target industries. We believe that with the successful implementation of our strategic marketing plan and recommendations, Event Essentials will increase their brand awareness, reach, brand recognition, and new business development; Resulting in the sustained growth and success of their business throughout the COVID-19 era and beyond.

Major: Marketing

Minor: International Business

Faculty Mentor: Dr. Fernando Angulo-Ruiz

Child and Youth Care

A Course-Based Qualitative Inquiry into the Lived Educational Experience of Child and Youth Care in Becoming More Authentic

By Elana Beaver

The basic contention of the relational-centred philosophical foundation of CYC practice is that being "authentic" runs much deeper than the notion to "just be yourself". Being oneself can mean that a self-centred, uncaring person can be authentic by being true to their self-centeredness, which is not the case. From a relational-centred CYC perspective, authenticity is a life-long process of self-discovery, humility, and in some instances healing and forgiveness potential.

Major: Child and Youth Care



Faculty Mentor: Dr. Gerard Bellefeuille

Asian Diaspora and Indigenous Allyship

By Alysha Lakhani

Asian diaspora in the Americas has contributed to the oppression of Indigenous people. However, Asians are victims of colonialism and often come to the west due to circumstances out of their control. By subscribing to colonial-capitalistic world views, they are perpetuating colonial violence to Indigenous people. The first-generation and immigrant settlers can be allies to Indigenous people by firstly recognizing how Asian's are complicit in the subjugation of Indigenous people. Second, we must educate ourselves on settler issues and how the history of colonialism in the west affects Indigenous folk to unlearn settler-colonialist ways of relating to the world. Last, we must listen to and back Indigenous communities and organizers. Society sees Asians as successful minorities; this success is partly due to profiting off stolen land but by becoming allies with Indigenous communities. If we learn to understand Indigenous world views predicated on respect for the earth, marginalized people can band together and work towards dismantling imperialism.

Major: Child and Youth Care
Faculty Mentor: Kelsey Reed

Computer Science

Comparing Multiclass AUC ROC Methods

By Dylan Miller

Statistical models are commonly used to predict the outcome of events in a wide variety of fields such as health, finance, and business. Evaluation metrics are used to assess the effectiveness of these predictive models. One classification evaluation metric, called the receiver operating characteristics (ROC) curve has several useful properties, such as being threshold agnostic and can manage class imbalance where the outcomes are not equally represented. Despite the usefulness of the ROC curve, there is not a standard approach to extend to curve to multiclass problems. The purpose of this project was to evaluate multivariate ROC curve implementations with various underlying class proportions and degrees of separation. The methods we evaluated include the Macro, Micro, and Weighted average for one versus rest comparisons as well as the Hand and Till (HT) method. We compared the methods on simulated data with balanced, unbalanced and strongly unbalanced class proportions in combination with no separation, small separation, and large separation between classes. We found the methods were significantly different when class proportions were either unbalanced or severely unbalanced and the distributions were either separated or strongly separated ($n=100$, $p<0.01$). Pairwise comparisons found that HT and Macro were significantly different than Micro and Weighted ($n=100$, $p<0.01$). This study demonstrates that some of the AUC ROC methods differ depending on the class proportions and underlying distributions. The findings from this project may help practitioners select the most appropriate method according to their goals.



Major: Computer Science
Minor: Statistics
Faculty Mentor: Dr. Wanhua Su

Retinal Segmentation for Glaucoma Diagnosis Using Deep Learning

By Laroy Milton

Glaucoma is one of the leading causes of irreversible blindness around the world. One of the significant indicators of Glaucoma is the enlargement of the Optic Cup (OC) to the Optic Disc (OD). In this project, we created a computer algorithm to identify the ratio between the sizes of OD and OC to further predict the likelihood of glaucoma. The algorithm consisted of a two-step approach. The first step of the approach involved the identification and cropping of the Optic Nerve Head area, the part that contains the OD and OC in the retina. This was done using thresholding based on the brightest spot in the image. The second step was to segment the OD and OC from the cropped image. We used an image augmentation library to transform the images in our dataset to add variability. We passed the transformed images into a deep learning algorithm known as U-Net to segment the OD and OC. Our analysis in training separate deep learning models for OD and OC yielded a higher accuracy as compared to training the models for OD and OC together. Our model has the potential of performing better with greater precision to segment images for diagnosing Glaucoma. The future work includes enhancing the model by making some additional changes to increase the model's accuracy.

Major: Computer Science
Minor: Math
Faculty Mentor: Dr. Dana Cobzas

Design

MacEwan Book of the Year Design Series: "Foe"

By Chloe Anna

This poster contains a coffee brand made for the company OuterMore mentioned in the book "Foe" by Iain Reid.

Major: Design
Faculty Mentor: Constanza Pacher

Album Design: Roya

By Jay Berg

The component designs draw on themes of connection, contemplation, stillness, and motion. Blue aquatic hues and abstract lines invoke thoughts of flowing water or gusts of air, relating to the tile "Breath and Being." When near water, it can calm and connect us, enhance self-discovery and insight, and even heal; these reflect ideas found throughout her music. The artist's music encourages the listener to explore several emotions with her and be open and



introspective. The music and visuals are tied together using water as a unifier. The jacket focuses on fluidity and motion. The lines create organic shapes that feel compelling and alive, flowing from one side of the album to the other like waves. This is a visual representation of the energetic or uninhibited self. A structured geometric typeface was used for the artist's name, contrasting the background's natural contours. A luminous pink brings attention to the name through contrast as the focal point. However, the album's title also lives in the same space and exists in parallel, and brings the theme of connectedness forward. The typeface's form is complementary to the name and has a light, geometric, and elegant feel that plays throughout the album design. Opposing the jacket, the insert takes a moment to catch a breath, a moment of introspection, and time to reflect on the contents using visual sparsity. Text and imagery are reduced in size, giving a light, airy appearance.

Major: Design

Faculty Mentor: Constanza Pacher

"Peter and Wendy" (Book Design)

By Kessia Cherkewick

Peter and Wendy (also known as the Boy Who Wouldn't Grow Up or Peter Pan) is the story of a mischievous little boy who can fly, and his adventures on the island of Neverland with Wendy Darling and her brothers, the fairy Tinker Bell, the Lost Boys, the princess Tiger Lily, and the pirate Captain Hook. This classic tale touches on the importance of cherished memories, the innocence of friendship as well as the bittersweet feeling of growing up. Peter and Wendy is a well-loved story that is reinterpreted to be reached by wider audiences. The inspiration for the interior and exterior came from a passion for vintage typography and whimsical art. The intention was to marry decorative type with engaging and textured visuals. The book's illustrations are appropriate for all ages, but there is an emphasis on drawing a more adolescent audience to reading this particular version of the story of Peter and Wendy. Because Peter and Wendy is a traditional book, the changes within the interior itself were minor details, such as font size and placement of headers and footers. The most important part of the interior design was the layout of the chapter numbers and titles. This version of Peter and Wendy incorporates illustrations with both a sketched and lino cut quality to compliment the elegant type. The publication's illustrations and typography blend to appeal to a modern audience, but still pay homage to the original. The illustrations resemble those that could have been scrawled by the main character, Wendy, as she recalls her adventures with Peter and the Lost Boys in Neverland. Wendy Darling is known to be a very creative and talented girl, shown several times throughout the story as she enjoys spending time sewing and repairing clothing for Peter and the Lost Boys. The illustrations throughout the book represent Wendy's meticulous nature, while still capturing a more juvenile aesthetic. The imagery in the book is presented as more of a documentation of Wendy's experiences, rather than an outside party's interpretation.

Each typeface plays an important role throughout the cover and interior of the book. The typeface Fire Flight is used to represent both Wendy and the extraordinary adventures she has



in Neverland. The ornate, decorative typeface is also used as the main type for chapter titles, sparking interest and intrigue in the reader. Fire Flight works well in conjunction with the book's illustrations. The ornate and whimsical design of the Fire Flight typeface, along with a comfortable body copy and engaging visuals combine in order to create dynamic transitions that keep the reader engaged from start to finish.

Major: Design
Minor: Psychology
Faculty Mentor: Constanza Pacher

Foe Apparel Packaging

By Aldricia Chong

This was a project I worked on in my second class of typography, it is inspired by the novel 'Foe' by Iain Reid. I decided to try something new and design apparel packaging for the main character "Junior". This project was my first time designing a logo and cohesive.

Major: Visual Communications Design
Faculty Mentor: Constanza Pacher

Between Eternities: A Visual Representation of Einstein's Dreams, by Alan Lightman

By Xenab Cebe Azam, Aldricia Chong, Leanna Chong, Aldricia Crabbe, Bridgette Gerner, Heidi Gregory, Devan Hohne, Sabine Huggill, Andrew Jean, Raquel Kozak, Kennedy Murga, Gabriela Porras, Paul Pou, Anthea Prins, Paige Salas, Ana Sieniewicz, Marta Steffes and Hannah Whyte

Between Eternities is a project of DESN231 Typography II, a course in the Bachelor of Design in the Faculty of Fine Arts & Communications. Students were asked to visually translate an assigned section of the novel "Einstein's Dreams", by Alan Lightman (1993) into a two-page layout that explores concepts of time and challenges convention. With the overall goal of enhancing the meaning of the written text students focused on featuring the nuances of language through visual devices. Students were encouraged to explore linguistic deconstruction (semantics, syntax, grammar), alternative ways to organize the page, and to experiment with non-traditional grids, all while maintaining legibility and readability of the text. Informative callouts were added throughout the publication to give conceptual or factual context to the piece.

Faculty Mentor: Constanza Pacher

19 April: A Typographic Interpretation of "Einstein's Dreams" by Alan Lightman

By Vik Chu

In "19 April," a man ponders whether he should visit a woman in whom he has taken an interest. Over the next three paragraphs, three different scenarios play out: in the first, he decides not to



see her; in the second, he develops a tumultuous relationship with her; and in the third, he visits her but is rejected. The rest of the story explains how one decision can spawn an infinite number of subsequent timelines and how humans manage this chaotic complexity.

To reference the notion of multiple timelines, the layout has been fractured into four distinct visual identities. Expository text (first and last two paragraphs) is rendered in serif type, presenting a neutral, academic tone. The first scenario uses an airy san-serif type and large leading to represent a life that is measured and content. The type in the second grows heavier in stroke weight and more condensed as the passion and tension rises. Finally, to underscore the man's sadness from his rejection, the type fades to near-complete transparency in the third scenario to reflect his developing glumness.

The title makes use of repetition, transparency, and colour to create a focal point that leads the eye into the first paragraph. This creates a horizontal element (a timeline) that extends across the spread and is broken only by the three scenarios. Altogether, the story maintains visual cohesiveness while distinguishing between disparate paragraphs and timelines.

Finally, the dust jacket depicts Einstein's theory of relativity through minimal forms and lines.

Major: Design

Faculty Mentor: Constanza Pacher

Spectrograms: Record Album Design for Kevin Dean's "Going Down Slow"

By Vik Chu

This project was submitted to a record album design competition for Kevin Dean, a professor of jazz music at McGill University. His latest album, *Going Down Slow*, is an homage to the Blues.

Major: Design

Faculty Mentor: Constanza Pacher

Welcome to the Installation: Package Design for MacEwan's Book of the Year "Foe" by Iain Reid

By Vik Chu

In *Foe*, author Iain Reid explores a crumbling marriage set in a sci-fi world. This project attempts to bring to life the Installation, a cutting edge space station on which the protagonist, Junior, spends two years as part of a research project. It imagines what a welcome package for Junior could look like when he first arrives:

Leaning against a gift box is a greeting card. "Welcome to the Installation, Junior!" He shivers at his name. Rendered in a bold serif font set on a black background, the text is warm and personal. Intended to reflect the success of *OuterMore*, it sends shivers up his spine instead.

The box itself is supple to the touch and ringed by a band of gold. Unaccustomed to such luxury, Junior catches his vacant reflection in the embossed varnish of his name on the lid. It is surprisingly heavy, and he finds himself setting it gingerly aside.



“Existence is achievable,” the insert reads. In the same bold weight of the greeting card, the words are meant to inspire, but Junior feels only his back aching. Flipping the card over, OuterMore’s slogan, “Go Farther, Be Better,” is featured under a cross section blueprint of the Installation. Junior is momentarily intrigued by the details. Below them is a list of the included gifts, followed by instructions to expect three more orientation seminars.

With a groan, Junior tosses the insert and drops heavily into a chair. How the hell am I supposed to sleep without Hen?

Major: Design

Faculty Mentor: Constanza Pacher

Grasping Eternity: A Visual Representation of Einstein's Dreams, by Alan Lightman

By Nat Bloemen, Ethan Breitreuz, Vik Chu, Kiera Elkins, Kimberly Huynh, Sohee Kim, Johannah Ko, Dana Kozak, Rochelle Kriewaldt, Danielle Macasaet, Shaelenn Mykitiuk, James Nguyen-Vazquez, Corinna Prins, Cezanne Trodden, Zeus Wong and Grace Zimmel

Grasping Eternity is a project of DESN231 Typography II, a course in the Bachelor of Design in the Faculty of Fine Arts & Communications. Students were asked to visually translate an assigned section of the novel “Einstein’s Dreams”, by Alan Lightman (1993) into a two-page layout that explores concepts of time and challenges convention. With the overall goal of enhancing the meaning of the written text students focused on featuring the nuances of language through visual devices. Students were encouraged to explore linguistic deconstruction (semantics, syntax, grammar), alternative ways to organize the page, and to experiment with non-traditional grids, all while maintaining legibility and readability of the text. Informative callouts were added throughout the publication to give conceptual or factual context to the piece.

Faculty Mentor: Constanza Pacher

Altered Connection (Packaging Design/ Book of the Year "Foe")

By Bridgette Crabbe

In the novel ‘Foe’ by Iain Reid one of the main underlying themes of the story is the relationship between Hen and Junior. Their relationship is altered when big city aerospace corporation OuterMore visits Junior. In which Terrance tells Junior he has been selected for an experimental space exploration project in which he will be one of the first individuals to temporarily live in the Installation. The underlying struggle within the characters relationship was embodied through this concept card game design. Ideally made to be played upon after reading the novel. The game has a total of 30 cards, 3 levels, each card with a quote from the book and a question in relation to the quote. The game can involve as many people as one chooses, but ideally made for couples looking to have a deeper perspective in their relationship. The title of the game ‘Altered Connection’ is metaphorical to the change in Hen and Junior’s relationship after Junior returns from the installation, as well as the connection between Hen and replacement Junior, it isn’t a complete human connection, although it feels like it, it is altered. The large rings on the



front cover of the box represent how there are many layers within relationship. As well the rings in contrast with the background represent space and Junior's departure. The rings are reflected on the the playing cards, the more rings the harder the question, the deeper into the game. The green flare on the cover reflects to the green headlights that appear through Hen and Junior's window when Terrance first arrives. The wide range of colors used throughout the packaging design reflects aspects of space and the galaxy with the cool hues, and the vibrancy of the colors may represent the intense feelings one may experience through a relationship. Where each level can represent an emotion, the yellow and green in level 1 emitting a calm tone with more straightforward questions, then level 2 diving deeper into unthought of aspects of the players relationship and level 3 allowing each player to think about their role in the relationship and how it affects their significant other. The game is one that may not appeal to every individual, but one for the individuals who enjoy the novel and are willing to take the risk and play the odds of their relationship.

Major: Visual Communication Design
Faculty Mentor: Constanza Pacher

Music Album Design "Kevin Dean"

By Sohee Kim

This album cover is designed to evoke feelings of calm, slowness, and relaxation. For the illustration, the title 'Going Down Slow' is expressed in an abstract way. I was inspired by clefs which is a musical symbol used to indicate which notes are represented by the lines and spaces on a musical staff. The bass clefs, and the treble clefs have beautiful line weight. On the cover, the illustration's thin lines and black parts are in harmony. There is softness coming from organic shapes, and squiggly lines help the viewers to feel the slowness. The color theme of this album is brown and black to bring a sense of comfort and relaxation. The brown is the perfect color to show the richness as it's the color of chocolate and coffee, it could help to highlight the richness of the music. Also, the black and bold typeface of the title, help to express the richness of the music. The use of serif typeface (typeface with a small decorative line), evokes a feeling of jazz and blues.

Major: Design
Faculty Mentor: Constanza Pacher

Blood in the Sink: A Redesign of Foe's Dustjacket

By Dana Kozak

Foe is a novel that subverts expectations and builds on a continuous feeling of tension that is never resolved, even at the end of the book. When redesigning the dustjacket, it was essential to take the tension and translate it visually. A particular scene stands out in the novel. Junior flosses his teeth and forcefully brings down the floss on his gums to make himself bleed, and he spits the blood out into the sink. While it may not be the most crucial scene in the novel, it felt personally the most jarring. Junior reveals that he feels alive seeing his blood in the sink. He is living and breathing like a human being. The twist is that he is not a human at all, but this scene



disputes that. What makes us human? What makes us alive? Arguably, our lifeblood makes us alive. Visually, the red stands out and is striking. It brings up questions for the viewer: who is bleeding? Why is this the cover? The title, *Foe*, is slightly faded and blends in with the background of the sink. The enemy could be anywhere or anyone. The floss turns red in the blood, representing the red string of fate from Greek mythology. Junior does not have a choice throughout the events of the novel. He is fated to be replaced and eventually is the replacement. Terrance and Outermore act as the Fates and decide when the string is cut, signifying his death and end.

Major: Design

Faculty Mentor: Constanza Pacher

Going Down Slow - A Snowy Take on Jazz and Blues

By Kennedy Kozak

The silenced comfort of a fresh snowfall reminded me of the comfort spoken about by Kevin Dean in his interview. This environment amplified the introspective and self-soothing vibe that Mr. Dean wanted his listeners' experience, so I chose to pursue this for my final concept. Comfort is a mood that pushes itself forward in every piece of this package, warm colours on a snowy landscape, and the solace of a land quieted just enough by snowflakes *Going Down Slow*.

Major: Design

Faculty Mentor: Constanza Pacher

Three Towers Golden Ale - A Refreshing Take on 'Foe' by Iain Reid

By Kennedy Kozak

The Feed Mill Brewery and Three Towers Golden Ale brand was inspired and interconnected with motifs, characters, and settings seen in *Foe* written by author Iain Reid. The packaging for this new age beer company has an overall aesthetic that aligns perfectly with the book itself and could easily be imagined as a product between the pages or promoting them. Three Towers Golden Ale is believably Junior's drink of preference, which is a refined taste that could not be easily replaced.

Major: Design

Faculty Mentor: Constanza Pacher

The Adventures of Tom Bombadil — Book Design: Re-Designing Tolkien's "Poems from The Red Book" Into an Illustrated Book

By Coralie Larochelle

A redesign of J.R.R. Tolkien's *The Adventures of Tom Bombadil*, a collection of poems and part of his legendarium. Design and typographic principles bring out the beauty of the book, and linocut-stamp illustrations highlight each poem.



Department: Design
Faculty Mentor: Constanza Pacher

MacEwan Book of the Year Design Series: "Foe"

By Ashley Le

The front cover of this book design shows a significant amount of details that can be found throughout the novel. The worn-down wood texture represents the Barnhouse, its old age apparent by the deep carvings of the wood's texture. A beetle rests inside the 'O' in FOE, which represents the beetle that the replacements, Junior and Henrietta, were captivated by when they first saw it. The beetle inside the "o" is inspired by a quote: "It's not an infestation, I say. It's only one." The beetle's colour easily blends well with the colour of the wood background, almost making the beetle seem like it's making an infiltration into Junior's home; this infiltration is how the replacement believed that Terrance wants to take over his spot as his replacement while he is out in space. The motif of the wood texture and the beetle are carried throughout the entire novel, creating an intriguing visual representation of the replacements and their original owners. It is the beetle that helps us tell the difference between the replacement and the original owners, and it is the Barnhouse that makes the two similar to each other. A serif font, Adobe Garamond Pro and Yu Mincho, is used throughout the entirety of the book, emphasizing Junior's importance on keeping things the way they are and not willing to accept change. This also applies to Henrietta's replacement, where the significance of her memories only caters to the original Junior's image of her, representing their failed marriage.

Major: Design
Faculty Mentor: Constanza Pacher

"Where is the Foe" (Packaging / Book of the Year, "Foe")

By Anne Morin

Foe by Iain Reid is a science fiction psychological thriller. Upon the arrival of a mysterious stranger to a remote farm inhabited by an unsuspecting married couple, a series of puzzling and unsettling events unfold. Foe explores the themes of marriage, self-determination, and what it means to be human. This brochure is a promotional piece preceding the book. The brochure is folded in a double gatefold in order to surprise the viewer with the hidden contents inside. The front displays a simple layout with digital and futuristic text, showcasing the novel's sci-fi setting. The text states the following: where is the foe? The book presents many elements and characters that may or may not be "infiltrators" or "foes", alluding to the book's title. Throughout the story, the reader attempts to decipher the identity of this foe. However, by the end of this story, this puzzle is never solved. The reader is left to their own devices to determine the true foe. Inside the brochure are many of the elements mentioned in the book, such as the beetles, the barn, the green headlights, the coffee, the piano, outer space, and the characters' initials. The colour scheme is futuristic; however, these illustrations' lines are drawn in a pencil texture. These contrasting styles capture how the book simultaneously carries futuristic themes and old-



fashioned imagery. The story is set in the future, yet the couple resides an old-fashioned lifestyle. This cluttered and claustrophobic imagery also demonstrates how Hen felt trapped and constraint in her relationship with Junior. Moreover, the car and the beetles have the same shape as the barn, which is a visual representation of how the two infiltrated this couple's home. These elements are scattered in a puzzle-like manner in order to confuse and disorient the viewer. Like the book, it is up to the viewer to piece together these elements and find the answer.

Major: Design

Faculty Mentor: Constanza Pacher

Chill and Jazz at the Lake: Record Package Design for Roya's "Breath & Being"

By Carolina Odashima

This project is an album design for Roya's "Breath & Being," created for the Typography II course (DESN 231). This Canadian artist's musical identity is an eclectic mix of styles that makes her songs cheerful and approachable while also alluding to her family roots. The design uses a casual aesthetic to transmit Roya's self-expressive and lively music. One lonely figure sits on the edge of the lake, looking at their reflection in the water, as a metaphor for one's self-observation and desire for connecting with people. Illustrations and text were hand-rendered to communicate self-expression. Elements such as brush strokes and gestural imprints reinforce the idea of a personal mark. These physical textures are also symbolic of musical textures, a fundamental aspect of Roya's work. The use of organic shapes and bright colours make the design whimsical. A touch of orange in the palette provides coziness to counterbalance the cool-toned areas. Ripples in the water are dynamic and perform as visual representations of melody and harmony. They also appear in the center labels as concentric waves emanating from the record. The waves embody the dialogue between the singer and her audience: as the music plays, sound propagates to reach the listeners. The final piece is an engaging scenery that invites listeners to enjoy Roya's art, combining visual rhythm and emotion in allusion to her music.

Department: Design

Faculty Mentor: Constanza Pacher

Corporation of the Future: Brochure for the Book of the Year "Foe"

By Carolina Odashima

This design project was developed for the Typography II course (DESN 231) and based on the Book of the Year, Iain Reid's "Foe." It is an imagined visual identity and a brochure for OuterMore, the mysterious enterprise featured "Foe." The design combines anachronic references, creating an old-fashioned style to match the book's dystopian setting. Amongst the inspirations are the vintage-futuristic aesthetics present in pop culture, wartime propaganda's illustrations, Swiss Style, and corporate identities from the 50s and 60s. The straightforward colour palette denotes trust and intelligence. Although clean and modern, Futura and Helvetica



are both overused typefaces that can look very dull. The brochure's content is overly optimistic and artificial, with antiquated taglines that allude to 60s propagandas. OuterMore's logo denotes space exploration and discoveries. It presents the letter M orbiting around the letter O, evoking the solar eclipse, the dark side of the moon, and the atomic diagram. As a citation to IBM's logo, the parallel lines suggest information processing in an old-school monitor. Mirroring the main circular shape originates the second logo, intended for an imaginary branch organization focused on cloning technology. Its organic quality derives from its resemblance to mitosis and cloning. The overlapping segment forms a "versica piscis," symbol for the intersection of two worlds, conveying a distorted perception of time and space. All graphic elements presented contribute to the idea that OuterMore is a conventional enterprise. However, this collides with its progress-driven speech. The ambiguity between "tradition" and "future" combined with the overly enthusiastic tone makes OuterMore's intentions questionable.

Department: Design
Faculty Mentor: Constanza Pacher

Design Activism: Public Intervention to Raise Awareness of White Supremacy

By Carolina Odashima

This project was developed for the course Design Studio III (DESN310) in Fall 2020. It is an imagined public intervention that exposes white supremacy as a hateful and discriminatory ideology, with the goal of educating and raising public awareness of this issue. This idea aligns with the concept of "paradox of tolerance," which stands for limiting intolerant ideologies to preserve society and tolerance itself. The project took inspiration from a white supremacy demonstration in an Edmonton parking lot in September 2020. Although no crimes were reported in that event, if one looks at this demonstration from a semiotic perspective, one understands that it represents oppressiveness and violence against specific communities in our society. This work's concept bases itself on the argument that white supremacist ideology is oppressive. Therefore, it uses crime scene investigation elements to represent the idea of semiotic violence against segments of the Canadian population, and it mimics white supremacist guerilla strategies of repurposing urban spaces to spread their ideology. The project targets a broad audience, showing the urgency of the situation and how threatening this demonstration is for minority groups in Canada, the BIPOC population, and immigrants, who deserve reassurance that they are welcomed and protected in this society.

Department: Design
Faculty Mentor: Wayne Williams

Lost in Eternity: A Visual Representation of Einstein's Dreams, by Alan Lightman

By Sachin Aheer, Chloe Anna, Nawaal Basha, Jay Berg, Braden Bierkos, Ashley Drouin, Alejandra Hernandez, Erin Hudson, Ashley Le, Joelle McCallion, Anne Morin, Martin Nguyen, Carolina Odashima, Laina Vanderwell and Ryan Wyrostok



Lost in Eternity is a project of DESN231 Typography II, a course in the Bachelor of Design in the Faculty of Fine Arts & Communications. Students were asked to visually translate an assigned section of the novel “Einstein’s Dreams”, by Alan Lightman (1993) into a two-page layout that explores concepts of time and challenges convention. With the overall goal of enhancing the meaning of the written text students focused on featuring the nuances of language through visual devices. Students were encouraged to explore linguistic deconstruction (semantics, syntax, grammar), alternative ways to organize the page, and to experiment with non-traditional grids, all while maintaining legibility and readability of the text. Informative callouts were added throughout the publication to give conceptual or factual context to the piece.

Department: Design
Faculty Mentor: Constanza Pacher

The Happy Prince and Other Tales Book Design

By Alexi Pelly

Book cover and interior layout design completed with 10 detailed black and white illustrations.

Department: Design
Faculty Mentor: Constanza Pacher

A Creative Redesign of Daemonologie

By Joselyn Rose

This project was done under Professor Constanza Pacher and her Publication Design class over this past winter semester. It was a creative redesign for the old 500 year “Daemonologie” which was written by the King of Scotland at the time, James VI. The book is a detailed description of Witchcraft, and from a very legal and rational point of view from the Monarch himself; it is an attempt to rationalize how the practice works in the form of a dialogue between two characters, a Philomathes and an Epistemon, both characters meant to represent the rational and legal mindset that James wanted to approach finding and stopping Witches from. But there was another side to the book, one where James had written this book from his own paranoid experience with Witches. It started when it became known that several witches tried to kill him and his wife. And so, the book contains the very real danger that the witches possess according to James, in the form of vandalism that the witches have left behind.

Major: Design
Minor: History
Faculty Mentor: Constanza Pacher

The Adventures of Sherlock Holmes (Book Design)

By Abbey Smith

Sherlock Holmes Book Design Sherlock Holmes, written by Sir Arthur Conan Doyle, is a novel from the 1890s about a sharp-witted private investigator solving difficult crimes and murders in London, England. The book is a compilation of short stories all based on the darker themes of



crime and murder. Based on these themes, my design leans toward the horror genre while still maintaining a relatable feel. The illustration style is meant to look linocut. The linocut look represents an older style of illustration to connect the the 1800s when the book was written, however the look of the illustrations intends to bring the reader into the modern day. The X in the illustration represents the small details that Sherlock Holmes uses to solve his cases. The display type family used for the title and chapter titles is Charcuterie Etched. The etched style ties in to the linocut illustration style while also being a type family that could have been found in an old fashioned periodical or newspaper. This is important to the Sherlock Holmes books because the short stories were originally published in periodicals such as Ward Lock & Co and the Beeton's Christmas Annual.

Major: Design

Faculty Mentor: Constanza Pacher

“Anthem” By Ayn Rand (Book Design)

By Hannah Steffes

Ayn Rand's novella “Anthem” takes place in a future society where mankind has entered another Dark Age. In this dystopian society, it is sinful to think of oneself as an individual. The principle of collectivism (serving the state) is the sole guiding force for one's purpose in life; the dictatorship government controls every aspect of people's personal lives. Equality 7-2521 narrates and speaks in terms of “we” throughout the text to emphasize societal expectations. Designated as a Street Sweeper in his society, Equality 7-2521 is conflicted between obeying his society's strict collective code and committing sinful acts such as journal writing, wishing for a different vocation, keeping secrets, thinking scientific thoughts, experimenting with discarded scientific tools, desiring a young woman, changing her name, and wondering about the Unspeakable Word of the past. After sharing an invention with his society's brightest minds and seeing their fear of change, he decides to go on a forbidden journey of self-discovery which will impact his life and the lives of others for generations to come. Alegreya typeface, used for the interior text, has both a traditional and modern edge to its design. It is easy to read and projects a serious tone which fits well with the theme of the novella. Alegreya has also been used in the book's images to emphasize the serious nature of conforming to collectivism. Images repeating the word “WE” reflect the lack of individualism in Equality 7-2521's world. Everyone lacks a voice and must follow what the World Council says. Images reflecting the slow disintegration of the “WE[s]” emphasize Equality 7-2521's evolving nature as he embarks on a journey to find himself as an individual. Once Equality 7-2521 has found his own identity and has separated himself from the collective brotherhood, an image repeating the word “I” appears. Although a white background has typically been used to reflect the repetitive words, a black background with repetitive white type is used at key moments to signify when the plot starts, changes, and ends. The Economica typeface has been chosen for the title, part titles, running headers, bottom page numbers, and the beginning few words at the start of each part. This typeface adds a futuristic element and complements the main text's Alegreya typeface. Since most of the novella depicts a bleak dystopian future for mankind, a black hazy background dominates the



cover. People in the futuristic society have returned to the Dark Ages filled with ignorance and a fear of punishment. The coldness and rough texture of a brick wall emphasize the rigidity of a society which denies its citizens any freedoms. On the back cover, an excerpt from the novella appears in the *Economica* typeface followed by a summary to entice readers to explore this fictional dystopian society. Below the summary, there is a hint of a literal and metaphorical light providing some hope for mankind to emerge out of the darkness. In the novella “Anthem,” the main character Equality 7-2521 invents a new type of light by running electricity through a copper wire. The red glowing copper wire appearing on the back and front covers coils up to form the base of the burning light bulb image at the end of the novella’s title. The glowing copper wire separates the author’s name (at the bottom) from the title. The copper wire draws the reader’s eye upwards leaving a red tint to the right sides of the dark “ANTHE” lettering of the novella’s title. Becoming the filament component which heats up the light bulb, the “M” of the novella’s title also stresses the importance of moving forward with moral purpose and developing an individual man’s ego rather than pursuing a collective identity. Like the positioning of the glowing bulb at the end of the novella’s title, the narrator does not fully comprehend the importance of individuality until close to the end of the novella.

Major: Design

Faculty Mentor: Constanza Pacher

Enlightenment (Dust Jacket/ Book of the Year, “Foe” by Iain Reid)

By Hannah Steffes

Although the “Foe” novel dust jacket could easily connect to other key characters, the actual inspiration for its design relates to Henrietta, a woman who is forced into a relationship with her husband’s “replacement” when he makes the selfish decision to embark on a space adventure. The image conveys her perspective when gazing up at the night sky, reflecting on her unhappy marriage, and desiring the freedom to discover her own identity. The black background emphasizes the feelings of loneliness and helplessness she experiences as a voiceless entity in her patriarchal marriage. Her limited freedom of expression is suggested with only one eye peering through the blackness. The “O” in the novel’s title serves to frame the moon and the stars in the night sky which are reflected within the eye’s iris. The Adobe Garamond Pro typeface appears on the dust jacket for ease of readability as well as to draw emphasis to the title and the hierarchy of information. The starry night sky signifies not only Junior’s trip to the Outermore Installation but also symbolically conveys a world of possibilities that Henrietta has yet to experience for herself. The open eye image on the front cover also strongly connects to an excerpt from the novel “This is what I’m offering you both. An awakening” which appears on the back cover. The blue eye peering out of the black background and staring straight at the reader catches the reader’s attention, causes feelings of uneasiness, and intrigues the reader to turn pages learning more about Iain Reid’s fascinating characters.

Major: Design

Faculty Mentor: Constanza Pacher



Starry Night (Album Package Design / “Going Down Slow” by Kevin Dean)

By Hannah Steffes

The music and a conversation with jazz musician Kevin Dean inspired the overall concept for the “Going Down Slow” album. Staring up at a beautiful night sky filled with bright stars evokes feelings of relaxation, calm, and peaceful reflection. A person even when alone can feel connected in time and space to others who may be also staring up at the same night sky and wondering about one’s place in the universe, the meaning of life, future pursuits, and past experiences. Often associated with wonder and imagination, stars inspire viewers to have hope for the future and grow from their past mistakes. The clusters of stars creating streaming rays of light across the night sky emphasize various pathways a person may take to achieve one’s dreams on life’s journey. The image of the night sky appears on the album cover, the insert, centre labels, and the drop card. Dark blue borders alternate with a night sky border to frame the image and focus the viewer’s attention on information given within the borders. The dark blue and black colours evoke a sense of mystery and calm. The contrasting white and light blue star clusters direct the viewer’s eye across the night sky to find yet another point of interest to encourage the observer to continue on a journey of self-reflection while listening to various songs on the album. To create the night sky image, a variety of light and dark coloured wax crayons were melted with an iron on wax paper to get a paper-thin consistency. Streaks and tiny holes naturally appeared in the design. A photograph of the crayon art piece being held up to a bright light added the necessary illumination to create small stars against a night sky. The image was then digitally manipulated to soften the lines and make it appear more realistic. Serif and sans serif typefaces conveyed the information in a comfortable and easily readable way to viewers. Bolding and spacing helped to create clean visual lines and reflect a clear hierarchy. With the fairly cohesive starry night sky image (with slight border variations) appearing on all of the album components, the music album takes its listener on an uninterrupted relaxing and reflective journey. In a busy and complicated world, it is often difficult for a person to make the time to simply stand still, breathe, and become self-aware. Gazing up at the starry night sky, listening to music, and thinking of endless possibilities would be a wonderful way to end any day.

Major: Design

Faculty Mentor: Constanza Pacher

Conscious - Record Cover Design for Roya Yazdanmehr

By Cézanne Trodden

Complete understanding of oneself stems from deep within. Genuine connection with one’s body, mind, and soul can be achieved through introspection, understanding, and forgiveness of one’s hardships. This album cover features a drawing representing connecting with one’s inner child — an essential step leading to the spirit’s nourishment. Emotional and spiritual healing allows people to recognize their growth and acknowledge their worth. Empowering them to honour themselves, fearlessly be themselves, and accept others’ appreciation for being who



they honestly are. The pattern in the illustration can be visually interpreted as movement. It is a visual metaphor representing how the human mind constantly flows with thoughts, innovations, creativeness, and feelings. The cover can be appreciated as a visual message, each aspect working with the other. A sense of ease is brought to the overall design through the use of a limited colour palette. The deep shade of plum, white text, and negative black space contrast each other with a solid effect. The pairing of a cursive typeface and a lightweight sans-serif presents delicate femininity and balance. The insert and centre labels remain cohesive with the rest of the design by repeating the illustration presented on the cover. Clear hierarchies created through type assist in differentiating the front of the insert from the back. The centre labels still provide enough variation for sides A & B to be differentiated while presented similarly.

Department: Design
Faculty Mentor: Constanza Pacher

I Would Just Go - MacEwan Book of the Year Design Series

By Cézanne Trodden

For this creative project, the goal was to visually communicate a significant theme or emotion within Iain Reid's *Foe*. The postcards series focuses on the theme of discontent in relationships and recognizes that a person can always honour their right to feel joy.

Department: Design
Faculty Mentor: Constanza Pacher

MacEwan Book of the Year Design Series: "Foe"

By Zeus Wong

The postcard design was created to embody each of the three main characters' essence. Throughout the story, we are presented with hints that suggest ideas of importance to take note of as to fully understand the final events that will unfold. Junior's postcard design was to embody this idea of desire, desire to feel something, to feel alive. The chosen image was of a bathroom, which is a recurring place wherein Junior would try and do extreme things to inflict pain upon himself. This can be seen as a way of him creating a sense of validity that he is alive and he is Junior. Which suggests that in a way he knows he is a replacement. In the case of Hen, The chosen image is that of a bound woman. This imagery is backed up by Hen's cold interactions and seemingly instances of venting out her frustrations to the replacement Junior. Her sense of longing for freedom and a chance to be given a voice within this relationship is felt throughout the story, and with this finally leading up to her decision of leaving in the end. As for Terrence, the design direction was to fully encapsulate his disruptive presence whenever he shows up in the story. through the orientation of the postcard to the grim smile. This facade of passion for his work is pretty much all we know about him, whether this is his entirety or not we will never know. Thus the choice of this deep darkness surrounding him, which amplifies this sense of mystery and the unknown that he and the organization he is representing exudes out from the very pages of the book itself.

Major: Design



Faculty Mentor: Constanza Pacher

“Husband in a Box” (Packaging / Book of the Year, “Foe”)

By Grace Zimmer

The ‘husband in a box’ shown here is a visual interpretation of the themes within Iain Reid's book, FOE. It is an ideation of how the replacement spouse would arrive at the home, and the box it arrives in showcases the confines of a marriage that were illustrated in the book. The project also highlights the absurdity of replacing your spouse. The box itself is illustrative of the future and the past, just like the book. The time period is stuck in between the technology of the future, and the values of the past. This is shown through the sleek black colour and futuristic typeface that contrasts with the creamy beige, script font and vintage ad illustrations. Alongside the box is a brochure that would highlight the features of your ‘biomechanical duplicate spouse’. The contrast of new and old is shown again on the cover, and it depicts the couple twice, and each pair has one faceless person with a question mark instead of their facial features. This visual highlights the realistic nature of the replacement and causes the viewer to question which one in the couple is the replacement. It brings forward the frightening thought that you won't know the difference and may potentially like the replacement better, just as the real Junior did at the end of the novel. Inside the brochure is where the absurd and frightening nature of a replacement spouse really comes to light. The instructions and explanations make it seem as if they are a product you own, not an equal partner in your relationship. The brochure continues on the right side with a description of the models you can get of your replacement husband/wife. As you progress through the models it becomes evident that each one is better than the last. The options become less like your real spouse and become ‘better than the real thing’. The descriptions and features of each model help highlight the dynamics and expectations that can be seen within a marriage. The notion that you can get a better version of your spouse is a frightening proposition that illustrates the inequality that Hen experiences in her marriage. That thought is continued through Juniors return, he expected his wife to snap back into her expected and stereotypical role as his spouse. Her role was not an equal one in their marriage and Junior did not consider the mental hardships she endured while he was gone. Junior only considered his own wants, needs, and expectations. In the end of the novel we can see that Junior didn't want an equal partner, he wanted a ‘superior spouse’, one that meets all his expectations. But this idea of a perfect spouse can't be found in a person, but it can be found in a product.

Major: Design

Faculty Mentor: Constanza Pacher

“Tree Rings” (Album Design Competition, Breath & Being Honourable Mention.)

By Grace Zimmer

The design of this album cover evokes a sense of peace, wonder and reflection. This intimate look at the centre of a tree and its rings allows the viewer to reflect and connect with their own



natural state of being. This self-reflective and vulnerable state that the viewer feels is just like the tree rings that are featured on the cover, they are hidden from view until we allow ourselves to open up and share with the world. In this album Roya invites her listeners to open up with her and share some intimate moments as they join her on this musical journey and get to know her. The design highlights that the cracks and hardships in our lives make us who we are and helps create and shape our very own state of being. This feeling of calm and connection are enhanced by the colour palette. The soft and light colours leave a sense of joy and comfort and allows the viewer to feel safe and content and will leave them feeling comfortable enough to open up and enjoy the connection and intimacy that comes from the album. Viewers are invited to sit back and enjoy as well as get up and dance as the intimate and deep conversations unfold throughout the album as they become a part of the forest.

Major: Design

Faculty Mentor: Constanza Pacher

Engineering

Development of a Problem-Solving Model from a Multi-Disciplinary Perspective

By Meagan Mancini

Problem-solving is used every day, in almost every aspect of our normal lives. It's not really thought about much, it is just done naturally. In the fields of engineering, education, medicine, philosophy, psychology, and business, experts will spend months, years, even lifetimes attempting to solve large and complex problems. This research looks not into solving these problems, but instead takes a step back and peers deeper into the process with which these problems are solved. Nvivo qualitative text analysis software was used to compare and contrast previous research that has been done into problem-solving across each of the disciplines mentioned above. Papers were separated manually into their various disciplines based on titles, journals, and keywords found in abstracts, in addition to being separated by decade. The papers were then analyzed using this software in order to find information such as word frequency in order to compare common themes and wording found within previous research done on 'problem-solving' for each discipline. These results were analyzed in order to make qualitative conclusions, such as noting key similarities and differences between the disciplines of interest. It is hoped that this research may be used in the future to further compare how various disciplines go about the process of problem-solving, in order to ultimately optimize how problem-solving is done across all disciplines.

Major: Engineering

Faculty Mentor: Dr. Jeffrey Davis

Use of Stored Snow for Summer Cooling Loads

By Stuart Shelley



Climate change is one of the greatest challenges of the 21st century. One of its effects will be hotter summers and therefore an increased demand for indoor cooling systems. Unfortunately, these cooling systems can exacerbate climate change in two ways. The first is that these systems require a large amount of electricity to generate the cooling load; this electricity is currently made from fossil fuel burning power plants. The second, is they require potent greenhouse gases, in the form of refrigerants, to circulate within the system; these gases are often released into the atmosphere at the end of the system's life. Alternative systems that are less energy intensive and make use of cleaner resources can help alleviate these issues. This research explores how stored snow can be used as a cooling source for buildings. A feasibility study was conducted for Edmonton to assess the viability of these snow cooling systems in Canada. Snowfall and weather statistics were gathered to find whether Edmonton has enough snow and the right weather conditions for the implementation of these cooling systems. One of the important findings was how previous research on the preservation of snow in alpine ski resorts could be applied to these systems, resulting in more efficient snow storage management. The implication from this research is that these cooling systems could reduce carbon emissions, and alleviate the challenges of climate change.

Major: Engineering
Faculty Mentor: Dr. Jeff Davis

English

Audience to Allies: Shared Terror and Cinematic Dread in Peele's *Get Out* (2017)

By Amy St. Amand

For his first feature film, Jordan Peele wanted to create a horror film for black audiences, who have long been isolated by the tradition of objectification and othering of black bodies within the horror genre. *Get Out* (2017) highlights the paranoia that defines being black in America, but despite the film's focus on the black American experience, Peele intended for the film to be an inclusive experience. And judging by the film's financial and critical success, *Get Out* certainly resonated with a wide variety of audiences. This paper aims to explore how Peele manages to create a space of terror regarding something white viewers have never experienced firsthand, while simultaneously uncovering the purpose of involving an audience who oftentimes are the perpetrators of the microaggressions *Get Out* condemns. Using Julian Hanich's theory of cinematic dread, I will argue that Peele creates a sense of shared terror that transcends racial boundaries, ultimately forcing audience members who have never experienced discrimination based on the colour of their skin into allies.

Major: Honours English
Faculty Mentor: Dr. Mike Perschon

From Science as Solution to Science as Suspect: The Human-Science Relationship in Science-Fiction Canon

By Nathan Fuhrer



The ways in which humankind relates to science and innovation has always been a key marker of the science-fiction genre. Though this relationship was popularly rooted in scientific rationalism and proto-idealism, it has since evolved in favour of problematizing relations between the human and the machine. Drawing on the work of authors such as Isaac Asimov, Frank Herbert, Philip K. Dick, Jeff Somers, and Iain Reid, this paper is a genre-oriented exploration of the shifting dialogue on how humankind should orient itself toward technological progress. Starting in the era of 1950's science fiction, as epitomized by Asimov, the literary endorsement of "science as solution" has veered to "science as suspect." Expressed first through the complication of the human-science relationship in transitory works, this shift in canonical discourse is readily captured in Herbert's *Dune* and Dick's *Do Androids Dream of Electric Sheep* with Somers' *The Final Evolution* and Reid's *Foe* demonstrating a contemporary finalizations of this trend.

Major: Honours English

Minor: Classics

Faculty Mentor: Dr. William Thompson

The Marxist and Postmodern Representation of the Subaltern: Capitalist Othering in Richard Wright's *Native Son* and Aravind Adiga's *The White Tiger*

By Eric Huxley

Richard Wright's *Native Son* examines the marginalization of Black Americans in the United States in the forties. In addition, Aravind Adiga adapts the Booker prize winning novel *The White Tiger* from Wright's novel; however, *The White Tiger* depicts a postcolonial capitalist India in the twenty-first century. Despite the adaptation, Wright composed *Native Son* in 1940 when Marxism existed as a potential solution to the marginalization of Black Americans under a capitalist system; in turn, Wright depicts marginalization by applying social realism to produce a socially didactic text that promotes Marxism. However, James Baldwin criticized Wright's reliance on social realism and argued that Wright's text fails to envision a future without marginalization. In contrast, Adiga wrote *The White Tiger* in 2008 following the rise of global capitalism and postmodern literary aesthetics, and in so doing, nihilistically and amorally examines the marginalization that results from capitalism. However, comparing Wright and Adiga's texts reveals the correlation between capitalist oppression and colonialism despite both texts occurring during periods of post colonization. Furthermore, by analyzing the main characters' problematic and violent actions in each text, Wright and Adiga suggest that toxic subaltern masculinity stems from the effects of oppression. In so doing, comparing both texts reveals both the twenty-first century postmodern and social realist responses towards capitalist oppression.

Major: Honours English

Minor: Creative Writing

Faculty Mentor: Dr. Sara Grewal and Dr. David Hollingshead



From Uncanny to Un-Haunting or: How I Learned to Stop Worrying and Love the Ghost

By Jaz Ramage

Culturally and critically, the house is recognized as a crucial site of identity and is conceived of through a series of mythic ideals: maternal, feminine, nurturing, protective, insulating, and so on. Haunted house narratives play on these expectations, frequently.

Major: Honours English

Minor: History

Faculty Mentor: Dr. Josh Toth, Dr. Lana Krysz

Sexual Violence During Partition in Bapsi Sidhwa's *Cracking India* and Deepa Mehta's *Earth*

By Nooshin Walji

In this thesis, I will analyze literary and cinematic representations of sexual violence during Partition by comparing *Cracking India* and *Earth*. I will discuss both Sidhwa's and Mehta's representations of Partition as not just an immediate historical catastrophe but as a lingering cultural presence. However, Sidhwa's novel focuses on the sociocultural permissibility toward sexual violence that pervaded daily life in Lahore in early 20th century, and which forms the vital backdrop to and explanation for the unthinkable sexual violence that occurred on an extreme scale during Partition. In contrast, Mehta's film promotes the more widely recognized narrative of Partition, which emphasizes the tragic effects of religious communalism and its attendant nationalism, and which found expression through sexual violence.

In what follows, I will suggest that Mehta provides opportunities for catharsis--similar to Butalia's "remembering in order to forget"--through symbolic reunification amongst South Asia's religious communities, imagined through film. Indeed, this move from Anglophone novel to Hindi film posits translation not only as a means of reunification but also as an antidote to the nationalist sentiments that ultimately led to the Partition itself. In contrast, Sidhwa's novel emphasizes the ongoing sexual violence embedded in South Asian cultural norms, which transcends both religious community and national borders, ultimately resisting the trope of Partition as a dramatic break with daily life, and instead representing the continuing undercurrent of violence against women in South Asia.

Major: Honours English

Minor: Psychology

Faculty Mentor: Dr. Sara Grewal

Fine Arts

Adapting to a virtual work using immersive audio with Copelli-AI

By Dylan Cave



Exploring modern performative art through immersive audio in an ever changing virtual world. This research is intended to present how we may use technology in a creative way with artistic intent to help convey metaphorical content within the art. Working with the musical score in direct conjunction with performative art, I examine artistic intent and work directly with the creative team to augment their vision using immersive binaural audio mixing techniques. The composer and I will discuss challenges we faced adapting the score for immersion and what sort of things we managed to achieve despite all the difficulties we faced in the process. We will present a live demonstration of one movement from the upcoming modern immersive ballet Copelli-AI that will premier at Edmonton Fringe Festival in 2021.

Major: Recording

Faculty Mentor: Dr. Bill Richards

You made the bed now lay in it

By Abbie Giesbrecht

Fine art: Focusing on my art piece and its relevance to my ecological footprint and consumerism.

Major: Fine Arts

Faculty Mentor: Elisabeth Belliveau

Metis Folklore & Game Design

By Fiona Rintoul

In an effort to address the lack of Metis culture in the entertainment industry, I researched a way to adapt Metis mythology for video game design. I did so in the hopes that presenting Metis folklore and cultural values through an interactive and modern medium such as video games, would promote interest in Metis culture and inspire more representations in other projects. My presentation focuses on sharing my process of conceptualizing a video game based on folklore, and the ways culture can be adapted to a video game setting.

Major: Fine Arts

Faculty Mentor: Elisabeth Belliveau

Hierarchy of Consumers

By Gracie Safranovich

Inspired by visual diagrams of ecological pyramids, Hierarchy of Consumers consists of a series of embroidered wall hangings that examine the location and role decomposers play in these visuals. In diagrams of ecological pyramids, decomposers are often depicted as an external entity, separate from the pyramid itself, or are not even present in many versions, despite the importance of decomposition at every level of the pyramid. Through the embroidery, an ecological pyramid is artistically reinterpreted and restructured, showcasing the presence and



importance of decomposers in ecosystems by highlighting their role as consumers of all other organisms.

Department: Fine Arts
Faculty Mentor: Leslie Sharpe

Poppies, Cultures, and Arts

By Xiaomei Yang

As people know, the different cultures have influenced the art creation. Canadian artists prefer to paint roses, sunflowers, lilies, and poppies, while Chinese artists like to draw lotuses, peonies, orchids, and winter sweet. As Canadians know, the flower poppies are the symbol of remembrance and most welcome to present in the artwork. However, seldom Chinese artists paint poppies and exhibit their artwork of poppies. My creative research is to discuss why the meaning of poppies is different within different cultures, why I chose poppies, and how I create artwork of poppies with Chinese materials in the traditional way.

Major: Fine Arts
Faculty Mentor: Elisabeth Belliveau

Interdisciplinary Dialogue

“Carry On”: State Censorship and Denial of Spanish Influenza in Great Britain (1918-19)

By Daniel Beltranena

In the final year of the “war to end all wars”, the world would be plagued by a new universal enemy: Spanish Influenza. Considered the largest pandemic of all time, in terms of infection and death rates, the 1918-1920 virus is estimated to have affected half of the world’s population and killed 50-100 million. However, for as cataclysmic as this disease was, it has often been forgotten by both academia and society as a whole. Using Great Britain and Ireland as an example, it is argued that the Spanish Flu has largely been forgotten as a result of state official denial and press censorship in a time when the country could not afford to look weak in the final year of World War I and its immediate aftermath. Parallels are drawn to the current COVID-19 pandemic.

Major: History
Minor: English
Faculty Mentor: Dr. Aidan Forth

The Interdisciplinary Dialogue 2021 Student Photography Contest

By Milo Knauer



As part of our Arts and Cultural Management practicum, we created the Interdisciplinary Dialogue Photo Exhibit & Awards for MacEwan students and asked them to convey through photography how the pandemic affected the relationships in their lives.

Major: Arts and Cultural Management
Faculty Mentor: Dr. Heather Fitzsimmons-Frey

A Plague of Racism: An Analysis of the Racialization of the Plague Throughout History

By Julia-Rose Miller

The Corona virus is not unique in its racialization of disease. Throughout history pandemics have been blamed on particular nations and given names based on that—the Spanish flu, or the “Russian Influenza”. This is a two-prong issue of racism in pandemics, firstly is blaming the issue on a particular group, and second is not providing proper health care to racialized groups. In Canada today, Aboriginal, Metis and Inuit people provide inadequate health care based on their remoteness, in America today black communities are disproportionately affected by the Corona virus. And today with the Corona virus there has been a massive increase in anti-Asian hate crimes. This is not unique in history however, the plague that devastated much of Europe and later India was blamed primarily on racialized groups. These groups became seen as simultaneously the victims and the perpetrators of the disease. The plague represents perfectly the combination of improper treatment of disease based on race and the blaming of a pandemic on a racialized group. The plague alone has been blamed on Chinese people in Hawaii, Indians in India and Jews in Europe. Although the racialization of disease is not new, it is based on incorrect assumptions and is incredibly problematic. In particular, India is one of the best examples of the ignorance involved in the racialization of disease. In the case of India, the British government ignored the fact that the poor living conditions were caused primarily by their own actions and not those of the “dirty natives”, ignored the fact that the disease did not originate in India, ignored that Britain itself experienced a more severe pandemic of the same bacterium and ignored traditional methods of healing.

Major: Undeclared
Minor: Undeclared
Faculty Mentor: Dr. Aidan Forth

Gender Studies

Graphic Sapphics: How Identity Shapes the Stories We See on Screen

By Juliana Kaneda

This infographic explores different patterns observed in on-screen representations of sapphic relationships and investigates whether an association exists between own-voice narratives and queer joy. To test this association, a sample of 20 sapphic movies and shows were rated using



a Negative Trope Score Sheet, with the hypothesis that media developed from own-voice perspectives would score lower than narratives developed by outsider perspectives.

Major: Honours Psychology

Minor: Gender Studies

Faculty Mentors: Irfan Chaudhry and Dr. Kathryn Holland

Discourses of Female Masturbation in Human Sexuality Textbooks

By Isha Leibel

Many studies show that masturbation is a common and healthy aspect of human functioning (Kontula & Haavio-Mannila, 2002). Despite this, masturbation has been, and continues to be, perceived by society as a sinful, unhealthy, immoral, and/or shameful act (Hare, 1962; Kontula & Haavio-Mannila, 2002; Studd & Schwenkhagen, 2009). Female masturbation, in particular, is subject to harsh social criticism and experiences elevated levels of conceived social unacceptability. Female masturbation is demonized within society to such a degree that it is often perceived as inherently unworthy of discussion or consideration (Garlick, 2012; Stolberg, 2000). The purpose of this study is to trace the ways in which female masturbation is discussed in Human Sexuality textbooks. By conducting a content and discourse analysis of 21 Human Sexuality textbooks and encyclopedias, I explore the dominant themes in which female masturbation is represented.

Major: Honours Sociology

Minor: Gender Studies

Faculty Mentor: Dr. Alissa Overend

Mathematics and Statistics

Analysis of Alberta's Monthly Unemployment Rate 1976 – 2020

By Talia Goa

Unemployment rates are a useful measure when looking at the functioning of the labour market, and are an important economic indicator. In this study, data was collected from the Canadian Labour Force Survey (LFS) in order to model Alberta's monthly unemployment rate using time series analysis. The seasonally adjusted monthly unemployment rate in Alberta from January 1976 to November 2020 was analyzed as a time-series in order to fit an appropriate model. Models were chosen based on several evaluative methods, including checking normality, stationarity, performing outlier analysis, and generating the ACF, PACF, and EACF of the time-series. Two models were chosen and compared to determine the best model fit. The most effective of these models could be used to better understand Alberta's unemployment rates over time and could be maintained to maximize accuracy and longevity. Additionally, several potential explanations for changes in unemployment rates were explored. For further research, examining the impact of the COVID-19 pandemic in hindsight, as well as comparative analysis between provinces, could be valuable in order to evaluate economic resilience and to better understand the factors affecting unemployment across Canada.



Major: Statistics
Minors: Anthropology and Spanish
Faculty Mentor: Dr. Cristina Anton

In All Directions: Higher Dimensional Arithmetic Progressions in Meyer Sets

By Anna Klick

We establish the existence of higher-dimensional arithmetic progressions of arbitrary length in Meyer sets, which gives a novel characterisation of fully Euclidean Meyer sets.

Major: Honours Math
Minor: Biological Sciences
Faculty Mentor: Dr. Nicolae Strungaru

Examining Pressure Instability in the Troposphere in a Climate Change Scenario

By Cassandra Lisitza

Meteorology is a branch of geophysics concerned with the atmosphere's processes and phenomena and atmospheric effects on our weather. The atmospheric pressure depends on the temperature, and hence, temperature variations cause pressure instability, which directly impacts humans. Earth's climate is severely affected by anthropogenic emissions, which cause an increased concentration of greenhouse gases in the atmosphere. We analyzed the effect greenhouse gases have on the atmosphere's pressure by considering the temperature of dry air, the virtual temperature of moist air, and the virtual temperature for CO₂-rich air. In this talk, we manipulate a mathematical model describing the variation of atmospheric pressure to altitude for the three temperature scenarios, using partial differential equations. We will also demonstrate how atmospheric pressure instability correlates to climate change. Further, we utilize the model describing the variation of pressure to altitude in the adiabatic system's three temperature scenarios.

Major: Honours Math
Minor: Statistics
Faculty Mentor: Dr. Ion Bica

Forecasting Amazon Stock Price

By Kevin Olafson

We study the monthly stock price for Amazon using ARIMA models and intervention analysis. We compare several models in terms of the goodness of fit and the predictions errors. To account for the COVID pandemic influence on the Amazon stock prices we apply intervention analysis. We examine the forecasted Amazon stock price from the best model, and we discuss whether Amazon is a good investment for future investments.

Majors: Math and Statistics



Faculty Mentor: Dr. Cristina Anton

The Sums of Integer Powers

By Darren Paetz

An investigation of the origin of the formulas for the sums of integer powers was performed. A method for calculating the sums of the first n integers to the k th power, denoted $S_k(n)$, was first derived by Jacques Bernoulli in the late 1600's. Through the discovery of formulas for the computation of integer powers, a numeric sequence arose. This sequence has become known as the Bernoulli numbers. Bernoulli simultaneously derived a recursive algorithm that can generate Bernoulli numbers. This recursive relationship was the subject of the first computer program in 1843. Utilizing a relationship that Bernoulli observed, it is possible to then calculate all terms in a coefficient matrix that enables the calculation of formulas for $S_k(n)$. This coefficient matrix was generated using computer software with two different methods. Numerical analysis techniques were applied to each generated matrix, and the relative error between the two matrices was compared.

Major: Undeclared

Faculty Mentor: Dr. Christian Ivanescu

Who doesn't watch Netflix?

By Maryam Saeed

In this study we analyze Netflix monthly stock prices for the period from Jan 2003 to February 2021. We find time series models and forecast future stock prices. We fit ARIMA models and based on these models we predict the Netflix stock price. Due to the COVID pandemic there is less variety in the forms of entertainment available, and this seems to be an advantage for Netflix.

Major: Mathematical Sciences

Minor: Business

Faculty Mentor: Dr. Cristina Anton

Sample Size Determination for Skewed and Heavy-Tailed Distributions

By Jordan Slessor

In this article, we propose methods to determine adequate sample sizes for applying the classical central limit theorem to skewed and heavy-tailed distributions. In doing so, we review the properties of an α -stable distribution and its domain of attraction. Then, we apply the general Edgeworth expansion for regularly varying distributions to t -distributions with at least three degrees of freedom. Motivated by the observed results, we propose a mathematical formula for determining adequate sample size. The formula is valid for distributions with at least fourth moments. Then, we propose an algorithm to apply this formula to a data set from general distributions. For distributions with infinite/undefined skewness/kurtosis, such as some heavy-tailed distributions, we could use the Monte-Carlo simulation method to determine adequate



sample size. As an example, we propose an empirical method to determine the sample size for Pareto distributions. Both the algorithm and the empirical method are tested on simulated data.

Major: Applied Statistics
Minor: Computer Science
Faculty Mentor: Dr. Rui Hu

Nursing

Promoting Positive Change with Blood Glucose Entry Error and Documentation in Acute Care

By Jadyn Scheck

In the clinical setting of NURS 479 leadership, the issue of incorrect blood glucose entry error and documentation arose as a challenge in regards to safe patient care in the nursing environment. Patient care had the potential to be affected in adverse ways. Risks of differing patient care plans, and the concept of unequal health equity came to be possible scenarios due to these errors. Stakeholders, and structural and human factors all played a part in the circumstances present, and from there, it was questioned what could be done to positively adjust this issue. Posters were created to be put in place within various locations of the clinical setting, striving to educate stakeholders, (nurses, physicians, management) and maintain the overall goal of decreasing blood glucose entry error and documentation. Three weeks following the poster implementation, the results revealed that there was a 3-5% decrease in cases of error. Therefore, the established intervention did create a positive change, by reducing the numbers of data entry error and documentation: overall patient management, care, and safety were improved. Going forward, it is important to keep in mind what actions do create meaningful change in the clinical setting, and what steps one can take as a nursing student when seeking to establish positive change. When concluding this project, the ability to be equipped with original information and education moving forward into future nursing practice was recognized. This presentation will overview the steps taken, outcomes determined, and evaluation of a NURS 479 Nursing Practice/Professional Roles project.

Major: Nursing
Faculty Mentor: Tanya Paananen

Physical Sciences

Messengers from the Asteroid Belt: A Study of Diogenites Northwest Africa 10268 and 7464

By Jannah Aizon

The study of meteorites is crucial to understanding the geological evolution of our early solar system. In this study, we observe optical and chemical properties of two diogenite meteorites (Northwest Africa 7464 and 10268) that originated from the second-largest asteroid, 4 Vesta. By studying the mechanical deformation and transformation features of feldspar, olivine and



pyroxene grains within the samples, we are able to constrain the shock stage of each meteorite. Northwest Africa 7464 and 10268 were both observed using a scanning electron microscope, an energy dispersive x-ray spectrometer, an electron microprobe, a petrographic microscope and a Raman spectrometer.

Northwest Africa 7464 exhibits weak mosaicism and planar fractures in pyroxene, as well as, undulatory extinction and planar fractures in olivine. These features suggest a moderately-shocked S4 meteorite consistent with a shock pressure of between 4-20 GPa. Northwest Africa 10268 contains opaque shock veins associated with the diaplectic plagioclase glass, maskelynite. This host rock exhibits strong mosaicism and undulatory extinction in pyroxene, as well as, twinning in crystalline feldspar. These features are consistent with a strongly shocked S5 meteorite, experiencing a shock pressure of between 22-25 GPa. These results give insight on shock pressure and temperature conditions that occur on 4 Vesta.

Major: Physical Sciences

Faculty Mentor: Dr. Erin Walton

Microplastics pollution in sediments of stormwater retention ponds in Edmonton, AB

By Nicole Cubacub

Microplastic is a ubiquitous pollutant in the environment. They are ingested by organisms due to their microscopic size. Recent studies have shown that freshwater environments are contaminated with microplastics. Urban stormwater runoff contributes to microplastic pollution during storm events. Stormwater ponds are a significant study area for understanding the pathway of microplastics to enter rivers and serve as a network for transporting MP from land to water environment. Assessing the impact of urban runoff can help determine the sources of microplastics in Edmonton, Alberta. The sediments of twenty-four stormwater ponds were studied. The samples were characterized based on their land-use type as either Industrial, Natural, Residential, Agriculture, Highway or Park. The microplastics were extracted from each sediment to test the hypothesis of which anthropogenic catchment type contributes to microplastic pollution the most. The extraction was achieved using density separation and organic digestion methods. The samples were stained with Nile Red for quantification using microscopy. Two morphologies, fibres and fragments, were found from the practice sample, Cy-Becker. 76.9% of the particles found were fibre. 54.8% of the particles were blue, followed by 23.1% transparent and 7.7% each green, red and pink. Assessing the impact of urban sources of microplastic helps understand the fate of microplastics in freshwater systems.

Major: Physical Sciences

Minor: Sociology

Faculty Mentor: Dr. Matthew Ross

Sorption of trace Ciprofloxacin to environmental media

By Ryan Gallagher



The increased usage of pharmaceuticals, especially antibiotics has unintentionally resulted in their increased introduction into the environment, especially via effluent into waterways from wastewater treatment plants. Many of these drugs can have significant detrimental effects on local wildlife and flora and have the potential to be introduced into the food chain. Sorption of these trace pharmaceuticals to environmental surfaces is of interest as it plays a key role in their mobility and remediation. In this study the detection, characterisation and quantification of the sorption of Ciprofloxacin (cipro) to goethite, a iron oxide mineral commonly found in soils, and biochar. The sorption was tested from pH 3-10 and was analyzed using HPLC-MS and FTIR spectroscopy. Sorption of the cipro was confirmed and 3 potential breakdown products were discovered. These breakdown products are likely produced by oxidation at the mineral surface. Sorption efficiency was determined using HPLC-MS, and found to be most efficient from PH 6-8.

The results of this preliminary study will be used in future works in predicting the mobility of trace pharmaceuticals and their breakdown products in environment.

Major: Physical Sciences

Faculty Mentor: Dr. Janice Kenney

Cataloguing Retrogressive Thaw Slumps along the Old Crow River, YT: Proposing Regional Controls on Retrogressive Thaw Slump Formation and Growth

By Brooklyn Miller

The Old Crow River flows across a continuous permafrost zone in the Northern Yukon. The seasonally frozen ground contains ice, organics, and metal pollutants. Retrogressive thaw slumps form when permafrost on the riverbanks thaw and sediment flows downslope into the river, leaving an unvegetated scar that can be seen on satellite images. The thaw slump will grow rapidly until stabilization impedes further melt. The specific controls on permafrost thaw will vary regionally throughout the Yukon, and the variables affecting formation and activity of thaw slumps along the Old Crow River have not been studied. Influences on the activity of thaw slumps are proposed through cataloguing geomorphic conditions and variables measured using satellite images and digital elevation data. The data collected suggests that cliff slope and direction, river processes, and proximity to certain landforms may influence growth and activity of thaw slumps along the Old Crow River. Satellite data is used to perform a supervised classification of the area that identifies RTS with a sensitivity of 62% and precision of 85%.

Major: Physical Sciences

Minor: Statistics

Faculty Mentor: Dr. Robin Woywitka

Molecular Docking and Dynamics of CePNKP Phosphatase Binding to the ss-5-Mer TCCTC



By Randa Tunalli

Polynucleotide kinase/phosphatase (PNKP) is a DNA repair enzyme found in mammals, which recognizes and repairs DNA backbone breaks with 3'-phosphate and 5'-hydroxyl ends. DNA can be damaged by ionizing radiation, chemical agents and enzymatic action. The phosphatase domain of PNKP recognizes the 3'-phosphate group, excises it, and replaces it with a 3'-hydroxyl group, thereby making the 3'-end ready for the action of a ligase that completes the DNA strand. In this work, the single-stranded 5-mer TCCTC sequence was docked to the phosphatase domain of the *C. elegans* PNKP using the Modeller interface implemented in the UCSF Chimera software, taking into account the crystallographic information available. The structure of the complex was subject to a classical molecular dynamics protocol using Gromacs. Molecular dynamics is a computer simulation technique that allows us to compute dynamic and thermodynamic properties to determine the physical interaction between the PNKP phosphatase and the ssDNA.

Major: Psychology

Minor: Chemistry

Faculty Mentor: Dr. Jorge Llano

Psychology

What lies behind a narcissist's selfie? The Implications of Grandiose and Vulnerable Narcissist's Instagram Usage

By Nicole Antunes

Individuals are spending more time on social media sites (i.e., Instagram), which has contributed to decreased in-person contact and increased narcissism. This study examined how vulnerable narcissists (i.e., those characterized by low self-esteem, introversion) and grandiose narcissists (i.e., those characterized by high self-esteem, extraversion) engage on Instagram and how their online behaviour is perceived by others. Given that vulnerable narcissists are more likely to seek others' approval compared to grandiose narcissists, vulnerable narcissists may be more concerned with their social media behaviour (e.g., spend more time editing their selfies). In turn, these behaviours may be visible to other social media users. In Study 1, we explored whether vulnerable narcissists would spend more time taking selfies and editing them compared to grandiose narcissists. Target participants (N = 152) took selfies in the lab and completed questionnaires assessing their social media engagement. We confirmed that vulnerable narcissists spend more time taking and editing selfies compared to grandiose narcissists. In Study 2, we showed the target selfies to a new sample of perceivers (N = 256) who rated each target's narcissism, self-esteem, and social media usage. Perceivers were able to detect how long individuals spend on Instagram, how many selfies individuals take, and how long they spend taking selfies. Vulnerable narcissists, but not grandiose narcissists, were perceived as using social media more, as having lower self-esteem, and higher narcissism. Thus, vulnerable narcissists report engaging more in social media behaviours, which viewers can easily detect.

Major: Honours Psychology

Minor: Sociology



Faculty Mentor: Dr. Miranda Giacomini

Do Incremental Theories of Well-Being and Other Well-Being Beliefs Predict Prosocial Spending?

By Carley Aquin

Research has revealed that prosocial spending is associated with greater well-being than is personal spending. Given this link, well-being beliefs may predict the degree to which people endorse prosocial spending relative to personal spending. In Study 1, it was predicted that incremental mindsets toward well-being and eudaimonic well-being beliefs would be associated with prosocial spending and autonomous reasons for prosocial spending. Results showed that undergraduate students (N = 288) with greater eudaimonic and lower hedonic well-being beliefs demonstrated an increased preference for prosocial spending and autonomous reasons for prosocial spending, controlling for socially desirable responding. In Study 2, it was predicted that the cultivation of an incremental mindset and the delivery of knowledge regarding the benefits of prosocial spending would interact to enhance the intention to engage in prosocial spending. Undergraduate student participants were randomly assigned to a mindset intervention, a benefits-of-prosocial-spending intervention, both interventions, or neither intervention. Results revealed that undergraduate students (N = 84) assigned to the incremental mindset of well-being condition demonstrated a greater endorsement of prosocial spending. The implications of the current research will be discussed, including mechanisms by which well-being beliefs are or are not associated with prosocial spending.

Major: Honours Psychology

Minor: Sociology

Faculty Mentor: Dr. Andrew Howell

Undergraduate Student Experience of COVID-19 Anxiety: Opinions, Dysfunctional Beliefs, and Anxiety Symptoms

By Layton Byam

The COVID-19 pandemic is an international health crisis that has changed the experience of undergraduate students across Canada. As of February 23rd, 2021, Canadian officials have reported over 800 thousand cases and 21 thousand deaths due to COVID-19.

Major: Honours Psychology

Faculty Mentor: Dr. Alexander Penney

The Effects of Word Length on Handwriting Perception

By Haley Calder

Humans are social creatures, and a large part of our communication skills are developed through reading and writing. Unlike typeface, handwriting is unique to each individual writer and can characterize a person. Our brain engages differently when reading and writing handwriting



versus typeface. Similar to faces, handwriting is a complex visual stimulus containing multiple dimensions. This study looks at the effects of word length in handwriting perception using traditional psychophysical techniques. Recently, we have developed a set of standardized handwriting stimuli that we can use to investigate whether or not the perceived gender of handwriting depends on the number of letters within a word. Stimuli will be composed of 1, 2, 4, 8, or 16 letters and participants will rate the perceived gender of the handwriting. There are two alternative outcomes we expect to find with this study. Handwriting perception may reflect global visual processing (efficient processing) or local visual processing (inefficient processing).

Major: Honours Psychology

Minor: Business Law

Faculty Mentor: Dr. Nicole Anderson

Do Narcissists Trust Criminals? Narcissism and Trustworthiness Perceptions

By Caleb (Morgan) Chomay

Narcissist's assertive or antagonistic characteristics impact how they perceive others. Individuals high in narcissistic rivalry tend to maintain a hostile orientation after anticipating a threat to their self-image which may make them less trusting. Individuals high in narcissistic admiration tend to seek social admiration through assertive self-promotion which may make them more trusting. The purpose of this study is to examine who narcissists trust during first impressions and if individuals high in narcissistic rivalry differ from individuals high in narcissistic admiration during their trust perceptions. Undergraduate participants (N = 209) viewed facial photos of Nobel Prize winners and white-collar criminals and rated their trustworthiness. Participants completed the Narcissism Admiration and Rivalry Questionnaire to determine their levels narcissistic admiration and narcissistic rivalry. Criminals were rated as less trustworthy than Nobel Prize winners based on facial photos alone. Participants high in narcissistic rivalry perceived Nobel Prize winners as less trustworthy than those low in narcissistic rivalry. Ratings of criminals' trustworthiness ratings did not differ between those low and high in narcissistic rivalry. These effects were found after controlling for extraneous variables (e.g., perceived attractiveness, happiness, dominance, and the quality of the photos). Narcissistic admiration did not influence trustworthiness ratings. Untrustworthiness may be accurately detected during first impressions. Those who are high in narcissistic rivalry are less trusting towards trustworthy individuals compared to those low in narcissistic rivalry, possibly due to the maintenance of their self-protective, antagonistic and hostile interpersonal orientation.

Major: Honours Psychology

Minor: Sociology

Faculty Mentor: Dr. Miranda Giacomini

The Role of Psychological Flexibility in the Eudaimonic Activity Model

By Katie Demuyne



Psychological flexibility is made up of six processes that are characterized by flexibly embracing life events and acting in favour of personal values (Hayes et al., 2006). Self-determination theory proposes that meeting basic psychological needs for competence, autonomy, and relatedness culminates in well-being (Ryan et al., 2008). The Eudaimonic Activity Model (Martela & Sheldon, 2019) proposes that basic need satisfaction mediates the relationship between doing well (eudaimonic motives and activities) and feeling well (subjective well-being). In the present study, it is argued that psychological flexibility fits into the Eudaimonic Activity Model by providing a basis for measuring eudaimonic activity that predicts subjective well-being, mediated by need satisfaction. Participants (N = 281) from MacEwan University completed an online study assessing measures of psychological flexibility and inflexibility, need satisfaction, positive and negative affect, and life satisfaction. Mediation analyses revealed that basic need satisfaction was determined to mediate the relationship between psychological flexibility and subjective well-being (as measured by life satisfaction and positive and negative experiences), and separately, the relationship between psychological inflexibility and subjective well-being. These findings provide insight into the underlying mechanisms behind the positive impacts of psychological flexibility.

Major: Honours Psychology
Faculty Mentor: Dr. Andrew Howell

Do Mental Health Apps Influence Stress or Affect in University Students- And Does Personality Matter?

By Cassandra Elliott

Background: Mental health apps (MHApps) have become increasingly popular in major mobile stores. While there are many anecdotal claims made about their effectiveness, there is still limited empirical support for their usability or practicality. Having access to instant mental health services can provide excitement and hope for many who are suffering and unable to receive treatment. However, more systematic research is needed to investigate their effectiveness for improving mental well-being.

Objective: The primary purpose of this study is to investigate the relationship between the use of mental health apps, specifically What's up! and Self-Help for Anxiety Management (SAM) and student stress and affect. The secondary purpose of this study is to examine if a relationship exists between personality factors and app use and effectiveness.

Methods: Student volunteers from MacEwan University were randomly assigned to one of three groups. Two experimental app groups and a third control group. All three groups were asked to complete an initial survey and a similar second survey approximately 2-weeks after the initial survey completion. The surveys included items from the Perceived Stress Scale, the Big Five Inventory-2, and the Positive and Negative Affect Schedule, as well as basic questions about the participants' previous and current app use, and other relevant items.

Hypothesis: Participants in the experiment groups will experience more reduction in negative affect, anxiety, and stress than the control group. Also, participants who score higher in



conscientiousness will experience more app use and negative symptom reduction than those with lower scores.

Major: Honours Psychology
Faculty Mentor: Dr. Sean Rogers

Unique Circumstances and Family Stress: Having a Sibling with Prader-Willi Syndrome

By Darcy French

Raising a child with neuro-atypical needs is challenging for any family. It is not surprising that many aspects of parental stress, anxiety, depression, and raising children with special needs have many research publications. This study looks at the specific genetic disorder Prader-Willi Syndrome (PWS) and its effects on family members. PWS affects approximately 1 in 10,000 to 1 in 30,000 live births (Magill et al. 2020). Individuals with PWS have multiple symptoms, including hypertonia during infancy, developmental delay, maladaptive behavioral problems (extreme stubbornness and tantrums), scoliosis, strabismus, hypogonadism, and hyperphagia (Holm et al. 1993). Rather than focus on the parental context of raising an individual with PWS, this study will explore the impact of the siblings raised with a brother or sister with PWS. Precisely, this study will measure to what degree these siblings experience stress in their daily lives. This study will target teens from 13-17 years old and adult siblings 18 years and older. The results will be analyzed and compared to siblings raised with brothers and sisters that are neurotypical.

Major: Honours Psychology
Faculty Mentor: Dr. Sean Rogers

In the Shadows: Perceptions of In-Person, Phone & Cyberstalking

By Mattise Gauthier

Previous research has found that our perceptions of stalking severity, threat, and prevalence do not align with the true nature and scope of these criminal behaviours. Further, our judgments are influenced by the type of stalking involved in a case (i.e., over the internet versus being followed in person) and who we believe the stalker to be. As such, the present study was designed to assess perceptions of stalking severity and dangerousness in relation to the type of stalking (in-person, phone, cyber), gender of the stalker (man versus woman), stalker-victim relationship (stranger, acquaintance, or ex-partner), and the type of threat (self or other-harm). Participants read a vignette detailing an individual at a coffee shop on campus that began to stalk the victim, the details of which varied according to our variables of interest. Participants also completed measures of personality, bias, and a judgment questionnaire to assess perceptions of severity, threat, and necessity of criminal justice intervention. We anticipate that the highest ratings of dangerousness/severity/threat will be associated with in-person stalking where the stalker is a man, a stranger, and threatens to harm the victim. However, police intervention may be sought more in the phone and cyber groups, where demonstrable proof of



stalking could be obtained. This study has implications the manner in which criminal justice professionals interpret stalking and criminal harassment.

Major: Honours Psychology
Faculty Mentor: Dr. Kristine Peace

The effects of microdosing LSD on behaviour in zebrafish (*Danio rerio*)

By Ethan Hagen

The use of LSD for different forms of mental health treatment of has begun to increase. Therefore, there is a need for scientific evidence as to the effectiveness of this drug. Previous research using the Zebrafish has shown that low doses (5-100 $\mu\text{g/l}$) had little to no effects on the behaviour of the fish. In this study we used a camera-based video tracking software system to record and analyze the movement patterns of zebrafish after repeated LSD exposure and after 7 days of withdrawal. We used 30-minute small doses (1.5 $\mu\text{g/l}$, 15 $\mu\text{g/l}$, 150 $\mu\text{g/l}$, and control) for a duration of 10 days. and a withdrawal period for 7 days after the final dose of the fish. Testing occurred after 10 days of repeated dosing and again after withdrawal. The open-field and novel object approach tests were used as they are established anxiety-like behaviour paradigms. There was no significant difference to the levels of anxiety within any of the fish after their dosing cycle. There was a significant difference in anxiety-like behaviour after the withdrawal period. These results show that there is likely no or very little effects on anxiety with microdosing at the doses used after 10 days, but there is a possibility of a withdrawal effect.

Major: Honours Psychology
Faculty Mentor: Dr. Trevor Hamilton

Individual Identification in American Pika

By Janine Heber

Our research will focus on mammal communication by exploring the specific use of vocalizations in the American pika (*Ochotona princeps*). Past research indicates that pika produce squeak calls containing cues to individual identity that aid in territory protection. We will be recording pika vocals from a population of individuals in the Highwood region of Kananaskis, AB. Calls will be recorded and detailed playbacks conducted to understand how call structure affects response in listeners. In other words do pika recognize different individuals by sound alone. Because pika live in high alpine scree locations they are key indicators of the effects of climate change. Therefore, any exploration into their behaviour may aid in understanding the potential effects of climate change on this species and perhaps alpine species more generally.

Major: Honours Psychology
Minor: Gender Studies
Faculty Mentor: Dr. Shannon Digweed

Empathy, Pet-Ownership and Self-Awareness

By Miray Helmy



Empathy is defined as the ability to share feelings and emotions of another individual (Daly & Morton, 2009). A person's level of empathy can be affected by many factors, such as exposure to childhood trauma (Greenberg et al., 2018), mindfulness training (Birnie et al., 2010), and childhood pet ownership (Daly & Morton, 2006; Vidović et al., 1999). It is the last of these items that is of interest to the present study. Specifically, it is unclear whether one's change in empathy is due to pet ownership itself, or the result of changes in other personal factors that tend to coincide with pet ownership. The present study is therefore designed to expand on our understanding of why pet ownership is associated with empathy change, and will assess the relationship between empathy and one's relationship with animals, the bond an individual has with their pet, and or one's level of self-awareness (the ability to distinguish oneself and one's values from others, Froming et al., 1998), among others.

Therefore, we predict that in general, owning a pet will be associated with higher levels of human-centered and animal-centered empathy. However, we also predict that the strength of the pet-owner bond, and personal factors such as one's level of self-awareness, will be critical modulating factors for the relationship between pet-ownership and empathy. Specifically, we predict that individuals with a stronger bond with their animal, and higher levels of self-awareness, will have higher empathy scores than those who have weaker bonds with their animals, or lower levels of self-awareness.

Major: Honours Psychology
Faculty Mentor: Dr. Eric Legge

Associations Among Parental Attitudes on Technology, Digital Literacy, and Children's Learning Outcomes in the 2020 Pandemic

By Karyl Hidalgo

The purpose of this study was to explore how parents' digital literacy affected children's learning outcomes while engaging in online learning in the recent pandemic. Digital literacy is the ability to efficiently use technology, navigate through different programs comfortably, and be able to manage information for proper online behaviour. This study focused on the parental perspective of their child's learning from face-to-face to digital instruction. An online survey was completed by 22 parents with children in grades K-12 attending school in the Edmonton area. The survey explored parents' digital technology use, their motivation and perspectives on technology in their child's learning, as well as demographic factors such as ethnicity, digital age, and household income. Students' school performance was recorded for a number of subject areas. The survey revealed that parents had good digital literacy, access to technology, and positive attitudes on technology for learning. However, some parents reported a lack of their child's engagement, a desire for greater teacher interaction, and difficulties with balancing parenting and teaching at home. Despite these concerns, detriment to children's school performance was not observed. The findings shed light on the challenges faced by parents and children's learning at home in the recent pandemic and have the potential to inform teaching practices that will optimize learning outcomes in online learning settings.

Major: Honours Psychology



Faculty Mentor: Dr. Tara Vongpaisal and Dr. Christopher Striemer

Can Stalking Be Used as a Risk Factor in Predicting Rates, Severity, and Frequency of Intimate Partner Violence Recidivism?

By Marguerite Himmen

Research has indicated that stalking is a prevalent crime in North America. Despite this concern, the current laws do not adequately protect victims from stalking recidivism. This contributes to victims often being revictimised. Moreover, victims may experience many detrimental concerns, particularly prolonged psychological and social problems. Stalking-related behaviours have also been associated with intimate partner violence (IPV). Specifically, stalking victims are at risk of experiencing more severe physical violence from a former partner. Although there are many validated IPV risk assessment tools such as the Ontario Domestic Assault Risk Assessment (ODARA), stalking risk tools have been found to be moderate, at best, in terms of their psychometric properties. The aim of this study is to examine whether IPV perpetrators who have stalked their victims differ from those who do not stalk in terms of recidivism risk, rates, frequency, and severity. Additionally, we examine whether stalking can be used as a risk factor to better predict the time until recidivism occurs. This study initially included 249 IPV cases that were reported to police in 2017. One hundred of these cases were selected for follow-up and were coded for recidivism outcomes. Results indicate that those who stalk differ on some recidivism variables from those who do not stalk. Moreover, the addition of stalking as a risk factor to the validated risk tool, ODARA, did not incrementally improve prediction of the time until recidivism occurred. The implications of these findings will be discussed.

Major: Honours Psychology

Faculty Mentor: Dr. Sandy Jung

Living with Animals and Others During the COVID-19 Pandemic: Impacts on Mental Health

By Celina Hulm

The COVID-19 pandemic has led to an increase in feelings of isolation and anxiety (Chand et al., 2020), which has had a significant, negative impact on people's mental health (Brooks et al., 2020). During the COVID-19 pandemic, adoption rates for animals have significantly increased (Morgan et al., 2020), which may be because interactions with animals are associated with reductions in loneliness and anxiety (Brooks et al., 2012; 2018). To date, however, it is unclear whether people's interactions with animals will improve feelings of isolation and anxiety that are brought forth, or exacerbated by, public health restrictions used to combat a global health emergency such as the COVID-19 pandemic. It is quite possible that the stressors associated with the COVID-19 pandemic could result in increased stress and worry for those who own animals. For example, the public health restrictions used to combat COVID-19 has led to significant job losses (Lemieux et al., 2020). In such a circumstance, the care of an animal may become a financial burden and thus exacerbate the owner's stress (Enders-Slegers et al., 2019). To this end, our study aims to determine if spending time with animals mitigates or



exacerbates feelings of isolation and worry. We will assess participants' feelings of anxiety and depression, stress related to COVID-19, perceived social support, ratings of happiness, and pet attachment. We plan to survey individuals 18 years or older who either live alone, live alone with an animal, live with other adults but no animals, or live with other adults and animals. We will survey both MacEwan students and individuals from the general population of Edmonton and the surrounding area. We generally expect to see that having animals will result in a decrease in worry as animals help mitigate people's feelings of isolation and anxiety. However, we also expect that such mitigation will be less impactful for those living alone, than those who live with others. This research will help broaden our understanding of how animals impact people's feelings of worry and isolation during a global health emergency. As well, our findings may provide important evidence for policy decisions related to rental rules restricting animals in rental properties.

Major: Honours Psychology
Faculty Mentor: Dr. Eric Legge

Barriers to twice-exceptional student engagement during COVID-19: A case-study of factors affecting school engagement

By Kathryn Jelly

In spring 2020, K-12 schools suspended in-person classes due to the COVID-19 pandemic. Schools reopened in-person classes in the fall. Many parents were concerned about the impact of school closures and subsequent re-entry on childrens' school engagement.

Previous literature suggests high engagement in school prevents dropping-out, leads to better grades, and is related to lower depression rates. Some students face unique challenges that may result in lower school engagement, such as twice-exceptional (2E) students. 2E refers to individuals who are both gifted and face some type of learning challenge.

A strengths-based approach is suggested as most effective for improving 2E student outcomes. In this approach, material is presented in a way that aligns with students' talents and interests.

In addition to learning challenges impacting engagement, external factors, such as caregiver stress, may also impact student engagement. The COVID-19 pandemic has increased stress for many caregivers.

In this study, we investigated whether a strengths-based approach was associated with higher engagement in 2E students. Students' strengths were assessed and compared to tasks planned by their teachers. Students' engagement during these tasks was then observed by the research team. Further, we explored the relationship between caregiver stress and student engagement using surveys collected in parallel with student observations.

This study was designed to serve as a pilot study for future research on factors related to engagement. Preliminary findings provide weak support that higher task-strength alignment is positively associated with student engagement and that higher caregiver stress is negatively associated with student engagement.

Major: Honours Psychology



Faculty Mentor: Michele Moscicki

A Tale of Tails: The description and potential function of tail-flagging behaviours in Eurasian red squirrels (*Sciurus vulgaris*).

By Juliana Kaneda

Not only do animals communicate with one another, but they also demonstrate the use of mixed communication strategies. One such strategy, multimodal communication, involves multiple sensory signals used together to communicate messages. For example, an animal may use visual signals, auditory signals, or a combination of both, to communicate. Although multimodal communication has been observed in many animal species, there is still a surprising lack of data. Many studies focus on either a single aspect of the multimodal signal or on the joint signal alone. However, information about multimodal signals, as well as each component unimodal signal, are needed in order to understand and categorize the purpose of joint messaging. Our study aims to address this gap in the literature by investigating multimodal communication in Eurasian red squirrels. Since Eurasian red squirrels use visual and acoustic vocal signals in both joint and independent contexts, they provide an excellent opportunity to study the specific circumstances in which multimodal communication occurs. Additionally, because there is minimal research on Eurasian red squirrels, this study will provide preliminary investigations into how this endangered species communicates and navigates the world around it.

Major: Honours Psychology

Minor: Gender Studies

Faculty Mentor: Dr. Shannon Digweed

Behind the Wall: How Age, Gender, and Type of Violence Influence Perceptions of Intimate Partner Violence

By Brandon Krebs

In legal and public domains, the perception of intimate partner violence (IPV) is influenced by a range of legal and extra-legal factors. The present study was designed to investigate how jurors' perceptions of IPV incidents are influenced by the type of violence perpetrated, the age of the couple involved, and the gender of the perpetrator and victim. Undergraduate participants (N=576) were presented with an IPV vignette, a case judgement questionnaire, and several self-report measures. Vignettes differed according to the gender of the perpetrator (man/woman in a heterosexual relationship), the type of violence perpetrated (physical/sexual/psychological/financial), and the age of the couple (18/30/45/65). Participants' overall assessment of IPV scenarios (i.e., how violent/severe) as well as their general perceptions of IPV, ageing populations, and traditional gender roles were measured. In general, participants perceived violence perpetrated by men as more violent, severe, and requiring criminal justice intervention more frequently than IPV perpetrated by women. Victim fear also was rated higher when the perpetrator was a man. Overall, physical violence was rated as the most severe, fear-provoking, and violent than financial, psychological, and sexual violence. Interestingly, sexual violence was perceived as the least common type of violence within ageing



populations (65 years old). Finally, exploratory findings suggest that persons who minimize IPV and fail to see the necessity for criminal justice intervention, are those who endorse attitudes associated with hostile sexism and traditional gender roles. Results from this study have important implications for legal personnel concerning biases present in the assessment of IPV cases.

Major: Honours Psychology

Minor: Business

Faculty Mentor: Dr. Kristine Peace

The Effects of Chronic Lysergic Acid Diethylamide Exposure and Withdrawal in Zebrafish

By Jessica Kumar

Zebrafish (*Danio rerio*) have recently emerged as an excellent model for neuropharmacological research due to the similarities in neurochemistry they share with humans. This similarity enables researchers to generalize findings concerning the relationship between neurotransmitter systems and hallucinogenic drugs to humans. The purpose of the current study was to investigate the behavioural effects of chronic lysergic acid diethylamide (LSD) exposure and withdrawal in zebrafish. Subjects were randomly assigned to a low or high dose of either 100 µg/L or 250 µg/L for 10 days. Behaviour in the open field test was assessed on the 10th day for chronic exposure and on the 11th day for withdrawal. The present study hypothesized a dose-dependent anxiolytic effect of chronic exposure, similar to what was found in past research for acute exposure. It was also predicted that a withdrawal response of treated fish would be demonstrated with heightened anxiety. Results indicated that neither chronic exposure to nor withdrawal from LSD affected swimming speed or distance moved; thus, implying that LSD did not affect motor control. However, results for chronic exposure revealed no significant increase in behaviours indicative of low anxiety. Evidence seemed to suggest a tolerance combined with a lack of withdrawal with treated fish performing similar to controls in each round of testing. Future research should address the acute application of LSD in panic disorder treatment and differing drug exposure intervals with repeated testing.

Major: Honours Psychology

Faculty Mentor: Dr. Melike Schalomon

A Study of Mindset- Rethinking the Structure of Mindset and How Growth Mindset Interventions are Delivered

By Nathan Kyler

Having a growth mindset (i.e., the belief that traits are changeable with effort), is advantageous in many diverse domain-specific areas, such as academic performance, problem solving creativity, and ability to handle stress and anxiety. With such a variety of different domain-specific mindsets, it is reasonable to question whether there is a general quality underlying where one falls on an overall mindset spectrum. This general mindset, or mind mindset, would



be the belief that many traits, attributes, and personality characteristics are changeable with effort. In study #1, we aim to determine whether a mind mindset exists. We will use online self-reports of nine different domain-specific mindset measures to determine if there are correlations across measures within participants. If a mind mindset exists, interventions targeting increasing one's overall growth mind mindset could potentially influence all other domain-specific mindsets. Similarly, we will investigate ways to effectively deliver growth mindset interventions. Actively engaging in material, by applying the information to one's life or teaching others, improves retention of that material over passively listening to that material being taught. In study #2, we aim to determine whether an active vs. passive growth mindset intervention is more effective for improving exam scores. Participants will be randomly assigned to one of three groups: 1) Active intervention, 2) Passive intervention, or 3) Control. If there is a mind mindset mediating where one falls on all mindset spectrums, and active interventions are shown to be more effective, vast improvements in growth mindset intervention efficacy may be made.

Major: Honours Psychology
Minor: Philosophy
Faculty Mentor: Dr. Michele Moscicki

Sensitivity in Face Perception with Masked Faces

By Chris Leathem

COVID has affected every aspect of our lives. The imposed protocols have drastically restricted the ways we are allowed to interact. When people do have a chance to socialize, the use of surgical masks has become normative. Along with acting as a protective barrier against the virus, surgical masks also act as a visual barrier that blocks the reception of information critical for the formation of our perceptions. A recent study by (Freud, et al., 2020) examined the effect that surgical masks have on face recognizability. This study found that recognizability of masked faces was markedly lower. The decrease in recognizability of masked faces indicates that masks likely disrupt holistic processing. The present study will examine if masked faces are more recognizable when they are moving (dynamic). We hypothesize that dynamic-masked faces will convey cheek, nose and jaw dimensions, giving the perceiver more elements to bind together, or motion itself could be an element that becomes integrated into holistic processing. We are also interested in determining how emotional identification is altered when the face is covered by a mask. In accordance with previous literature, we hypothesize that masks impair the recognition of disgust, happiness, surprise and fear, while increasing the recognition of anger and sadness (Guarnara et al., 2017). Our goal is to leverage the restrictions we are experiencing due to COVID, to prove that human perceptual systems integrate dynamic information to more accurately recognize faces, while also investigating the emotional perceptions of masked interactions.

Major: Honours Psychology
Faculty Mentor: Dr. Michelle Jarick

Can singing help me relax? The effect of music on perceived stress



By Morgan McCloy

Listening to music can induce relaxation, especially when participants select their own preferred music. However, the role of singing in relaxation is less clear. Some studies have examined group singing, or used singing to induce stress, but it remains unclear if singing in the absence of social stressors can decrease perceived stress. The current study examined this question. Participants (N = 392) rated their current mood before and after a stress inducing reflection task, then were randomly assigned to one of four music interventions: singing vs. listening to a self-selected vs. experimenter-selected song. Following this, participants completed another mood rating, along with questionnaires assessing musical sophistication, personality, demographics, and experience during the intervention. Results revealed a larger decrease in stress after singing compared to listening, although stress decreased significantly in both cases (both $ps < .001$). Our findings suggest that under certain conditions, singing may be slightly more effective than music listening for stress relief, and that the greatest decreases in stress occur for liked songs. This research is not only beneficial to students managing stress, but has implications for the wider population handling stress during the pandemic. An additional exploratory study examined arts-engagement during COVID-19 and its relationship to stress, anxiety, and coping strategies. Most participants (95.7%) engaged with the arts; relaxation being the most commonly reported feeling (82%). Increases in stress and anxiety correlated with the use of avoidant coping (both $ps < .01$), but not approach or arts coping. Future directions of these findings will be discussed.

Major: Honours Psychology
Faculty Mentor: Dr. Kathleen Corrigan

Materialism and Awe

By Emmett McCurdy

Experiencing awe (an emotionally moving shift in frame of reference or expansion of schemata) has been shown to increase generosity, spirituality, and prosociality, and reduce tribalism. The present research used an experimental design to investigate the effects that awe experiences would have on individuals' endorsement of materialistic values and beliefs. Awe and materialism are theoretically incompatible, as materialism typically emphasizes the individual's personal acquisitive goals at the expense of non-material goals like fostering interpersonal relationships or seeking self-knowledge and spiritual fulfillment. Additionally, previous research has demonstrated a distinction between types of awe; self-diminishing awe, or that which causes the individual to consider a frame of reference far larger than themselves and their own goals, is of particular relevance to the present study. Considering previous research and this theoretical incompatibility, it was hypothesized that exposure to awe-inducing stimuli would decrease participants' endorsement of materialist values and attitudes, as assessed by the Material Values Scale (MVS) and the Belk Materialism Scale (BMS). Participants were asked to fill out a number of self-report inventories and to watch a video or audio manipulation halfway through the materialism measures, providing a pre- and post-test for self-reported materialism. Self-



esteem and dispositional awe were controlled for using the Self-Liking/Self-Competency scale (SCLS) and the awe subscale of the Dispositional Positive Emotions scale (DPES) respectively. Results showed a significant main effect across all three conditions (including control), but no significant differences between conditions. Implications, limitations, and directions for future research are discussed.

Major: Honours Psychology

Minor: Philosophy

Faculty Mentor: Dr. David C. Watson

Can't Stress This Enough: Can Biofeedback Increase the use of Stress Interventions?

By Ada Nieminen

Undergraduate students experience many stressors throughout their education. An abundance of stress coping methods exist to help students cope; however, many of them require a significant time investment (e.g., exercise, meditation). Lack of time to accomplish all the demands of school and daily life is one of the highest reported stressors of university students. Some quick stress-coping methods (e.g., deep breathing, cognitive reappraisal) are effective for coping with in-the-moment stressful situations, but students rarely use these coping methods. It is unclear whether this lack of use is due to lack of knowledge, lack of belief that the strategy is useful, or other factors. Our study examined the first two ideas. We also compared the effectiveness of a physiological technique (deep breathing) to a cognitive technique (cognitive reappraisal).

Participants were divided into five groups: 1) control 2) deep breathing, 3) cognitive reappraisal, 4) deep breathing with biofeedback, and 5) cognitive reappraisal with biofeedback. Participants were either exposed to only informational videos about the stress-coping technique and were encouraged to use it during a stressful experimental task or were exposed to the videos plus biofeedback (heart rate measurements) before and after using the technique during the stressful task. Follow-up surveys were administered to determine how often students used each technique throughout the semester.

We hypothesize that participants in the biofeedback groups will use the coping technique more often throughout the semester and that deep breathing will be more effective than cognitive reappraisal.

Major: Honours Psychology

Faculty Mentor: Dr. Michele Moscicki

If You Change Your Mind: Relationship Between Implicit Theory and Materialism

By Hadla Omar

Materialistic individuals engage in consumption behaviours and hold materialistic values to avoid emotional and physiological negative experiences. Some avoidance strategies, such as



cognitive deconstruction, living in the present, or constant need to acquire materialistic items, are utilized to protect self-identity against any negativity. Implicit theory is the belief that attributes, or values are malleable (incremental) or fixed (entity). The present experimental research examines the relationship between implicit theory and materialism among undergraduate students. Study one involves inducing an incremental or entity mindset and then measuring the participants' materialistic values. It predicted that those with entity mindset will hold more materialistic values than both the incremental and control group. Study two involves inducing materialistic values and then evaluating a participant's mindset. It is predicted that those with higher materialistic values will likely hold an entity mindset rather than an incremental mindset.

Major: Honours Psychology

Minor: Biological Sciences

Faculty Mentor: Dr. David Watson

Longitudinal Examination of Causal and Maintaining Dysfunctional Beliefs in Generalized Anxiety Disorder

By Sydney Parkinson

Generalized anxiety disorder (GAD) is characterized by excessive and chronic worry. Various psychological models have implicated dysfunctional beliefs as causal and maintaining factors in GAD. The two models that have received the most empirical support include the Intolerance of Uncertainty Model and the Metacognitive Model. Existing research has shown intolerance of uncertainty (IU) and negative beliefs about worry (NBW) to be important factors in GAD. However, the existing research is primarily cross-sectional, which does not allow researchers to determine whether IU or NBW cause and maintain GAD. This study sought to longitudinally examine whether changes in IU and NBW predict changes in worry severity and GAD symptoms. It is hypothesized that NBW will be the stronger predictor of GAD development and maintenance compared to IU. Undergraduate psychology students, scoring high on a pre-screen measure of pathological worry, are currently being invited for inclusion in the study. Online self-report measures will be administered to eligible participants (N = 650) to assess levels of worry, GAD symptoms, positive and negative affect, IU, NBW, negative problem orientation, cognitive avoidance, and fear of emotions. Participants will be invited to return after 4-months to complete the same series of online questionnaires. To date, a sample of 530 participants have completed the initial assessment and 291 participants have completed the 4-month follow-up assessment. Findings from this study will help clarify whether IU or NBW more strongly influence GAD. Additionally, findings could have implications for the treatment of GAD.

Major: Honours Psychology

Faculty Mentor: Dr. Alexander Penney

The Phrase "Committed Suicide" is Judged as More Applicable to Suicides Depicted as Immoral



By Sarah Piers and Rosalia Scavuzzo

This research investigated the endorsement of the phrases “committed suicide” and “died by suicide” in relation to different suicide storylines. One hundred and eighty-eight MacEwan University students were randomly assigned to one of four experimental conditions, with conditions differing in the fictional account of a death by suicide that was read by participants. The storylines were systematically varied regarding whether the suicide was depicted as immoral or neutral and regarding whether the suicide involved a librarian or researcher. After reading their assigned storyline, participants rated six statement-pairs in terms of which would be preferred by the family of the deceased, with statements in each pair differing only in the use of either the phrase “committed suicide” or “died by suicide”. In a separate part of the study, participants judged whether “died by suicide” or “committed suicide” suggested that suicide is immoral and then they rated the degree to which the phrases “committed suicide” and “died by suicide” suggested immorality, wrongdoing, illegality, and sinfulness. As hypothesized, participants in the immoral suicide scenario condition endorsed the phrase “committed suicide” over “died by suicide” more than those in the neutral condition. The majority of participants selected the phrase “committed suicide” as suggesting suicide is immoral. Lastly, the phrase “committed suicide” was seen as connoting higher levels of immorality, wrongdoing, illegality, and sinfulness compared to “died by suicide.” Findings have potential implications for stigma reduction and help-seeking.

Department: Psychology

Faculty Mentor: Dr. Andrew Howell

Using TAGteach to Increase Creative Play Behavior in Children with Autism

By Jade Radke

Play is an everyday activity during childhood and is thought to be essential for development (Brodin, 1999). Nevertheless, many children with autism tend to engage in rigid play behavior, often only playing with the same toys in the same way or not playing flexibly enough to include other children or parents in their playtime (Kasari et al., 2011). This rigidity may, in turn, impede their ability to form social relationships with their peers and hinder the development of communication skills. Accordingly, increasing creative play behavior in children with autism may decrease rigid and solitary play and increase communication skills and social relationships. One method that may be useful for improving this skill is Teaching with Acoustical Guidance (TAGteach). This intervention involves shaping behavior through positive reinforcement using an auditory stimulus (Persicke et al., 2013). Given the behavioral principles that underlie its methodology, we predicted that TAGteach would be useful for increasing creative play behavior in two children with autism. A non-concurrent multiple baseline across participants design was used to evaluate the outcomes. Because of the COVID-19 pandemic, the study was run via encrypted real-time video conferencing. Social validity of the intervention was assessed at the end of the study. Overall, we found a slight increase in creative play behavior across sessions for both participants. Additionally, the individuals who implemented the TAGteach intervention



rated the intervention moderately to extremely positive on a post-test social validity measure. These findings offer initial insight into the use of TAGteach via telehealth for children with autism.

Major: Honours Psychology
Faculty Mentors: Dr. Russ Powell and Miranda Macauley

How Increasing Task Pressure Impacts Narcissistic Admiration and Rivalry

By Ronak Rai

Being placed in a high pressure situation may impact people's narcissistic tendencies. When in a situation that is threatening to one's sense of self, people may self-promote and strive to attain social attention (i.e., report more narcissistic admiration) or may self-protect and behave defensively (i.e., report more narcissistic rivalry). This study explored how a stressful situation (i.e., a job interview) increases one's desire for social admiration or antagonism. In order to induce pressure, we manipulated the amount of time participants took to complete a task and the amount of researcher pressure applied. In this study, participants (N = 300) imagined themselves in an interview context, where they listed as many answers to an interview question as they could before time expired. Participants completed the task in either 15s (high time pressure) or 60s (low time pressure). Before completing the task, participants received a statement designed to strongly encourage them to do well on the task (high researcher pressure) or received no such statement (low researcher pressure). We then measured participants' narcissistic admiration and rivalry, using the Narcissistic Admiration and Rivalry Questionnaire. Although researcher pressure had no impact on narcissism, we found that those in the low time pressure condition showed slightly higher scores on narcissistic rivalry compared to those in the high time pressure condition. Overall, it seems that pressure influences the extent to which individuals exhibit antagonistic narcissism, where more pressure results in decreased confidence and rivalry.

Major: Honours Psychology
Minor: Sociology
Faculty Mentor: Dr. Miranda Giacomini

IDIOMA E IDENTIDAD DE GÉNERO: IS LIFE SATISFACTION INFLUENCED BY GENDERED LANGUAGE?

By Gabriela Rivas

Gender identity and language are important aspects of every human being's life. Therefore, it is fair to assume that gender identity and language may directly impact peoples' well-being (e.g., Life satisfaction). However, identifying as a certain gender (e.g., Male, Female, Genderqueer) is not enough. According to Langer (2011), people need language to communicate and voice their experiences with their gender identity. Without language, people cannot validate themselves nor be validated by others. However, grammar creates an obstacle for non-binary identifying individuals (e.g., Agender, Gender Fluid). There is a lack of language that could potentially help individuals verbalize their experiences as well as facilitate communication with others (Lotsy & O'Connor, 2018). This language absence suggests that despite gender diversity becoming more



prevalent in mainstream media (Whyte et al., 2018), there is still a lack of gender-appropriate language for those who identify outside the gender binary to express their gender identity.

Major: Honours Psychology

Minor: Spanish

Faculty Mentor: Dr. Sean Rogers

Bottoms Up: Interpretations of Consent and Culpability with Alcohol Use in Sexual Assault Scenarios

By Jill Rogers

In legal and public domains, intoxication of sexual assault perpetrators and victims has been shown to impact the interpretation of culpability for one's actions. In general, research has demonstrated that perpetrators of violent crimes, such as sexual assault, who have consumed alcohol is perceived as less responsible for their crime, while intoxicated victims of those crimes are perceived as more responsible for the incident. The present study was designed to further investigate the relationship between alcohol consumption, the sexual history of the persons involved, and sexual assault. Undergraduate participants were presented with a vignette depicting an ambiguous sexual assault scenario, a judgment questionnaire, and self-report measures. The vignettes differed according to alleged perpetrator intoxication (sober/mild/moderate/extreme), alleged victim intoxication (sober/mild/moderate/extreme), and the sexual history of the couple (no sexual history/sexual history). We assessed participants' perceptions of perpetrator/victim consent and culpability, as well as their overall assessment of the scenario (i.e., how violent/severe) and general perceptions of alcohol use and sexual assault allegations. Overall, victims were perceived as more responsible as their intoxication increased, while extremely intoxicated perpetrators were viewed as less responsible for the assault. Unexpectedly, previous sexual history had no effect. Implications of these findings will be discussed.

Major: Honours Psychology

Faculty Mentor: Dr. Kristine Peace

How Has Student Productivity Been Impacted by the Covid-19 Pandemic?

By Rosalia Scavuzzo

Undergraduate student productivity is an area of general concern. We define productivity holistically in that it is not simply an individual's output but rather how an individual manages their life (i.e., their time, their sleep, their creativity, themselves). Because post-secondary requires students to self-regulate and manage their time beyond what they may have experienced in high school (Zimmerman, 1990), students who are new to university may have difficulties adjusting to their newfound self-management responsibilities. Additional, time management and self-regulation are put under threat with novel stressful situations (Strait et al., 2020). The COVID-19 pandemic is considered to be a novel stressful situation and, further, the pandemic has impacted students' social lives, employment opportunities, and academic delivery potentially impacting students' overall stress levels (Gallo, L., et al., 2020). Consider that post-



secondary students experience higher levels of stress than the general public (Khan et al., 2018), therefore, it stands to reason that the advent of COVID-19 has further increased post-secondary students' stress (Häfner et al. 2015). Therefore, we expect productivity of students to change, more specifically, to decrease because of the COVID-19 global pandemic. This is preliminary research in order to ascertain to what degree students productivity has decreased and learn from those whose productivity did not decrease, what strategies they were successfully able to incorporate to maintain or increase productivity. The intent is to use this research to adapt the methods of students who were successful in increasing or maintaining their productivity to pre-COVID-19 levels to help inform strategies during future pandemics or other novel situations which would cause stress and place productivity under threat.

Major: Honours Psychology

Minor: French

Faculty Mentor: Dr. Rodney Schmaltz

Comparing the Role of Sexual Practice in Shaping Perception of Consent and Cue Interpretation

By Sam Smith-Ackerl

Determining whether an individual wants to engage in sexual activity is an essential skill. However, research has indicated that consent information from common sources like sex education, media, close others, and the internet can be ambiguous, lacking or absent. These gaps could lead to underperforming this essential skill. In contrast, research has found that consent is central in BDSM cultures, where opportunities exist to experience consent as more affirmative, less taboo, more practical, more progressive, and more grounded in mutual respect. Scholars have argued that BDSM conceptions of consent may be valuable to improving practices in conventional sexual cultures. The research proposed here will examine whether more sophisticated conceptions of consent in BDSM relative to conventional sexual cultures produces more effective recognition of consent cues. Members of both cultures will be recruited to read through sexual encounter scenarios that vary in their consensuality, and to indicate and discuss all relevant cues. We expect BDSM members will highlight more cues, even implicit ones, and will do so earlier in scenarios. Efficient interpretation of signals is a critical part of regulating one's behaviour with regard to a partner during sexual activity. If BDSM conceptions of consent enhance this ability, our work would suggest how incorporating those conceptions of consent into conventional cultures could improve consent awareness and practice.

Major: Honours Psychology

Minor: Sociology

Examining the Effect

Examining the Effect of Mask Use on Speech and Face Perception

By Sam Smith-Ackerl

Facial perception has become increasingly challenging due to the Covid-19 pandemic. Research has demonstrated that facial expressions are one of the most important factors when



examining human communication. However, the use of masks has obstructed one of the most communicative aspects of human beings. Research on speech perception has demonstrated that most individuals rely on the use of the eyes and mouth when using the face for communicative purposes. Facial movement and expression also provide visual stimuli to assist individuals when interpreting speech, however these aspects are most utilized when the mouth is not obstructed. Research has demonstrated that preventing visualization of the bottom half the face forces humans to rely on the visual structures that are not masked, such as the eyes, and forehead. The continuous use of masks in our everyday life may have increased our ability to interpret speech without being able to perceive the bottom half of faces. In other words, having to communicate on a regular basis with people wearing masks, might have forced us to be more sensitive to the eyes and prosody of the face and head. Our study aims to examine how masks affect speech and facial perception due to the constant use of masks. The presented study will highlight whether or not individuals have improved their ability to understand verbal stimuli presented from a masked face.

Major: Honours Psychology

Minor: Sociology

Faculty Mentor: Dr. Michelle Jarick

Exploring How Agentic and Antagonistic Narcissism Affects Scene Recognition

By Brianna Soderquist

People have the ability to rapidly recognize visual scenes, even when they cannot recognize individual objects within the scene itself. This is supported by global properties of the scene (e.g., scene background) rather than the objects within the scene (e.g., fine grained details). However, the information an individual remembers and attends to within a scene (e.g., people vs. objects) may differ based on their narcissistic tendencies. Previous research has shown that grandiose narcissists have an analytic perceptual style, such that they are better at disembedding visual information from its context than non-narcissists. Here, we focused on agentic narcissists (i.e., those who use self-promoting strategies to obtain social admiration) and antagonistic narcissists (i.e., those who use self-protection strategies to prevent social failure) ability to remember information in scenes. In Study 1, we examined whether agentic and antagonistic narcissists have a better memory for indoor scenes (with or without people) compared to their non-narcissistic counterparts. In Study 2, we investigated narcissists' ability to remember details from scenes (i.e., background objects vs. foreground objects; people vs. objects). Participants completed a basic recognition memory paradigm for the scenes itself (Study 1) or specific details within the scene (Study 2). Individuals high in narcissistic admiration better remembered scenes containing people and exhibited a preference for objects located in the foreground compared to those low in narcissistic admiration. These findings were unrelated to narcissists' analytic perceptual style, however. This research helps identify how narcissists perceive and organize information in their environment and how it differs from their less narcissistic counterparts.

Major: Honours Psychology

Faculty Mentor: Dr. Miranda Giacomini



Anxiety in the Learning Environment

By Shivani Solanki

Anxiety is defined by excessive worry over a prolonged period of time. Some common symptoms of anxiety include restlessness, fatigue, difficulty concentrating, muscle tension, and sleep disturbance (American Psychiatric Association, 2013). Many post-secondary students experience anxiety, which can be either a helpful or harmful stimulus. The literature suggests that there are many specific factors within the learning environment that can contribute to student anxiety, but the general topic requires further investigation.

This project uses a grounded theory approach with mixed-methodology to better understand factors that affect student anxiety within the learning environment. Quantitative data were collected using the Hospital Anxiety and Depression scale (HADS) to describe our sample population (Bjelland, Dahl, Haug, Neckelmann, 2002). Qualitative data were collected through virtual focus groups. Participants were undergraduate nursing students at MacEwan University (N anticipated = 34). Data collection occurred in three phases, focusing on model development and validation. Our findings contributed to creating a conceptual framework to illustrate the impact of nursing student anxiety within the learning environment.

Several themes have emerged over the first two phases of the project. Themes specific to the context of psychology were self-efficacy, self-worth and self-esteem. Some critical elements that impact student anxiety were related to instructor attributes and behaviour, peer relationships, social determinants of health, and COVID-19. Specific to the theme of COVID-19 were feelings of being overwhelmed, isolation, and decreased motivation. Participants also identified that the boundaries that previously maintained a distinction between school, home, and work had been blurred.

This project has been a wonderful partnership looking at the same complex phenomena from a psychology and nursing lens.

References:

Bjelland, I., Dahl, A., Haug T., Neckelmann, D. (2002). The validity of the Hospital Anxiety and Depression Scale an updated literature review. *Journal of Psychosomatic Research*, 52(2), 69-77. [https://doi.org/10.1016/S0022-3999\(01\)00296-3](https://doi.org/10.1016/S0022-3999(01)00296-3)

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Major: Psychology

Minor: Biological Sciences

Faculty Mentors: Dr. Lisa McKendrick-Calder, Dr. Cheryl Pollard, Tanya Heuver, Christine Shumka

Rattle calls as individual identifiers in the North American red squirrel (*Tamiasciurus hudsonicus*): rural vs urban habitat.



By Samantha Sydor

Our research will focus on the underlying function of the red squirrel rattle call as a form of individual identification for nearby territorial listeners, in both rural and urban populations. We will establish the function of the call by examining whether the call is produced more often within an individual's territory boundary (territorial function) or if the call reflects self-identification for listeners and thus is produced anywhere the squirrel may be (within or outside of the territory). Individual squirrels, in Whitemud Creek (urban) and Sheep River Provincial Park (rural) will be trapped and released in various locations within and outside of their territory in order to establish if and where rattle calls are reliably produced.

Major: Honours Psychology

Faculty Mentor: Dr. Shannon Digweed

The Perception of Gender in Handwritten Words.

By Pichornay (Jennel) Taing

Handwriting is a complex visual pattern that is individualistic to the writer, much in the same way that faces are complex patterns that contain an identity. Due to the ubiquity of handwriting as a communication tool, we wanted to investigate sensitivity to handwriting using perceptual techniques. In this experiment, we investigated whether observers could reliably detect gender differences in handwriting samples and whether any sensitivity to gender was affected by stimulus inversion. We measured sensitivity in four stimulus presentation conditions: (1) uppercase words presented in an upright position, (2) lower case words presented in an upright position, (3) uppercase words presented in an inverted position, and (4) lower case words presented in an inverted position. Our results suggest that: (1) Participants are more confident in rating the gender of the authors for stimuli presented in the upright position than in the inverted position for both uppercase and lowercase handwritten samples. (2) Participants are accurate when rating the gender of the authors regardless of the handwritten samples are in uppercase or lowercase form and are more sensitive to changes in female handwriting samples. (3) Participants are more sensitive to the gender of the authors in the upright lowercase condition compared to the upright uppercase condition. These findings suggest that handwriting perception and identification rely on the global configuration of the stimulus, which suggests that handwriting perception relies on mechanisms that operate similar to those that support face processing.

Keywords: handwriting, gender, perception, global configuration, the inversion effect

Major: Honours Psychology

Minor: Biological Sciences

Faculty Mentor: Dr. Nicole Anderson

Risk Assessment and Criminogenic Needs Based on Sexual Assault Typologies

By Mackenzie Thomas



Theoretical and empirically-based typologies for criminal behaviour, including sexual assault, are typically based on the premise that those who commit sexual assault have different individual characteristics. Greater knowledge to identify diverse groups of these individuals may help to understand the criminogenic needs that contribute to their offending and how they can be accurately assessed for risk of reoffending. The current study examines the typology proposed by Knight and Prentky (1990). The Massachusetts Treatment Center Rapist Typology, Version 3 (MTC: R3) identifies five general categories of rapists. These categories include opportunistic, pervasively angry, vindictive, sexual, and sadistic types. Using a sample of 300 individuals who have been investigated for sexual assault, the current study will categorize these individuals into one of these typologies. This research will identify potentially unique criminogenic needs and the predictive validity of validated risk assessment tools for each subtype. It is predicted that these subtypes will present with different criminogenic needs and validated risk tools that assess for recidivism risk will have better accuracy depending on typology. The practical implications of this study will allow criminal justice professionals, such as police, to better assess risk and address the criminogenic needs of individuals who have committed sexual offences based on typology.

Major: Honours Psychology

Minor: Sociology

Faculty Mentor: Dr. Sandy Jung

Perceptions of Community Notifications in Canada

By Marguerite Himmen, Rachel Koski, Rosalia Scavuzzo and Mackenzie Thomas

When high-risk offenders reach the end of their sentence, the Canadian Criminal Justice System (CJS) no longer has a legal mandate over these individuals and is therefore required to release them into the community. Moreover, prosecutors and police officers are responsible for deciding whether to release a public disclosure notification about a high-risk offender, and whether the community where the offender will reside is informed of the offender's release. Research on the perceptions and impact of community notifications have demonstrated that offenders view notifications as detrimental to reintegration into the community. In fact, media attention can cause significant problems when newly released offenders attempt to make prosocial gains, such as obtaining stable housing, finding employment, and avoiding victimization. When the offender is framed negatively, the public may have increased concerns as this may lead to a lack of understanding regarding the CJS and negative perceptions of released offenders. This may contribute to the overwhelming lack of public knowledge regarding sentencing decisions. One study showed that individuals were more likely to support parole decisions when justifications were clearly provided to them. It has also been demonstrated that the public has poor knowledge regarding offender sentencing and sentence lengths. Due to these research findings, this study looks to examine whether the public's perceptions and knowledge of the criminal justice system could be modified if notifications include less legal jargon, greater explanation and justification for the release, and knowledge of the sentencing. The study followed a 2 x 2 x 3 factorial design where participants were provided a community notification regarding an offender in one of these possible conditions in this experiment. For this



study, 306 participants were recruited from undergraduate psychology courses at MacEwan University. After reading one of 12 community notifications, participants completed a series of survey questions. The survey questions included four scales to measure the participants' perceptions of the offender, their perceptions of the criminal justice system, their knowledge of the criminal justice system, and the likelihood of pursuing further information on the criminal justice system. We ran analyses of variance (ANOVAs) on each scale. When we examined participants' perceptions of the offender in the community notification, we found a main effect of the jargon language used, which showed that participants who were shown notifications with legal jargon viewed the offender more favourably on the Social Distance Scale ($M = 41.2$, $SD = 35.41$) than those who read simpler language in their notifications ($M = 30.3$, $SD = 27.8$), $F(1,172) = 5.91$, $p = .016$, partial eta squared = .036. Analyses indicated a significant main effect of the explanation of release variable showing that participants given an explanation of the offender's release ($M = 5.4$, $SD = 0.93$) were more likely to have accurate information pertaining to the notification than those not given an explanation ($M = 4.73$, $SD = 1.12$), $F(1,265) = 8.57$, $p = .003$, partial eta squared = .034. However, the explanation variable interacted with the use of jargon language, revealing that those who were not exposed to jargon language or given an explanation of the offender's release had less accurate knowledge of the notification than those exposed to jargon language with or without an explanation and those exposed to release explanation and no jargon conditions. None of the analyses that included the likeability, risk/safety, satisfaction with the criminal justice system, general criminal justice knowledge, and likelihood to pursue further knowledge of the CJS scales revealed significant results. Contrary to our predictions, few of our study's results supported our hypotheses. The implications of our findings for community notifications of offender releases and the utility of improving the presentation of information in these notifications will be discussed in this poster presentation.

Department: Psychology

Faculty Mentor: Dr. Sandy Jung

Crazy and Caucasian? The Influence of Race, Gender, and Crime Variables on Perceptions of Criminal Responsibility

By Madison Twa

Past research has shown that the way people perceive a crime depends on a variety of extralegal factors, especially when determinations of Not Criminally Responsible on Account of Mental Disorder (NCRMD) are at stake. In particular, the Canadian criminal justice system has a demonstrated bias against people of colour in relation to guilty verdicts and punitiveness. Further, mental illness is often interpreted differentially in light of the gender of the perpetrator and their criminal history. As such, this study was designed to assess how participants interpret a case of homicide where the following variables have been manipulated: (1) perpetrator race (Indigenous, Black, Caucasian), (2) perpetrator gender (man or woman), (3) perpetrator-victim relationship (stranger v. known), and (4) criminal history (none, NCR, CR, NCR+CR). Participants will be presented with crime and trial summaries, and information pertaining to the defendant's mental health (i.e., diagnosis of schizophrenia with ambiguous influence on the



commission of the crime). They will also complete several measures of bias and a judgment questionnaire. We anticipate that defendants of colour and men will be more likely to be deemed criminally responsible and sentenced more harshly, however previous NCR or CR determinations will sway prospective jurors' views in the same direction as the information provided. Further, we predict that NCR designations will be more common when the victim is a stranger. This study has important implications for judicial bias and how extralegal factors continue to exert large influences on our judgments.

Major: Honours Psychology
Faculty Mentor: Dr. Kristine Peace

Manslaughter Sentencing Disparities Between Aboriginal and Non-Aboriginal Offenders in Canada

By Annalise Walker

The following study examines sentencing disparities among Aboriginal and non-Aboriginal manslaughter offenders in Canada. The data utilized was extracted through the online database (CANLII) and included 189 Canadian sentencing decisions for male manslaughter offences from 1993 to 2013. Aboriginal and non-Aboriginal offenders were compared on offender variables, offence features, and sentencing variables. The main objective of the study was to compare the length of sentencing for Aboriginal and non-Aboriginal offenders and to examine other factors that may have differed between the two groups. The results indicated that, although sentence length did not differ, there were many observed differences that demonstrated social inequalities between the two groups.

Major: Psychology
Minor: Biological Sciences
Faculty Mentor: Dr. Sandy Jung

The Role of Metacognitions in Health Anxiety

By Tiffany Unrau

Individuals with severe health anxiety (HA) disproportionately believe that they have, or may acquire, a serious illness. Additionally, individuals with severe HA often engage in somatization, which is the tendency to report physical symptoms that do not have a detectable cause. Past research has established that anxiety sensitivity and somatosensory amplification contribute to HA. Other variables, such as intolerance of uncertainty (IU) and metacognitive beliefs, have been recently associated with HA. However, these factors have not been assessed together in a single study. Through self-report questionnaires, the present study examined whether IU, metacognitions, and cognitive avoidance are associated with HA in a university sample (N = 564). Cognitive avoidance was included as an exploratory variable. Using a hierarchical regression analysis, metacognitions about illness beliefs, and metacognitions about the uncontrollability of thoughts, uniquely predicted HA when controlling for both anxiety sensitivity and somatosensory amplification. An additional hierarchical regression analysis determined that metacognitions about illness, metacognitions about the uncontrollability of thoughts, and



metacognitions about biased beliefs uniquely predicted somatization when controlling for anxiety sensitivity and somatosensory amplification. IU, and cognitive avoidance, did not emerge as unique predictors for either HA or somatization. These results indicate that both researchers and clinicians may wish to further explore the role of metacognitive beliefs in the development and maintenance of HA.

Major: Honours Psychology
Faculty Mentor: Dr. Alexander Penney

Sociology

Dominant Racial Discourses in Social Media Through the Lens of Black Representation in Film

By Hazel Gray

The topic for this research project involves the observation of racial discourses in social media; in particular, this project will be examining how discourses surrounding the Black Lives Matter movement are reflected in Tweets made in response to the casting announcement for actress Yara Shahidi's involvement in Disney's upcoming Peter Pan and Wendy film. This project will focus on Tweets made with the hashtags #BlackLivesMatter and #BLM, as well as Tweets responding to Yara Shahidi's casting announcement, with both categories of Tweets being pulled from a time frame of September 20, 2020, to October 05, 2020. This time frame was chosen based on the time when Shahidi's casting was announced, on September 25, 2020, in order to observe the discourses on the Black Lives Matter movement that were taking place before, during, and after the announcement. This project is being conducted with the hopes of demonstrating how opinions on Black actors' casting in traditionally white roles demonstrate the overarching discourses which are present in online conversations surrounding the Black Lives Matter movement.

Major: Sociology
Minor: Psychology
Faculty Mentor: Dr. Kalyani Thurairajah

Research Proposal: A Gender Gap or Gender Difference? Gender and Political Participation in Canada

By Nicole Houle

Studies find that men and women tend to do a similar amount of political participation, however, they tend to engage in different forms of participation (Bode, 2017, p. 598; Coffé & Bolzendahl, 2010, p. 330; Van Duyn et al., 2019, p.10; Pfanzelt & Spies, 2019, p. 45). Women tend to engage in more private and flexible forms, whereas men tend to participate in more direct and collective forms (Coffé & Bolzendahl, 2010, 330). However, there is variation when studies take into account the platform. Many studies mention political socialization or gendered socialization as a possible explanation for their findings in regards to women's political participation trends, while others mention conflict avoidance or role models (Coffé & Bolzendahl, 2010, p. 330; Coffé



& Bolzendahl, 2017, p. 149; Beauregard, 2016, p. 87; Bos et al., 2020, p. 477; Carreras, 2018, p. 40; Coffé & Bolzendahl, 2017, p. 149; Pfanzelt & Spies, 2019, p. 45; Caudillo, 2017, p. 128). In this proposal, I intend to discuss my literature review and how I will answer the following main research questions in my honours thesis: Is there a gender gap in overall political participation amongst Canadians? To what extent do views about politics being conflictual explain gendered differences in political participation in Canada? And, to what extent do female role models have an effect on Canadian women's political participation? I will be using Jamovi programming to complete a quantitative study based on the secondary analysis of Canadian data from a 2021 Kantar administered study designed by Dr. Shelley Boulianne.

Major: Honours Sociology

Minor: Psychology

Faculty Mentor: Dr. Shelley Boulianne

Snapshots of the Youth Climate Strike in 2019 and 2020

By Joslin Jefferson

Climate change is an anthropogenic, geological issue that has earned much attention in the past few years. The issue has been put to the forefront by then 16-year-old Swedish political activist Greta Thunberg, who began protesting every Friday outside the Swedish parliament in August 2018 (Fraser & Westbrook, 2019) asking the government to reduce carbon emissions in accordance with the Paris Agreement. Her approach inspired many young people around the world. These protests gained momentum and by 2019 the Guardian reported that roughly 6 million people were participating in the global climate strikes (Taylor, Watts, et al. 2019). These protests continued into 2020, however, due to the global pandemic, protesters and activists had to find alternative ways to spread awareness. Images then became more important and also morphed into another kind of storytelling. Images are at the core of this research since images can have a profound effect on our memories, and digital media expanded the possibilities to document protests using images. The focus of this article is on digital storytelling and visual framing. This research qualitatively and quantitatively analyzes 1,394 images of the 2019 and 2020 youth climate strike. By collecting Google Images and using a framework that allows us to study narratives and image-making, we show how the pandemic changed the imagery of this movement moving protest tactics into more individualized, instead of collective, expressions. While news media are still dominant in posting protest images, their ability to control the framing of a protest event is undermined by other sources, including protesters themselves. This research highlights new tactics used by social movements to sustain their activity during the pandemic.

Majors: Sociology and Psychology

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Colourblind Racism Discourses in YouTube Review Videos of "Just Mercy"

By Laura Nguyen



In the current age of the COVID-19 pandemic with issues about race and discrimination becoming more apparent, many individuals turn towards media to learn more about race and racism in the world. Therefore, this research project aims to explore how white audiences are discussing films that depict race-based issues. “Just Mercy”, directed by Destin Daniel Cretton, depicts the true story of civil rights defence attorney Bryan Stevenson as they work to free wrongly convicted African Americans on death row. Using critical discourse analysis, this study explores whether colourblind racism discourses are present in how white audiences discuss the film “Just Mercy”. To do so, this project will be using Eduardo Bonilla-Silva’s four frames of colourblind racism and Jayakumar and Adamian’s fifth frame of colourblind racism to analyze movie review videos published by white YouTubers. Through the analysis of these videos, the findings indicate that Jayakumar and Adamian’s fifth frame of colourblind racism is used more commonly by white individuals in racially conscious contexts than Bonilla-Silva’s initial four frames.

Major: Sociology
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Challenges and Support for LGBTQ2A+ At-Risk Youth

By Dorothy Reynolds

The number of people who identify as LGBTQ+ has been increasing, especially amongst young people. The LGBTQ+ community faces many challenges. This paper examines responses to at-risk youth who identify as LGBTQ+ in Edmonton, Canada and L’viv, Ukraine from a family structure level, social support structure level, and governmental programs or policies. It also explores how different reactions - such as feminism or patriarchy – have specific implications for these youth. Finally, it looks at how support, activism, advocacy and acceptance, or fear and anger, can create a change within society.

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How Those with Close Connections with LGBTQ2S+ Talk About That Community

By Dorothy Reynolds

There has been a steady increase in North America of people who identify as LGBTQ2S+. In a 2017 survey done by GLAAD, 20% of millennials identify as LGBTQ2S+. This increase would seem to increase the odds that soon we are all going to have someone close to us who is LGBTQ2S+. With that in mind, this research was done with the idea that having someone close to you that identifies as LGBTQ2S+ could affect the way you talk about that community. Critical discourse analysis was used through the lens of qualitative research, the use of a focus group and a qualitative interview from convenience sampling were done, and from those data



collection techniques, language, behaviours, attitudes, and perceptions of the participants were analyzed. While many studies focus on the negative attitudes and language of society, this study took the approach of starting from the positive aspects of having a close relationship and being a support to someone who is LGBTQ2S+. Due to the nature of my subject matter, I chose to use gender neutral pseudonyms, gender neutral pronoun references and refrained from gender binary language.

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#StopAsianHate: A Critical Discourse Analysis of Anti-Asian Racism During the COVID-19 Pandemic in Online Canadian News Media

By Elaine Tran

In late January 2020, the first confirmed case of the COVID-19 virus was verified in Canada (Marchand-Senécal, Kozak, Mubareka, Salt, Gubbay, Eshaghi, Allen, Li, Bastien, Gilmour, Ozaldin & Leis, 2020). In early March 2020, the World Health Organization (WHO) officially declared the COVID-19 virus as a global pandemic at a media briefing (World Health Organization, 2020). The advent and evolution of the COVID-19 pandemic has created a culture of enhanced public health and safety measures. In addition, a dramatic increase in anti-Asian discrimination and racism due to the COVID-19 pandemic has also materialized in Canada (Statistics Canada, 2020). At an unprecedented time, the media has become a critical and powerful mechanism in order to remain informed about emerging events, including anti-Asian discrimination and racism in Canada. Therefore, the purpose of the study was to explore the differences and similarities between the discourses of anti-Asian racism during the COVID-19 pandemic in online Canadian news media. A critical discourse analysis of 30 news articles from Vancouver-based and national online news sources was conducted, which revealed several themes about the relationship between Asian Canadians, racism, and media amidst the COVID-19 pandemic.

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Mothering During the COVID-19 Pandemic

By Christine Zolondek

The World Health Organization declared COVID-19 as a global pandemic on March 11th, 2020, and ever since, our world has been turned upside down: replacing “ordinary life” with chaos, uncertainty, and fear. The widespread lockdown measures and closures of schools and daycares mid-March created a crisis of care, where formal and informal care arrangements have been upended, which has left many families on their own to resolve this issue. Since historically, women have shouldered the heaviest weight of the child care burden, and earn on



average less than their male counterparts, it has become women and their work that have seen dramatic impacts, including being the ones to step back from their careers to assume the full-time responsibilities during the pandemic. Given the barriers they already face under normal circumstances, the question becomes how have mothers been impacted by the added strain involved with child care, homeschooling and navigating paid work following the pandemic? How will this crisis shed light on the inequalities that persist, namely the cultural expectations for mothers, and gendered norms embedded in carework?

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