



**TUESDAY, APRIL 19, 2022**

**In-Person & Virtual  
Atwood Memorial Center**

**2022 HUSKIES SHOWCASE AT A GLANCE**  
**TUESDAY, APRIL 19, 2022**

[Click here to view detailed schedule](#)

8:00 a.m. – 11:00 a.m.	Atwood check-in desk open for in-person presentations <i>Atwood Center - Cascade</i>
9:00 a.m. - 10:20 a.m.	In-Person Oral Presentation – Session 1 <i>Atwood Center – Voyageurs &amp; Glacier Rooms</i>
9:00 a.m. - 10:00 a.m.	In-Person Poster Presentations, Demonstration, & Gallery Exhibits – Session 1 <i>Atwood Center - Cascade</i>
10:30 a.m. - 11:30 a.m.	In-Person Oral Presentation – Session 2 <i>Atwood Center – Voyageurs &amp; Glacier Rooms</i>
11:00 a.m. - 12:00 p.m.	In-Person Poster Presentation – Session 2 <i>Atwood Center – Voyageurs &amp; Glacier Rooms</i>
12:00 p.m. – 1:00 p.m.	BREAK
12:00 p.m. – 4:00 p.m.	Virtual Help Desk Open - <i>Zoom</i>
1:00 p.m. – 2:20 p.m.	Virtual Oral Presentation – Session 3 <i>Zoom Webinar</i>
1:00 p.m. - 2:00 p.m.	Virtual Poster Presentations – Session 3 <i>Gather.town</i>
2:30 p.m. - 3:50 p.m.	Virtual Oral Presentation – Session 4 <i>Zoom Webinar</i>
3:00 p.m. - 4:00 p.m.	Virtual Poster Presentation – Session 4 <i>Gather.town</i>
4:30 p.m. - 5:00 p.m.	Closing Celebration <i>Atwood Center - Cascade</i>

## **Community Partners**

Thank you to our Community Partners for working and mentoring our St. Cloud State students! These partners are also noted next to the student projects that they worked with below!

- |   |   |
|---|---|
| ❖ City of St. Cloud   | ❖ <i>Carfair Composites</i>                 |
| ❖ St. Cloud Public Utilities<br>Wastewater Treatment Facility                 | ❖ <i>Whitney Senior Center</i>              |
| ❖ Center for Victims of Torture   | ❖ <i>Proof Alliance</i>                     |
| ❖ Malawi-Liverpool Wellcome<br>Trust/Liverpool School of Tropical<br>Medicine | ❖ <i>Central Minnesota Council on Aging</i> |

### **2022 Huskies Showcase Reflection Competition**

#### ***Best Our Husky Compact Reflection - Kaylynn Kearns***

Title: *Analysis of Career Findings from SCSU Data out of National Alumni Career Mobility Survey*

*Mentor: Tammison Smith, Career Center*

Our Husky Compact Project Dimension: Think Creatively & Critically

#### ***Best Dimension of the Year Reflection - Alli Beste & Enock Ombengi***

Title: *T-Cell Function and Composition in NOD Mice Exposed to Coca-Cola*

*Faculty Mentor: Marina Cetkovic-Cvrlje, Biology*

Our Husky Compact Project Dimension: Communicate Effectively

Thank you for joining us for the 2022 Huskies Showcase!

**April 19, 2022**

*Huskies Showcase celebrates university and community research, creative works and scholarship across all disciplines at the undergraduate and graduate levels.*

[Official Website](#)

### Reflection Finalists

Atwood Memorial Center

**9:00am - 12:00pm**

Our Husky Compact Opt-In  
Reflection Competition Finalists

**Projects**

### In-Person Presentations

Atwood Memorial Center

**9:00am - 12:00pm**

**Projects**

### Virtual Presentations

Zoom & Gather.town

**1:00pm - 4:00pm**

**Projects**

## Closing Celebration

*Please join us in-person or virtually using the zoom link below*

**Zoom Password: Showcase**

**April 19, 2022**  
**Atwood - Cascade**  
**4:30-5:00pm**



## Finalists: Oral Presentations

Atwood Memorial Center - Voyageurs South

 Reflection Essays

### Oral Presentation Finalists - Session 1

9:00am - 10:00am

Moderator: Melanie Guentzel

**9:00am - Jennifer Sonterre, Brianna Pace, Shelby Pointer, & Brian Neumeister**

**Title:** History of Genocide: Understanding Genocide Through a Transdisciplinary Lens  
Faculty Mentor: Maureen O'Brien

**9:20am - Leng Yang**

**Title:** Evaluation of Pro- and Anti-epileptic Activities of Three Herbal Extracts in the Planaria, *Dugesia Dorocephala*  
Faculty Mentor: Oladele Gazal

**9:40am - Souleymane Kassoum**

**Title:** Teachers' perceptions of academic optimism in a private middle school in Niamey, Niger  
Faculty Mentor: Amy Christensen

### Oral Presentation Finalists - Session 2

10:30am - 11:30am

Moderator: Melanie Guentzel

**10:30am - Suad Ali**

**Title:** Is what you remember real? Quantitatively investigating the recognition of synthetic Generative Adversarial Network pictures  
Faculty Mentor: Leslie Valdes

**10:50am - Timothy Lux, Loren Sohler, & Quinn Radeke**

**Title:** Putin and the Czar: Autocracy and Dissent  
Faculty Mentor: Maureen O'Brien

**11:10am - Andrea Rodriguez- Arzola & Hunter Tholkes**

**Title:** Social Connectedness and Relationship Satisfaction in the Digital Age  
Faculty Mentors: Sandrine Zerbib, Amanda Hemmesch, Ann Finan, & Jim Cottrill


## Finalists: Poster Presentations

Atwood Memorial Center - Cascade Foyer

9:00am - 10:00am

 Reflection Essays

## Poster Presentation Finalists

 **Easel #1: Abdul Khan**


**Title:** A tool to detect likelihood of scam in a vacation website  
Faculty Mentor: Abdullah Abu Hussein

 **Easel #2: Joynab Mohammed**

**Title:** Taxonomy of Smart Vehicle Security  
Faculty Mentor: Abdullah Abu Hussein

 **Easel #3: Jessica VanderWerf, Maria Kroeber, & Claudia Burgos Zuniga**


**Title:** Age-Friendly Universities  
Faculty Mentors: Phyllis Greenberg & Rona Karasik

 **Easel #4: Kaylynn Kearns**


**Title:** Analysis of Career Findings from SCSU Data out of National Alumni Career Mobility Survey  
Faulty Mentor: Tammison Smith

 **Easel #5: Alli Beste & Enock Ombengi**

**Title:** T-Cell Function and Composition in NOD Mice Exposed to Coca-Cola  
Faculty Mentor: Marina Cetkovic-Cvrlje

 **Easel #6: Alison Helder & Molly Lovsness**

**Title:** Acute stressor effects on biochemical markers in Fathead minnows (*Pimephales promelas*)  
Faculty Mentor: Heiko Schoenfuss

 **Easel #7: Ujala Chawla & Sierra Bermúdez**


**Title:** Study of Immune Cells in Streptozotocin-Induced Diabetic C57BL/6 Mice Consuming Coca-Cola  
Faculty Mentor: Marina Cetkovic-Cvrlje

 **Easel #8: Nick Hahn**


**Title:** The Creation of a Cinematic Icon  
Faculty Mentor: Steven Anderson

 **Easel #9: Hunter Harnett & Asma Yusuf**


**Title:** Does Coca-Cola consumption potentiate diabetes development in NOD mice?  
Faculty Mentor: Marina Cetkovic-Cvrlje

 **Easel #10: Sean Bresnahan**

**Title:** Online Eating Disorder Recovery Communities: Levels of engagement and perceived recovery help  
Faculty Mentor: Maegan Jones

 **Easel #11: Andrew Nardi, Wengelawit Molla, & Ridwan Yussuf**

**Title:** The effects of Coca-Cola on diabetes incidence and glycemia levels in C57BL/6J mouse model  
Faculty Mentor: Marina Cetkovic-Cvrlje

 **Easel #12: Claude Haneum Lee**

**Title:** Effect of Teleworking on Retirement Age  
Faculty Mentor: Monica Garcia-Perez

# Oral Presentations

Atwood Memorial Center

Session 1: 9:00am - 10:20am

## Voyageurs North

Moderator: Sandrine Zerbib

**9:00am** – Kyle Janssen, Andrea Rodriguez, Ujala Chawla, Hunter Tholkes, Sabina Scotti, Smita Khobragade, Owen Wunderlich, Hannah Warehime, Christly Sumihi  
**Title:** This is how we do it! Spring 2022 SCSU survey  
**Faculty Mentors:** Sandrine Zerbib, Amanda Hemmesch, Ann Finan, & Jim Cottrill

**9:20am** – Andrea Rodriguez-Arzola & Hunter Tholkes  
**Title:** Social Connectedness and Relationship Satisfaction in the Digital Age  
**Faculty Mentors:** Sandrine Zerbib, Amanda Hemmesch, Ann Finan, & Jim Cottrill

**9:40am** – Kyle Janssen & Owen Wunderlich  
**Title:** Agreements and Disagreements of the Supreme Court during the COVID-19 Pandemic  
**Faculty Mentors:** Sandrine Zerbib, Amanda Hemmesch, Ann Finan, & Jim Cottrill

**10:00am** – Ujala Chawla, Sabina Scotti & Christly Sumihi  
**Title:** Unleashed Opinions: Measuring SCSU Student Perceptions of COVID-19 Related Issues  
**Faculty Mentors:** Sandrine Zerbib, Amanda Hemmesch, Ann Finan, & Jim Cottrill

## Glacier North

Moderator: Gareth John

**9:00am** – Brennen Schulte  
**Title:** Geography of WISSOTA Dirt Track Racing in Minnesota  
**Faculty Mentor:** Gareth John

**9:20am** – Kylee Erickson  
**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)  
**Faculty Mentor:** Monica Garcia-Perez

**9:40am** – Hannah Mayhew  
**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)  
**Faculty Mentor:** Monica Garcia-Perez

**10:00am** – Tanner Armstrong  
**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)  
**Faculty Mentor:** Monica Garcia-Perez

## Glacier South

Moderator: Sarah Petitto

**9:00am** – Xavier Fladung, Alexei Miklocha & Kiwoon Kim  
**Title:** Kinetics of the Iodine Clock Reaction  
**Faculty Mentor:** Sarah Petitto

**9:20am** – Mitchell Sarky & Casey Skodje  
**Title:** MFET Capstone Project: Carfair Composites  
**Faculty Mentor:** Jugwon Ahn  
**\*Community Partner:** Patrick Morris, Carfair Composites

**9:40am** – Nawal Abdalkhalek, Josue Martinez & Evan Halverson  
**Title:** Omega Plus  
**Faculty Mentor:** Matthew Julius

**10:00am** – Sean Cranston  
**Title:** Build an artificial intelligence-based movie recommendation engine with machine learning algorithms  
**Faculty Mentor:** Mengshi Zhou

# In-Person Poster Presentations

Atwood Memorial Center - Cascade

9:00am - 10:00am

## Poster Presentation: Session 1

**Easel #1: Connor Magrum**

**Title:** The Need for Palliative Sedation in the Treatment of Refractory Symptoms During the Dying Process  
Faculty Mentor: Amy Hilleren-Listerud

**Easel #2: Mitchell Fournier, Lacey Hallstrom**

**Title:** Effects of Coca-Cola consumption in healthy mice  
Faculty Mentor: Marina Cetkovic-Cvrlje

**Easel #3: Molly Clyne**

**Title:** Evolutionary Relationships of the Butterfishes and their Allies (Stromateoidei) and the Evolution of Symbiosis with Jellyfishes (Cnidaria)  
Faculty Mentors: Matthew Davis

**Easel #4: Hannah Helmbrecht**

**Title:** Ecosystem Health and Fish Food Quality  
Faculty Mentor: Matthew Julius

**Easel #5: Alma Moukambi-Loundou**

**Title:** Kinetic Analysis of Sinorhizobium Meliloti Pyrroline-5-Carboxylate Reductase Enzyme and its K75A Mutation  
Faculty Mentor: Nathan Bruender

**Easel #6: Nick Hoopingarner**

**Title:** Enzyme kinetics of T239V mutated pyrroline-5-carboxylate reductase  
Faculty Mentor: Nathan Bruender

**Easel #7: Ian Todd**

**Title:** Enzyme kinetics of pyrroline-5-carboxylate reductase S177A mutant in Sinorhizobium meliloti  
Faculty Mentor: Nathan Bruender

**Easel #8: Meet Patel, Nimesh Chawla, Trilochan Thapa**

**Title:** Smart Cart  
Faculty Mentor: Shensheng Tang

**Easel #9: Nathan Gegg, Reece Meskimen, Tyler Turriff**

**Title:** Portable Bioimpedance Analyzer  
Faculty Mentor: Yi Zheng

**Easel #10: Patrick Kalonde**


**Title:** Using Drone Technology and Machine Learning to Map Plastic Pollution and Waste Disposal Locations in a Terrestrial Environment  
Faculty Mentor: Mikhail Blinnikov  
**\*Community Partner:** Michelle Stanton, Malawi-Liverpool Wellcome Trust/Liverpool School of Tropical Medicine

**Easel #11: Andrew Clayton**

**Title:** Predatory Nature of Microtransactions  
Faculty Mentor: Steven Anderson

**Easel #12: Cole Jackson**

**Title:** Astronomy Within the Incan Civilization  
Faculty Mentor: Steven Anderson

 | **Easel #13: John Jacobson**

**Title:** Why Violent and/or Competitive Video Games Aren't Causes for Aggressive Behavior  
Faculty Mentor: Steven Anderson

 | **Easel #14: Brian Jaimes**


**Title:** How film has impacted American culture  
Faculty Mentor: Steven Anderson

 | **Easel #15: Kristina Jazdzewski**


**Title:** How Mental Health Affects You Physically  
Faculty Mentor: Steven Anderson

 | **Easel #16: Elle Kaiser**


**Title:** The Use of Emergency to Manipulate the Masses  
Faculty Mentor: Steven Anderson

 | **Easel #17: Abriana Koeniguer**


**Title:** Parental Influences and Child Development Surrounding Eating Behaviors and Attitudes  
Faculty Mentor: Steven Anderson

 | **Easel #18: Faith Miller**


**Title:** Natural Disasters: Detrimental to Child Development  
Faculty Mentor: Steven Anderson

 | **Easel #19: Conor Oslund**


**Title:** The Intertwined Evolution of Technology and Linguistics  
Faculty Mentor: Steven Anderson

 | **Easel #20: Skylar Pierce**


**Title:** Art Critiques and Critical Thinking  
Faculty Mentor: Steven Anderson

 | **Easel #21: Wilson Ramon**


**Title:** The Jim Crow Origins of Food Inequality and its Effects  
Faculty Mentor: Steven Anderson

 | **Easel #22: Brianna Sharbono**


**Title:** Selective Serotonin Reuptake Inhibitors (SSRIs): Short-term Solution or Long-term Problem  
Faculty Mentor: Steven Anderson

 | **Easel #23: Megan Thoma**


**Title:** Art and Math: Two Sides of the Same Coin  
Faculty Mentor: Steven Anderson

 | **Easel #24: Rheana Zerna**

**Title:** Genetics Predispose to Autoimmune Diseases  
Faculty Mentor: Steven Anderson

 | **Easel #25: Alyssa Eggers-Gaumer**


**Title:** Addressing the Communication Divide Between Patient and Provider in Health Care Settings  
Faculty Mentor: Michael Gorman

 | **Easel #26: Lorelei Eggert**


**Title:** 1920s Arts  
Faculty Mentor: Michael Gorman

 | **Easel #27: Katelynn Fisher**

**Title:** How does Dopamine, Serotonin, Endorphins, and Oxytocin impact Mental Stability?  
Faculty Mentor: Michael Gorman

 | **Easel #28: Naimo Hussein**

**Title:** fetal alcohol syndrome  
Faculty Mentor: Michael Gorman

 | **Easel #29: Sarah Kunkel**


**Title:** Increasing National Debt: What can we do?  
Faculty Mentor: Michael Gorman

 | **Easel #30: Maisie Leick**


**Title:** What Has Caused An Increase In Activism Around Ecofeminism?  
Faculty Mentor: Michael Gorman




**Easel #31: Gabryelle Manninen**  
  
**Title:** Movie Marketing/Advertising  
Faculty Mentor: Michael Gorman



**Easel #32: Graham Peterson**  
  
**Title:** Developmental Factors and Psychological Traits That Effect The Academic Success of College Students  
Faculty Mentor: Michael Gorman



**Easel #33: Hannah Rupar**  
  
**Title:** Why Purdue Pharma should be held accountable for the Opioid Epidemic  
Faculty Mentor: Michael Gorman



**Easel #34: Emily Scheeler**  
  
**Title:** Levantine Art; Crossover of Art and Archaeology  
Faculty Mentor: Michael Gorman




**Easel #35: Jordan Smith**  
  
**Title:** Photographing a Black Hole  
Faculty Mentor: Michael Gorman



**Easel #36: Cassandra Wendt**  
  
**Title:** Racism in the United States Healthcare System  
Faculty Mentor: Michael Gorman



**Easel #37: Ellen Zupon**  
  
**Title:** The Lasting Effects of Nationalism in the European Renaissance  
Faculty Mentor: Michael Gorman



**Easel #38: Ellas Ahmed, Kelvine Nkembuh, Joshua Woodson**  
  
**Title:** Automatic Irrigation System  
Faculty Mentor: Michael Glazos



# Demonstration, Gallery Exhibits, & Artistic Performance

There are both in-person and virtual creative works presentations. Please see details below!

## In-Person Presentations

Atwood Center - Cascade

### Demonstration

Ashley Wenonah, Anna  
Roggeman, & Maria  
Barkley  
Table 1

9:00am - 10:00am

**Title:** Medley Mirror  
Faculty Mentor: Matthew  
Vorell

### Gallery Exhibit

Emilia Ramsey

Table 2

9:00am - 10:00am

**Title:** Loss of Self  
Faculty Mentor: Jennifer  
Tuder

### Gallery Exhibit

Jozi Tainter

Table 3

9:00am - 10:00am

**Title:** Me?  
Faculty Mentor: Jennifer  
Tuder

### Gallery Exhibit

Elizabeth Mitchell

Table 4  
FINALIST

9:00am - 12:00pm

**Title:** On the Other Side  
Faculty Mentor: Jeff Hegle

## Virtual Artistic Performance

Zoom Password: Showcase

### Artistic Performance

Teng Yang & Gavin Smith

3:00pm - Zoom

**Title:** Grief Comes as an Old Friend  
**Faculty Mentor:** Jennifer Tuder

# Oral Presentations

Atwood Memorial Center

Session 2: 10:30am - 11:50am

## Voyageurs North

Moderator: Dan Huwe

**10:30am – Maiyung Yang**

**Title:** The Whitney Senior Center's Impact on the Health and Wellness of the Senior Community

**Faculty Mentor:** Hector Giovanni Antunez

**\*Community Partner:** Paula Woischke, Whitney Senior Center

**10:50am – Alex Maile**

**Title:** Evolutionary Relationships of Anglerfishes based on Genomic Data  
**Faculty Mentor:** Matthew Davis

**11:10am – Spencer Ott**

**Title:** New Insights into Fish Biodiversity from the Dockum Group of western Texas  
**Faculty Mentor:** Sarah Gibson

## Glacier North

Moderator: Monica Garcia-

Perez

**10:30am – Edison Jensen**

**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)

**Faculty Mentor:** Monica Garcia-Perez

**10:50am – Calvin Zapzalka**

**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)

**Faculty Mentor:** Monica Garcia-Perez

**11:10am – Lucas Clasen**

**Title:** Tracking the Rise and Demise of Streetcars in the Twin Cities: An Historical-Geographical Analysis  
**Faculty Mentor:** Gareth John

## Glacier South

Moderator: Randal Baker

**10:30am – Katherine Erickson**

**Title:** Appeal of Oceanic Cruises to Young Adults

**Faculty Mentor:** Randal Baker

**10:50am – Riley Marsolek**

**Title:** Impact of Hotel Service Quality on Guests Satisfaction

**Faculty Mentor:** Randal Baker

**11:10am – Armand Mucyo**

**Title:** Social media influence on hotel marketing

**Faculty Mentor:** Randal Baker




## In-Person Poster Presentations


Atwood Memorial Center - Cascade

11:00am - 12:00pm


### Poster Presentation: Session 2

 **Easel #1: Christiana Flomo**

**Title:** How RSVP helps the Senior community  
Faculty Mentor: Hector Antunez

 **Easel #2: Nicole Meyer**


**Title:** Modern Misconceptions of the Middle East - Applied History  
Faculty Mentor: Maureen O'Brien

 **Easel #3: Connor Stark, MaKenna Olson, Jenna Becker**


**Title:** The Twice Eclipse by the Sun: How China Has Outshone Japan  
Faculty Mentor: Maureen O'Brien

 **Easel #4: Mainag Xiong, Katarina Hansen**

**Title:** Evaluation of aqueous and ethanolic extracts of saussurea lappa costus root on epileptic movements in dugesia dorotocephala  
Faculty Mentor: Oladele Gazal

 **Easel #5: Gabrielle Imm**


**Title:** Enzyme Kinetics Study of Pyrroline-5-Carboxylate Reductase Mutation M121A  
Faculty Mentor: Nathan Bruender

 **Easel #6: Baylee Ihnot, Ryan Orn**

**Title:** Tertiary Phosphorus Removal via Biological Processes  
Faculty Mentor: Coleman Henry  
**\*Community Partner:** Shanna Czeck, City of St. Cloud

 **Easel #7: Nicole Gruwell, McKenzie Kamholz**


**Title:** A Mesocosm Approach to Test eDNA Monitoring of Ballast Tanks  
Faculty Mentor: Matthew Julius

 **Easel #8: Alexei Mikolchak**


**Title:** Kinetic Analysis of Pyrroline-5-Carboxylate Reductase K75A Mutant Variant  
Faculty Mentor: Nathan Bruender

 **Easel #9: Jharef Tamariz, Aaron Gregory**


**Title:** Siliceous nanomaterials from microbially produced seed particles  
Faculty Mentor: Matthew Julius

 **Easel #10: Anna Mikolchak**


**Title:** The effects of Coca-Cola on diabetes incidence and glycemia levels in C57BL/6J mouse model  
Faculty Mentor: Nathan Bruender

 **Easel #11: Mason Olinger**


**Title:** Little Rock Lake Project  
Faculty Mentor: Matthew Julius

 **Easel #12: Annisa Rumahorbo**


**Title:** Steady-State Kinetic Analysis of Putative Adenylosuccinate lyase (Toy F) in Toyocamycin Production  
Faculty Mentor: Nathan Bruender

 | **Easel #13: James Kaiser**

**Title:** The Fourth Down Dilemma in the NFL  
Faculty Mentor: Xiaoyin Li


 | **Easel #14: Alissa VanDenBoom**

**Title:** Comparative kinetic analysis of wild type and S234A mutant pyrroline-5-carboxylate reductase in K12 E. coli.  
Faculty Mentor: Nathan Bruender


 | **Easel #15: Sarah Moden, Allison Schwab**

**Title:** Tertiary Phosphorus Removal via Filtration  
Faculty Mentor: Coleman Henry  
**\*Community Partner:** Shanna Czeck, City of St. Cloud


 | **Easel #16: Withdrawn**

 | **Easel #17: Yvan Tane, Yves Ilboudo, Joel Adeyemo**

**Title:** Safelink - Automated Safety System for the vulnerable  
Faculty Mentor: Shenshen Tang

 | **Easel #18: Dan Hall, Nathaniel Koetter, Kwinton Dropps**


**Title:** Ice Fishing Alert System  
Faculty Mentor: Timothy Vogt

 | **Easel #19: Rachid Ouedraogo, Moffat Omuya, Collince Silenou**

**Title:** SCSU Smart Blind Cane  
Faculty Mentor: Timothy Vogt

 | **Easel #20: Sangay Sherpa**


**Title:** 2019 COVID MAP of Minnesota  
Faculty Mentor: Michner Blender

 | **Easel #21: Claude Haneum Lee**


**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)  
Faculty Mentor: Monica Garcia-Perez

 | **Easel #22: Eryn Bloom**


**Title:** Glacier Bay National Park: Preserving Keystone Species  
Faculty Mentor: Steven Anderson

 | **Easel #23: Josephine Green**

**Title:** How your mental health is affected by social media  
Faculty Mentor: Steven Anderson

 | **Easel #24: Ash Greer**


**Title:** Microaggressions in the Workplace  
Faculty Mentor: Steven Anderson

 | **Easel #25: Ridge Hagemeister**

**Title:** The Bioacoutsics in Plants  
Faculty Mentor: Steven Anderson

 | **Easel #26: Jayden Pikula**


**Title:** Difficulties of Prosecuting Criminals  
Faculty Mentor: Steven Anderson

 | **Easel #27: Isabella Randolph**

**Title:** Organ Trafficking: The Invisible Crime  
Faculty Mentor: Steven Anderson

 | **Easel #28: Zachary Sunder**

**Title:** Communication: Impacts of Technology  
Faculty Mentor: Steven Anderson

 | **Easel #29: Terrance Wallace**

**Title:** Exposure to Advertising and Links to Childhood Obesity  
Faculty Mentor: Steven Anderson

 | **Easel #30: Ashley Yukovich**


**Title:** Color Psychology: What Emotions can Red Influence?  
Faculty Mentor: Steven Anderson

 | **Easel #31: Rave Andrei De Leon**


**Title:** The spread of whiteness in Southeast Asia- Philippines and whitening products.  
Faculty Mentor: Michael Gorman

 | **Easel #32: Noah Matzke**


**Title:** Computer Engineering in Minnesota  
Faculty Mentor: Michael Gorman

 | **Easel #33: Sam Oestreich**

**Title:** The best genre of music for music therapy  
Faculty Mentor: Michael Gorman

 | **Easel #34: Lauren Wilfong**

**Title :** The Effects of Covid-19 SARS on Our Mental and Physical Health  
Faculty Mentor: Michael Gorman

 | **Easel #35: Courtney Zinter**


**Title:** Understanding Cybercrimes: Revenge Porn  
Faculty Mentor: Michael Gorman

 | **Easel #36: Lyndsey Hypatia**

**Title:** How Evangelism Has Undermined American Democracy Since 2016.  
Faculty Mentor: Michael Gorman

 | **Easel #37: Kiandra Grinnell**

**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)  
Faculty Mentor: Monica Garcia-Perez

 | **Easel #38: Ilse Kambach**

**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)  
Faculty Mentor: Michael Glazos

# Virtual Oral Presentations

Zoom Webinar

Session 3: 1:00pm - 2:20pm

## Zoom Password: Showcase

### Virtual Room #1

Moderator: John Sinko

**1:00pm – Gavin Dutcher, Dylan Wahlstrom, Adow Ali**

**Title:** Healthcare Conversational Agent (CA) Interaction Analysis  
**Faculty Mentor:** Jieyu Wang

**1:20pm – Kalyani Korlagunta, BalaVikas Sabbineni, Rithvik Panchumarthi**

**Title:** Privacy breaches in NoSQL databases  
**Faculty Mentor:** Jieyu Wang

**1:40pm – Nevena Vasovic, Muideen Akinade**

**Title:** Sexual Health Advocacy: a comprehensive wellness approach to promoting sexual health at SCSU  
**Faculty Mentor:** Jen Johnson  
**\*Community Partner:** Sarah Brown, Proof Alliance

### Virtual Room #2

Moderator: Hazem Farra

**1:00pm – Michelle Barron-Albers**

**Title:** Welcome to the profession: Exploring perceptions of new teacher retention supports  
**Faculty Mentor:** Amy Christensen

**1:20pm – Elizabeth Mitchell, Blake Castagneri**

**Title:** Chemical Treatment Technology Proposal to Reduce Effluent Phosphorus Concentrations at the NEW Recovery Facility  
**Faculty Mentors:** Coleman Henry & Wenjie Sun  
**\*Community Partner:** Shanna Czeck, City of St. Cloud

**1:40pm – Eric Lindquist**

**Title:** Mapping the Effects of Vegetation on Urban Heat Islands in the Twin Cities Metro Area  
**Faculty Mentor:** Gareth John

### Virtual Room #3

Moderator: Jodi Kuznia

**1:00pm – Bailey Olsen**

**Title:** The academic benefits of participation in intramural sports  
**Faculty Mentor:** Randal Baker

**1:20pm – Joshua Snapp**

**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)  
**Faculty Mentor:** Monica Garcia-Perez

**1:40pm – Samantha Bromenshenkel**


**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)  
**Faculty Mentor:** Monica Garcia-Perez

# Virtual Poster Presentations

Gather.town Online Conference Platform




## Session 3: 1:00pm - 2:00pm



**Easel #1: Katie Thomas**

**Title:** SCSU Community Health (HLTH 446) Internship Experience in the Cardiac Rehab Heart Center at the St. Cloud Hospital


Faculty Mentor: H. Giovanni Antunez



**Easel #2: Michael Gelaw**

**Title:** Purification and Characterization of S177A Variant of Pyrroline-5-Carboxylate Reductase


Faculty Mentor: Nathan Bruender



**Easel #3: Katarina Hansen**

**Title:** Proline's Capacity to Inhibit Pyrroline-5-Carboxylate Reductase

Faculty Mentor: Nathan Bruender



**Easel #4: Wengelawit Molla**

**Title:** The Investigation on the Effect of Asn123Gly mutation in the Enzyme Pyrroline-5-Carboxylate Reductase


Faculty Mentor: Nathan Bruender



**Easel #5: Mariam Elgarhy**

**Title:** The American Dream: A False Reality

Faculty Mentor: Steven Anderson



**Easel #6: Emma Grossinger**

**Title:** Inequality in the United States Healthcare System

Faculty Mentor: Steven Anderson

# Virtual Oral Presentations

Zoom Webinar

Session 4: 2:30pm - 3:50pm

## Zoom Password: Showcase

### Virtual Room #1

Moderator: Jacob Huang

**2:30pm – Zackey Osendorf**

**Title:** Free the Brain: Do Brain Breaks Help Students Focus Better?

**Faculty Mentor:** Ramya Sivaraj

**2:50pm – Noah Ellefson**

**Title:** Students' Thoughts on Going Green: Designing Responsive Lessons

**Faculty Mentor:** Ramya Sivaraj

**3:10pm – Bradley Harris**

**Title:** Comparing Computational Simulation-based vs Collaborative Groupwork-based Learning Design for a High School Physics Lesson

**Faculty Mentor:** Ramya Sivaraj

**3:30pm – Michael Lee**

**Title:** Sexual dimorphism in Western Painted Turtles (*Chrysemys picta*): weapons and wounds

**Faculty Mentor:** Jennifer Lamb

### Virtual Room #2

Moderator: Hazem Farra

**2:30pm – Benny Thomas, Shea Garlock**

**Title:** Sick Science: The Impact of the COVID-19 Pandemic on Science Instruction at St. Cloud State University

**Faculty Mentor:** Felicia Leammukda

**2:50pm – Abdulrahman Alnajrani, Gavin Dutcher, Salome Pantuvo**

**Title:** Adaptive Multi-Factor Access Control

**Faculty Mentor:** Abdullah Abu Hussein

**3:10pm – Jared Dunkley, Mala Hamal, Vijay Raut**

**Title:** Educational Conversational Agents

**Faculty Mentor:** Jieyu Wang

**3:30pm – Moulika Gajavali, Kushal Maddala, Jayanth Alla**

**Title:** Emergency planning and management in health care priority

**Faculty Mentor:** Jieyu Wang

### Virtual Room #3

Moderator: Kristy Modrow

**2:30pm – Kristina Woischke**

**Title:** Coalition to End Social Isolation and Loneliness in Greater St. Cloud

**Faculty Mentor:** H. Giovanni Antunez

**\*Community Partner:** Steve Hoover, Central Minnesota Council on Aging

**2:50pm – Mariia Tikhonova**

**Title:** Wellness Coaching Impact on Students Through a Graduate Student's Perspective

**Faculty Mentor:** Jen Johnson

**3:10pm – Val Zenteno Carvajal**

**Title:** Barriers to Solo Travel among Latinx Women

**Faculty Mentor:** Randal Baker

**3:30pm – Kenzie Kitman**

**Title:** Senior Research: "How does small business establishment affect economic growth by state in the United States?"

**Faculty Mentor:** Monica Garcia-Perez

## Session 4: 3:00pm - 4:00pm



### **Easel #7: Grace Larson**

**Title:** Culturally Responsive Pedagogy: Using Mandated Texts and Remaining Culturally Responsive in the Classroom.  
Faculty Mentor: Scott Baker



### **Easel #8: Aaron Soderholm**

**Title:** Culturally Responsive Pedagogy: Social Studies Education on Incorporating Student Culture in the Classroom  
Faculty Mentor: Scott Baker



### **Easel #9: Hanan Barud**

**Title:** Center For Victims of Torture (CVT)  
Faculty Mentor: H. Giovanni Antunez  
**\*Community Partner:** Kathleen O'Donnell, Center for Victims of Torture



### **Easel #10: Michelle Lanam**

**Title:** Historical Biogeography of Lizardfishes (Aulopiformes)  
Faculty Mentor: Matthew Davis



### **Easel #11: Dicke Bouchka**

**Title:** Comparison of the Kinetic properties of wild-type pyrroline-5- carboxylate reductase enzyme with K75A variant  
Faculty Mentor: Nathan Bruender



### **Easel #12: Xavier Fladung**

**Title:** Analysis of Pyrroline-5- Carboxylate Reductase's affinity for variable substrates  
Faculty Mentor: Nathan Bruender



### **Easel #13: Steven Hartley, Randy Paulzine, Hamza Kherallah, Taylor Bollinger**

**Title:** Smart Bird Feeder  
Faculty Mentor: Aiping Yao



### **Easel # 14: Hodan Rashid**

**Title:** Social Media: Disadvantages  
Faculty Mentor: Steven Anderson

*Thank you to all our faculty whose efforts are vital to the student research, scholarship, creative activity, and community engagement we celebrate today. Your support is invaluable to the learning and development of St. Cloud State University students.*

*Special thanks to all the faculty, staff, and student volunteers who serve on the planning committee members in support of Huskies Showcase.*



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**A member of Minnesota State**



# Abstracts



**APRIL 19, 2022**



## Table of Contents

<b>In-Person Oral Presentations .....</b>	<b>2</b>
<b>In-Person Poster Presentations .....</b>	<b>29</b>
<b>Virtual Oral Presentations .....</b>	<b>117</b>
<b>Virtual Poster Presentations .....</b>	<b>139</b>
<b>Creative Works Presentations (<i>Artistic Performance, Demonstration, Gallery Exhibits</i>) .....</b>	<b>154</b>

*\*Abstracts are organized by presentation type and lead presenter last name*



## **In-Person Oral Presentations**



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Nawal Abdalkhalek  
Josue Carrillo Martinez  
Evan Halverson

**Faculty Mentor(s):** Matthew Julius

**Husky Compact Dimension:** Engage as a Member of a Diverse and Multicultural World

**Title:** Omega Plus

---

**Abstract:**

Pleurochrysis Carterae is a fast-growing marine algal species that biomineralizes calcium carbonate using elements from its growth environment. Haptophytes are a unique lineage on the tree of life 4-500 species, P.Carterae is one of these. Our project proposes exploiting the unique aspects of this organism's biology to produce a novel bone health supplement. In doing so, we are opening the door to the biomineralization of structural products as a new field for oval technology, bioengineering and paving a new way for the first of its kind. Pleurochrysis Carterae can be controlled and farmed in our lab. The biomass of algae (Pluerochrysis) multiplies exponentially every two days. The Pleurochrysis growth rate has been monittered for every three days, using SPAD meter. In comparison to clams, clams take 2-3 years to grow. Or Lithomanion Superpositum which takes hundreds of years to develop before it can be harvested to make calcium supplements. In addition to that, our revolutionary supplement is going to have amounts of other elements such as magnesium, omega-3, and strontium, controlled in our lab. By controlling the ratios of calcium so they can be higher, we are promoting optimization for bone support, protection, and higher absorption of other minerals. With the addition of benefits of omega-3 high in EPA and DHA that will be included in our supplements. Omega-3 is synthesized through the extraction of calcified scales. Our team is producing a calcium supplement that is completely reliant on natural materials, rather than synthetic materials as the body absorbs it faster because of its high surface volume, it was made to dissolve quickly, enhancing its bioavailability. Our supplement is firstly vegan, non-GMO, and completely made from algae no other synthetic resources have been used or modified. We will transform this supplement if needed to be liquified to help those that may be suffering with swallowing problems, dysphagia, or G tubes.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Suad Ali

**Faculty Mentor(s):** Leslie Valdes

**Husky Compact Dimension:** Integrate Existing and Evolving Technologies

**Title:** Is what you remember real? Quantitatively investigating the recognition of synthetic Generative Adversarial Network pictures

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**Abstract:**

Generative Adversarial Network (GAN) can create realistic examples of things that do not exist (e.g., pictures of cats). GAN creates synthetic images using algorithmic architectures that set up two neural networks against each other. The generator which produces the fake pictures, and the discriminator that specifies whether the pictures are real or fake. The present study will investigate if synthetic GAN pictures are recalled differently from real pictures. Thirty-five participants will study 20 pictures of cats and indicate if each picture is synthetic or real. Half of the pictures will be synthetic, and the remaining pictures will be photographs of actual cats. After a short delay, when participants indicate their feelings about cats, they will do a recognition test. Half of the pictures will be from the first part of the study, and the other half will be new. It is expected that the synthetic pictures will be remembered better than the real pictures. There may be a higher false alarm rate for synthetic pictures than real pictures because they are prototypes. GAN images are becoming more popular, along with 'fake' information. In addition to whether or not to believe synthetic information, studies are needed to explore if synthetic images are more memorable and thus more able to persuade individuals.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Tanner Armstrong

**Faculty Mentor(s):** Monica Garcia-Perez

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)

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**Abstract:**

This presentation will be about an aspect of labor economics of the UK. The presentation will be about the effects on labor supply in the UK since they left the European Union and how these issues were included to be resolved by the UK and how the issues were exposed or become more apparent because of the COVID-19 pandemic. The presentation will also discuss how the UK has gone about addressing and solving such issues. The presentation will be back by information that I learned on our spring break study abroad to England.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Ujala Chawla  
Sabina Scotti  
Hannah Warehime  
Christly Sumihi

**Faculty Mentor(s):** Amanda Hemmesch  
Sandrine Zerbib, Ann Finan, Jim Cottrill

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Unleashed Opinions: Measuring SCSU Student Perceptions of COVID-19 Related Issues

---

**Abstract:**

Studies across different countries suggest that the COVID-19 pandemic has caused stress and burnout (e.g., Queen & Harding, 2020; Taylor et al., 2020; Y. Wang et al., 2020; Xiong et al., 2020). Previous research has predominantly focused on the working population whereas we are interested in stress and burnout in the student population. We were also interested in testing the association between knowing someone who has become seriously ill or died from COVID-19 and vaccination status. Finally, we also wanted to see if COVID-related absences were related to GPA for SCSU students. We conducted a mixed-method study that included telephone and online surveys that were conducted in February-March 2022 (data collection is ongoing). Participants were asked different questions about how COVID-19 has impacted them in terms of stress, burnout, vaccine status, COVID-related absences last semester, and if they know of someone who has become ill or died because of COVID-19. We anticipate that students will report high stress and burnout, especially those whose loved ones have been seriously affected by COVID-19. We also anticipate that students whose loved ones have been seriously affected by COVID-19 will be more likely to be vaccinated than other students. Finally, we predict that students who had more COVID-related absences will have lower GPAs than those with fewer absences. These results will help us to better understand how COVID-19 has affected the SCSU student population.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Lucas Clasen

**Faculty Mentor(s):** Gareth John

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Tracking the Rise and Demise of Streetcars in the Twin Cities: An Historical-Geographical Analysis

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**Abstract:**

The Twin Cities of Minneapolis and St. Paul, Minnesota have a long and oft-forgotten and overlooked history with rail transportation. Starting with horse-drawn and steam-powered streetcars in the mid-nineteenth century, the system rapidly expanded and evolved, and by 1888 the system was electrifying. By the early 1920s, the system comprised of 523 miles of track and showed a peak ridership of 238 million passengers, but the rise in popularity of the automobile and increasing suburban sprawl into the peripheries of the Twin Cities saw ridership quickly start to fall. By 1954 the Twin City Rapid Transit Company, the sole owner of the streetcar network in the Twin Cities, dismantled the entire system. This project is a newspaper-based archival study on the history and ultimate demise of streetcars in the Twin Cities area. It seeks to better understand what factors led to the rise and subsequent fall in the streetcar system using archival newspapers, maps, photographs, and other relevant documents. It will investigate the history of the streetcar to determine the political, economic, cultural, and geographic conditions of the time to add much-needed context to the current issues surrounding public transportation in both the Twin Cities area and around the country.



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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Sean Cranston

**Faculty Mentor(s):** Mengshi Zhou

**Husky Compact Dimension:** Integrate Existing and Evolving Technologies

**Title:** Build an artificial intelligence-based movie recommendation engine with machine learning algorithms

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**Abstract:**

In the technology age we have seen an explosive amount of information and data which presents us with an obstacle—how do we find what we are looking for? Recommendation systems can solve the information overload problem by guiding people toward the information through predictive modeling. The goal of this study is to build an artificial intelligence (AI)-based recommendation engine to find movies of interest to the users. Several articles can be found on recommendation systems. However, most of the articles studied a single class of recommendation algorithms. In this study, we systematically compared various types of algorithms and deployed the algorithms to real-world use. Our study includes data preprocessing, data visualization, hyperparameter optimization, model comparison, and deploying models in a web app. We analyzed a large dataset consisting of 105,339 ratings on over 10,329 movies. The cross-validation experiments were used to explore and compare the performance of different machine learning algorithms on the dataset. The popular algorithm, which recommends movies based on movies' popularity, was the most effective as measured by ROC curves and precision-recall curves. This result is important because it shows that we don't always need a complicated algorithm to have the best model. We then build a recommendation engine using the popular algorithm. Finally, we developed a shiny app for our AI-based recommendation engine.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Kylee Erickson

**Faculty Mentor(s):** Monica Garcia-Perez

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)

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**Abstract:**

I am studying abroad with the Econ 473. As a class assignment we are supposed to present about our experience. We are going to England, multiple locations, including London, Oxford, and Edinburgh. The class is labor economic, so I will be studying the impact of Brexit and COVID on the U.K and the U.K. labor supply, labor demand, and how this impacted economic and political policies. These policies mostly consists of immigration. Overall, there is a labor shortage in the U.K. due to both Brexit and COVID. Because of this labor shortage the U.K . has had to change some of their policies on specifically immigration and immigrants, but other policies as well to compensate for the labor shortage. I will also personally examine, in the U.K., the impacts on local companies, immigrants, and average workers.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Katherine Erickson

**Faculty Mentor(s):** Randal Baker

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Appeal of Oceanic Cruises to Young Adults

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**Abstract:**

This project aims to discover why young adults are choosing to vacation on oceanic cruises. There are many specific marketing campaigns for the different cruise lines, but do these marketing strategies give the best advantages to the cruise lines? This research project was created to better understand what is attracting the young adult demographic to cruising and how that relates to the different market strategies out there. The research for this project was conducted through a survey. This survey was created with a curated question list to better understand the appeal of cruises to young adults. This survey was sent out through social media and targeted young adults ages 18-30. The responses were then gathered together, and the data was entered into an excel spreadsheet for analyzing. The excel spreadsheet allowed for easy grouping of responses which created opportunity to analyze what the different response groups had in common. This would then allow for a better understanding of which marketing strategies work best for the young adult demographic. This survey was also analyzed in terms of percentage and what attracted the young adult demographic to cruise most often. The findings of this research show that the different marketing strategies for the individual cruise lines align with the reasons that young adults are choosing to cruise.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Xavier Fladung  
Alexei Miklochak  
Kiwoon Kim

**Faculty Mentor(s):** Sarah Petitto

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Kinetics of the Iodine Clock Reaction

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**Abstract:**

A clock reaction, or chemical clock, commonly used in chemistry demonstrations, is a reaction with a compound mechanism, where the final product is only formed after an initial induction period, which occurs when the second step limiting reactants are exhausted. Then the first step generates molecular iodine ( $I_2$ ) which forms a distinctive blue complex in the presence of starch indicator. The formation of the complex indicates the reaction has terminated, allowing time to be measured to fully exhaust the second step reagent, giving a rate of consumption for that species. The iodine clock reaction is performed using sodium persulfate ( $Na_2S_2O_8$ ), sodium thiosulfate ( $Na_2S_2O_3$ ), and  $I_2$ , where the sodium in both sulfates is a spectator ion and thiosulfate is the second step limiting reactant. The rate of the reaction is measured by timing color changes of the solution after mixing all the reactants. The experiment aims to determine the activation energy using the Arrhenius equation associated with the persulfate/thiosulfate formation by gathering kinetic data on the reaction rate. The effect of temperature on the rate constant is also explored by varying reaction temperature and measuring the change in kinetics. Key words: Clock reaction, Activation energy, Rate constant, Kinetics, Arrhenius equation



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Kyle Janssen  
Andrea Rodriguez-Arzola  
Ujala Chawla  
Hunter Tholkes  
Sabina Scotti, Smita Khobragade, Owen Wunderlich, Hannah Warehime, Christly Sumihi

**Faculty Mentor(s):** Sandrine Zerbib  
Amanda Hemmesch, Ann Finan, Jim Cottrill

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** This is how we do it! Spring 2022 SCSU survey

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**Abstract:**

The SCSU Survey Center conducted public opinion research with a focus on measuring students' perceptions of current sociopolitical issues. How did we do it? This presentation focuses on the methodological and logistical aspects of conducting our annual study of SCSU students' attitudes and experiences during the ongoing COVID-19 pandemic. The presenters created the survey questionnaire and supervised telephone survey shifts in their role as student directors and lead student directors. Student directors worked with faculty to develop appropriate items based on existing public opinion research on their topics of interest. Our annual spring survey used a mixed-method design that included on both telephone survey interviews and online/web-based survey interviews. Data collection started on February 12th and ended on February 28th, 2022. SCSU student participants were randomly selected from a list of currently enrolled students using a stratified systematic sampling method; half of the participants were invited to complete a telephone survey and the other half were invited to complete the survey online via Qualtrics. Callers from SCSU classes collected telephone data and were supervised by student directors. Due to the ongoing pandemic, we changed our lab procedures to maintain physical distancing and continued with a more intensive cleaning procedure between calling shifts.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Kyle Janssen  
Owen Wunderlich

**Faculty Mentor(s):** Sandrine Zerbib  
Ann Finan, Amanda Hemmesch, Jim Cottrill

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Agreements and Disagreements of the Supreme Court during the COVID-19 Pandemic

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**Abstract:**

The SCSU Survey Center conducted public opinion research with a focus on measuring student perceptions of current sociopolitical issues. SCSU Survey student directors present data from a study of SCSU students conducted in Spring 2022 that included a question regarding the COVID-19 pandemic and the Supreme Court. Respondents were asked how they viewed the recent ruling by the Court regarding the federal government mandate requiring workers to either get a vaccine or get tested for COVID-19 on a weekly basis. This presentation will focus on college students' perceptions of the ruling and how different variables like race, political ideology, and others can play a part in how respondents answered. Data collection for our annual Student Spring survey was collected from February 12th through February 28th, 2022. SCSU student participants were randomly selected from a list of currently enrolled students using a stratified systematic sampling method; half of participants were invited to complete a telephone survey and half were invited to complete the survey online via Qualtrics. Analyses will focus on general trends and on how demographic variables (e.g., age, gender, race/ethnicity, and political affiliation) influence those views. We predict that a majority of students will agree with the Supreme Court's decision on striking down the federal government's mandate.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Edison Jensen

**Faculty Mentor(s):** Monica Garcia-Perez

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)

---

**Abstract:**

I'm excited that I will be studying abroad with Professor Garcia-Perez and my classmates in the United Kingdom. We're going to be studying the economic impacts of Brexit, and COVID-19. The course associated with this study abroad is a Labor Economics course, and our studies will focus on the labor conditions of the U.K. Economic thinkers from Oxford University, and London College will offer us exciting lectures that relate to our course material. It seems increasingly clear to me that this opportunity will be unique, and memorable. This is a chance to bring the classroom to the real world, and learn the culture and realities of another country. With the ongoing pandemic, I'm so grateful that I have the privilege to study abroad in such an exciting, and engaging manner. Prof. Garcia-Perez is continuing to prepare us to absorb the fascinating economic knowledge that this trip is going to offer. I'm really looking forward to this.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Souleymane Kassoum

**Faculty Mentor(s):** Amy Christensen

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Teachers' perceptions of academic optimism in a private middle school in Niamey, Niger.

---

**Abstract:**

Positive school culture makes schools display distinctive characteristics, enhances academic performance, and positively influences the behavior of different members of the school. Therefore, positive school culture as the backbone of effective schools is essential for student achievement. It makes the school environment conducive not only to healthy interactions among teachers, parents, and students, but also to teaching, learning, and academic excellence. Academic optimism is a type of effective school culture which consistently proves schools' characteristics can influence student academic achievement regardless of their socio-economic status, demographic backgrounds, or previous achievement. However, the positive impact of the culture of academic optimism on student achievement is not met with the expected number of research and analysis in the context of Niger. Therefore, this study examines teachers' perceptions of the practices of academic optimism in Niamey (Niger). The study will use a non-experimental survey research design and School Academic Optimism Scale (SAOS) developed by Hoy (2005) will be used to collect the quantitative data from a small sample (14 middle school teachers). The study will use basic descriptive statistics to determine to what extent the components of academic optimism (collective teacher efficacy, faculty trust in parents and students, and academic emphasis) are perceived by teachers.



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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Timothy Lux  
Loren Sohler  
Quinn Radeke

**Faculty Mentor(s):** Maureen O'Brien

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Putin and the Czar: Autocracy and Dissent

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**Abstract:**

This applied history project will examine the exploits of Czar Nicholas II (r.1894-1917) as a lens through which to better understand Vladimir Putin's ambitions. Both Nicholas II and Vladimir Putin can be considered as leaders committed to autocratic rule and repression of internal dissent. In both we can recognize leaders with a track record of intensifying repression as their time in power progresses. A further link between them we can see is the impact that foreign policy plays on the internal politics of Russia, with success or failure in foreign conflict providing either solidification of power or the spark for popular unrest. We will explore topics such as the similarities between the crackdowns on socialist and Jewish dissidents in Imperial Russia and Putin's expansion of the surveillance state and increased attack on political dissidents such as Alexie Navalny's democratic reformers. We will also delve into the personal choices that Russian autocrats make, and how long-term trends in Russian identity and ideology drive their decision making, such as Russian ethnonationalism and imperialism, preoccupations with buffer zones for security, and the need for warm water ports for economic and strategic goals. The progression of Nicholas II's rule and the impact of failed foreign policy tied with a disregard for dissatisfaction at home could give us insight into how Putin's future decisions and outcomes may play out, as well as provide a warning for the instability and suffering that may come with said endgame. We will also take into consideration key differences between the two rulers, such as personal political aptitude or competence, an empire trying to maintain its power versus a country trying to reassert lost prestige, and a Russia that is interconnected with the wider world versus one retreating further into isolation.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Alex Maile

**Faculty Mentor(s):** Matthew Davis

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Evolutionary Relationships of Anglerfishes based on Genomic Data

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**Abstract:**

Anglerfishes (Lophiiformes) are a species-rich lineage of deep-sea fishes (>500 species) that have a worldwide distribution. Prior studies have hypothesized that marine lineages living in open-ocean habitats may exhibit lower species richness due to a reduction in genetic isolation among populations. The observed high species richness of anglerfishes indicates that this lineage is undergoing genetic isolation in the deep sea, and previous studies have indicated that the order Lophiiformes is diversifying at a rate that is significantly higher than expected given their clade age. This increase in diversification has been attributed to their anatomically species-specific bioluminescent lures (esca), which are sexually dimorphic and exhibit tremendous anatomical variation among the various species of anglerfishes that live in open ocean environments. In deep-sea anglerfishes the lure is modified from the anterior-most first dorsal-fin ray and houses bioluminescent bacteria in a symbiotic relationship. This research focuses on investigating the evolution of anglerfishes and the anatomical variation of their bioluminescent lures. Character evolution of features associated with the bioluminescent lures are investigated across the anglerfish radiation. This research focuses on addressing the questions: (1) What are the evolutionary relationships of anglerfishes based on genome-scale data (2) What anatomical variation exists in the lures of anglerfishes? (3) How many times have bioluminescent symbiotic lures evolved, and how many times has sexual dimorphism evolved?



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Riley Marsolek

**Faculty Mentor(s):** Randal Baker

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Impact of Hotel Service Quality on Guests Satisfaction

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**Abstract:**

This project is a study of the Impact of Hotel Service Quality on a guest's overall satisfaction. This study was survey based with questions asked about how satisfied the guests were with their stay and what aspects of the hotel service had impacted their stay the most. Questions that were asked were related to safety of the hotel, were guest accommodations and wishes taken care of, understanding of the hotel's hours for facilities and dining, Communication of any possible problems within the hotel that a guest may have, and so forth. This study was done with three groups of questions. The first group being the demographic questions like age, marital status, occupation, and education. The second group of questions explained the important questions about the hotel. Questions related to safety, communication, responsibility of the hotel, and so on. The third set of questions related to satisfaction of the guest and their stay, whether the guest would recommend the hotel to friends and family, and whether or not the guests would stay again. The survey was conducted both online and on paper. The research was conducted starting near the middle of February and end in March. The results will be of 30 or more respondents and their data analyzed in a spreadsheet.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Hannah Mayhew

**Faculty Mentor(s):** Monica Garcia-Perez

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)

---

**Abstract:**

The after-BREXIT status of England's labor market and UK immigration flows. Despite BREXIT's final implementation in 2020, the pandemic blurred the after-shock effect in the economy. Locally, the country has had to establish immigration strategies to cover labor shortages resulting from BREXIT and lockdowns policies. The course ECON 473 Labor Economics would cover the theoretical discussion of economic shocks and the labor market's adjustments. A special focus will be given to workers' internal and international mobility to rural and urban areas in England. For instance, I will plan to visit and/or connect with labor research centers paired with sectors most affected by the farming and transportation sectors' policies resulting from BREXIT and lockdown measures due to the 2020-2021 pandemic.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Armand Mucyo

**Faculty Mentor(s):** Randal Baker

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Social media influence on hotel marketing

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**Abstract:**

The aim of this project was to assess how hotels use social media platforms to market their services. The content and timing of social media posts, the intended audience and the influence of images on audience expectations. the project also examines how hotels reacted on negative comments and feedback on social media platforms.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Spencer Ott

**Faculty Mentor(s):** Sarah Gibson

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** New Insights into Fish Biodiversity from the Dockum Group of western Texas

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**Abstract:**

Ray-finned fishes are one of the largest groups of vertebrates on the planet, having first shown up in the fossil record 480 million years ago. Despite being such a long lived and diverse group, little is known about many extinct genera of fishes. Fish biodiversity has been understudied in the Early Mesozoic, and this project aims to focus on ray-finned fish fossils from the Upper Triassic Dockum Group (approximate 230–220 million years old) near Otis Chalk, in Howard County, western Texas. Specimens from this site are preserved as isolated bones, most retaining their three dimensionality, which is a unique preservation type for fish fossils (most are preserved laterally compressed). The goal of this project is to clean and prepare specimens from this site, examine this unidentified material, and describe putative new species based on comparative morphology. These specimens will allow us to fill in gaps in our current knowledge of fishes during this time frame and address the following questions: 1) What species are present in this region during the Late Triassic?, 2) What is the geographic distribution of these fishes throughout the Southwest (i.e., comparing the assemblage of biodiversity of this site to other sites in New Mexico, Arizona, or Utah), and 3) What can we decipher from their three-dimensional preservation regarding the ecology of the site and the taphonomic processes involved in fossilization?

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Andrea Rodriguez-Arzola  
Hunter Tholkes

**Faculty Mentor(s):** Sandrine Zerbib  
Amanda Hemmesch, Ann Finan, Jim Cottrill

**Husky Compact Dimension:** Integrate Existing and Evolving Technologies

**Title:** Social Connectedness and Relationship Satisfaction in the Digital Age

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**Abstract:**

Social media, defined as an interactive digital service to communicate, share, and consume various forms of information with others (e.g., Instagram, Facebook, Twitter, Pinterest) (Junco, Heiberger, Loken, 2010), have recently become the most present pastime. While use and intention vary between users, widespread social comparison is a side-effect of these technologies (de Lenne et al. 2019; Primack et al., 2018; Thai et al., 2020; Trub et al., 2015). Social media facilitates an endless source of superordinate relationship comparison to one's own romantic relationship or lack-there-of. Additionally, social isolation, defined as either a perceived (subjective) or observed (objective) form of disconnectedness from social ties – a low social network (Lubben et al., 2006) is correlated with relationship dissatisfaction (Child & Lawton, 2019) and an increase in susceptibility to social media comparison (Lee & Cho, 2018; Ruggieri et al., 2021). Data was collected from a sample of enrolled Saint Cloud State University students generated through a stratified systemic sampling method; half of the participants were invited to complete the survey through telephone and half through an online survey. We are predicting a low relationship satisfaction score (i.e., somewhat satisfied; or less rated) predicated by an at-risk score for social isolation (i.e., had 2 or fewer people they could call on for help). Additionally, social media use (measured as an isolated “connection” constituent in accordance with others) as a prediction of their relationship satisfaction scores. We are additionally examining the relationship between religious service attendance and social isolation scores. A person is more likely to have negative feelings towards their own relationship status based on social media use and depending on variables such as relationship status, gender, and age.

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**2022 HUSKIES SHOWCASE ABSTRACTS**

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Mitchell Sakry  
Casey Skodje

**Faculty Mentor(s):** Jungwon Ahn  
Nancy Sundheim

**Husky Compact Dimension:** Integrate Existing and Evolving Technologies

**Title:** MFET Capstone Project: Carfair Composites

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**Abstract:**

1) The senior capstone team are working to implement the 5S methodology and Continuous Process Improvement of the Carfair Composites manufacturing. 2) Carfair composites manufactures parts made from fiberglass through resin transfer molding (RTM). This process requires an abundance of manual labor and workspaces. 3) Use LEAN methodology to integrate continuous improvement practices and implement the 5S process. Targeted focus in the selected are (prep) as the pilot project to eliminate waste, create flow, and increase efficiency. 4) Use LEAN methodology to integrate continuous improvement practices and implement the 5S process. Targeted focus in the selected are (prep) as the pilot project to eliminate waste, create flow, and increase efficiency. 5) Targeted improvement area (in prep)• Focused Kaizen or rapid improvement event• Make carts for prep 6) Apply visual management practices• Establishing boundaries, lines, and aisleways• Color coding (materials, processes, files)





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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Brennen Schulte

**Faculty Mentor(s):** Gareth John

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Geography of WISSOTA Dirt Track Racing in Minnesota

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**Abstract:**

The geography of sport is a subdivision of the discipline that is not commonly studied among academics, this is why I chose to mesh two of my passions in life, geography and motorsport, to create my thesis. The main focus of the study is regarding the geography of WISSOTA dirt track racing in Minnesota. Utilizing publicly accessible online databases to gather general information of drives, surveys, and conducting several semi-structured interviews, I will examine how the environment of these drives affect multiple variables such as place, spending, and spread. The inner workings of local racing often go undocumented which makes even general research difficult, integrating primary sources is what allows this project to go deeper than just surface level. I would argue that unlike similar studies of more mainstream motorsports such as F1 and NASCAR, WISSOTA dirt racing in Minnesota will not have a specific area that teams and drivers cluster in. I find it much more likely that teams will be spread haphazardly throughout the state. Secondly, it is likely that because of the lack of a set schedule and minimal influence by the sanctioning body on teams, the number of events they attend and number of tracks they visit in a season will be dependent upon location, budget, and division they compete in.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Jennifer Sonterre  
Brianna Pace  
Shelby Pointer  
Brian Neumeister

**Faculty Mentor(s):** Maureen O'Brien

**Husky Compact Dimension:** Act with Personal Integrity and Civic Responsibility

**Title:** History of Genocide: Understanding Genocide Through a Transdisciplinary Lens

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**Abstract:**

Genocide by any other name is still genocide. Through social constructionism in a globalized world, genocide has been defined legally on national and international levels, and operationally within different disciplines. Genocide is a psychosocial process blending hate with social control out of fear, or for social and political power over society. Scholars, academics, and professionals the world over have become very talented at retroactively identifying genocide but have failed the human species with their silence concerning events in progress. This leaves governmental institutions amid a sea of presumed indifference choosing self-interested political and financial gain over human life. Within history, the subfield of Applied History allows for research into the past to be applied for modern issues. Applying the lessons and knowledge from past events, such as those in 20th century Armenia, Germany, Bosnia, and Rwanda, to the scientific knowledge of human behavior provides a solution to the present state of ennui global societies and institutions. These histories show a lack of engagement regarding the current events occurring in Sudan and Myanmar. History has illuminated the need not for civil disobedience, but rather the social disobedience of scholars, academics, and professionals, by disobeying the social normativism of remaining silent and avoiding collaboration with other disciplines. The global community must instead speak out and collaborate to end the avoidable suffering and death of our human siblings around the world and to compel international governments to act.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Leng Yang

**Faculty Mentor(s):** Oladele Gazal  
Gengyun Le

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Evaluation of Pro- and Anti-epileptic Activities of Three Herbal Extracts in the Planaria, *Dugesia* *Dorotocephala*

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**Abstract:**

Epilepsy is a neurological disorder characterized by violent seizures from abnormal brain activities, and it affects over 50 million people worldwide. The emergence of drug-resistant epilepsy together with the high cost of anti-epilepsy drugs have necessitated the development of alternative anti-epileptic treatments. In this study, we evaluated the pro- and anti-epileptic effects of the aqueous extracts of *Nigella sativa* (NS) seeds, *Momordica charantia* (MC) seeds, and *Allium cepa* juice (ACJ) in the *Dugesia dorotocephala* model of epilepsy. Normal gliding movements (NGM) were assessed in artificial pond water (APW). Thereafter, conventional excitatory and inhibitory neurotransmitters with their receptor agonists and antagonists were used to evaluate NGM and hyperkinetic movements. Additionally, the effect of prior blockade of either excitatory or inhibitory neurotransmitter receptors on the pro- or anti-epileptic activities of NS, MC, or ACJ was determined. Finally, the planarian concentrations of glutamate and GABA after neurotransmitter or herbal extract administration were evaluated. Exposure to APW induced NGM as did GABA, but exposure to glutamate and NMDA induced hyperkinetic movements. MC at either 100µg/mL and 200µg/mL caused NGM and had no effect on hyperkinetic behavior. However, NS at both 100µg/mL and 200µg/mL induced screw-like hyperkinetic movements but only the high dose induced snake-like hyperkinetic movements. ACJ at all doses used (10ppm, 100ppm, or 1000ppm) induced no hyperkinetic effect. Remarkably, administration of ACJ at 10ppm significantly reversed hyperkinesia induced by NMDA or glutamate. Data obtained on planarian glutamate and GABA concentrations will be discussed. Summarily, these data indicate the potential for ACJ extract to reverse hyperkinesia observed in the *D. dorotocephala* model of epilepsy. Further studies in this area are ongoing.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Maiyung Yang

**Faculty Mentor(s):** Hector Giovanni Antunez

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** The Whitney Senior Center's Impact on the Health and Wellness of the Senior Community

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**Abstract:**

In this presentation, I will discuss my Spring 2022 semester internship experience at the Whitney Senior Center. This will include what I learned as a student intern at the senior center as well as the projects I worked on. The Whitney Senior Center provides a plethora of resources to the community's senior population, making it a very beneficial and significant organization. The Whitney Senior Center will be highlighted for its efforts to enhance the health of the community's seniors through programs that target all dimensions of wellness. The Whitney Senior Center offers a variety of services, such as classes or workshops, activities, events, and more that enhance the health of seniors, some of which will be described in this presentation. Their ability to adjust and accommodate the challenging times amidst the pandemic will also be discussed. Senior community members are able to promote and improve any aspect of their health through their involvement at the senior center, making the senior center have a significant impact on the community.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Oral Presentation

**Presenter(s):** Calvin Zapzalka

**Faculty Mentor(s):** Monica Garcia-Perez

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)

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**Abstract:**

The after-BREXIT status of England's labor market and UK immigration flows. Despite BREXIT's final implementation in 2020, the pandemic blurred the after-shock effect in the economy. Locally, the country has had to establish immigration strategies to cover labor shortages resulting from BREXIT and lockdowns policies. The course ECON 473 Labor Economics would cover the theoretical discussion of economic shocks and the labor market's adjustments. A special focus will be given to workers' internal and international mobility to rural and urban areas in England. For instance, I will plan to visit and/or connect with labor research centers paired with sectors most affected by the farming and transportation sectors' policies resulting from BREXIT and lockdown measures due to the 2020-2021 pandemic.

## **In-Person Poster Presentations**



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Ellias Ahmed  
Kelvine Nkembuh  
Joshua Woodson

**Faculty Mentor(s):** Michael Glazos

**Husky Compact Dimension:** Integrate Existing and Evolving Technologies

**Title:** Automatic Irrigation System

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**Abstract:**

The Automatic Irrigation System is a garden system that assists and maintains the well-being of plants. It assistances in water distribution, regulating sunlight by activation of shade mechanism. Monitors soil moisture levels, temp, heat index, humidity, and water levels within the systems reservoir. This system is also powered through solar energy to provide a low-cost self sustaining product that's lends a hand in a person's absence or their busy life.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Alli Beste  
Enock Ombengi

**Faculty Mentor(s):** Marina Cetkovic-Cvrlje

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** T-Cell Function and Composition in NOD Mice Exposed to Coca-Cola

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**Abstract:**

Type I diabetes is an autoimmune disease with the body's T-cells destroying the insulin-producing pancreatic  $\beta$ -cells. Helper T-cells (Th) activate and recruit cytotoxic T-cells (Tc) to attack and kill pathogens in the body as a part of a normal immune response. In type I diabetes, pancreatic  $\beta$ -cells are attacked and destroyed by activated T-cells, and therefore cannot produce the required insulin to restore blood glucose concentrations to physiological levels. Research has shown that increased sugar consumption via soft drinks increases incidence of type II diabetes due to increased blood sugar concentrations, though this has not yet been confirmed with studies for type I diabetes. Therefore, we hypothesize that Coca-Cola consumption over eight weeks would aggravate the  $\beta$ -cells' destruction in a mouse model of spontaneous type I diabetes, non-obese diabetic (NOD) mice. We anticipate an associated increase in function and levels of pathogenic T-cells in treated mice. To investigate this, five-week-old mice will be divided into treatment groups (drinking either Coca-Cola or sugar water with the same concentration of sugar) or a control group (drinking autoclaved water) for five to seven weeks. At twenty-four weeks of age, the mice will be euthanized, and single-cell suspensions will be made from the harvested spleens for analysis of T-cell function (by spectrophotometrically analyzing proliferation of cultured T-cells induced by a reagent) and splenic T-cell composition (by flow cytometry). Flow cytometry provides the quantification of different T cell types based on their characteristic surface markers labeled by fluorochrome-tagged antibodies. If Coca-Cola would potentiate type I diabetes development, one would expect to find increased proliferation of T cells, as well as an increased number of pathogenic Tc cells in the spleens of treated mice.





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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Eryn Bloom

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Glacier Bay National Park: Preserving Keystone Species

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**Abstract:**

Centered around a 10-page research essay guided by course work in HONS 106: Honors Seminar II, This research will be funded by scholarly articles and university offered and certified databases. The central idea will navigate around what are keystone species and how they affect our ecosystems by discussing examples from Glacier Bay National Park. All animals discussed will be well-known and easily recognizable: beavers, grey wolves, sea otters, brown bears, and moose. Discussion around Glacier Bay will centralize on their programs used for wildlife protection and what makes them different and more successful than the rest. My aim is to inform viewers about conservation of wild habitat, the preservation of their species, and how we can help them thrive while navigating anthropogenic environments.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Sean Bresnahan

**Faculty Mentor(s):** Maegan Jones

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Online Eating Disorder Recovery Communities: Levels of engagement and perceived recovery help

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**Abstract:**

Those in eating disorder recovery often visit unmoderated online recovery communities, as they provide safe places to express feelings and gain support (Aardoom et al., 2014; Kendal et al., 2017). However, less is known about how degree of involvement affects perceived recovery from the community; this question is especially important given the continued proliferation of new social media sites. This project investigated if there was a relationship between levels of engagement in online communities and perceived help. A survey was posted on Tumblr using relevant tags (e.g., #recovery, #EDtreatment), and 29 majority female users ranging in age from 13-43 ( $M = 20.8$ ) responded. Two questions were analyzed for this project. The first asked how much the Tumblr eating disorder community helped; responses included "No, A Little, Sometimes, Often, and Most of the Time." The second investigated engagement levels; specifically, frequency of reblogging, creating posts, commenting, and messaging others were measured, with the options "never, occasionally, and frequently." Chi square analyses were completed. Response options were condensed for these analyses (e.g., No/A little/Sometimes and Often/Most of the time). Results indicated no significant relationship between engagement and perceived help, with one exception. While the majority of activity engagement types were coded as 1 = No, 2 = Yes (Occasionally/Frequently), no participants indicated that they never reblogged posts. As such, response options were coded as 1 = occasionally and 2 = frequently. This result was trending towards significance,  $\chi^2(1, 28) = 3.64, p = .063$ . Though varying levels of engagement in more "active" types of community participation (e.g., creating content) did not seem to affect help perception, frequency of reblogging posts did, such that more frequent reblogging was related to greater perceived recovery help. This suggests that even more "passive" involvement in a recovery eating disorder forum may be helpful.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Ujala Chawla  
Sierra Bermúdez

**Faculty Mentor(s):** Marina Cetkovic-Cvrlje

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Study of Immune Cells in Streptozotocin-Induced Diabetic C57BL/6 Mice Consuming Coca-Cola

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**Abstract:**

Type 1 diabetes (T1D) is a chronic autoimmune disease in which specific lymphocytes (T-cells) destroy insulin-producing pancreatic  $\beta$ -cells. T-helper (Th) and cytotoxic T-cells (Tc) are two main subclasses of T-cells. Th cells release cytokines which trigger activation of Tc cells to begin the destruction of  $\beta$ -cells, whereas regulatory T-cells (Treg) suppress this process.  $\beta$ -cell destruction can lead to insulin deficiency resulting in the inability of cells to uptake glucose and hyperglycemia. T1D can be chemically induced in C57BL/6 male mice by administering streptozotocin (STZ), a selective pancreatic  $\beta$ -cell toxin that causes minor damage to  $\beta$ -cells in low-doses and attracts T-cells to destroy them. Sugary drinks are the largest source of calories and added sugar in the U.S diet. Individuals consuming 1-2 cans of sugary drink daily have a 28% greater risk of developing type 2 diabetes (T2D) than those who do not. Although there is strong evidence relating sugary drinks to the development of T2D, data is lacking regarding their effects on T1D, which is our purpose for the experiment. Four-week-old mice will be randomly separated into treatment (Coca-Cola) and control groups (sugar water and water). After 6 weeks of treatment, mice will be injected with a 40mg/kg of STZ for five consecutive days. After five weeks, euthanasia and splenectomy will be performed to prepare single-cell suspension followed by cell staining with particular monoclonal antibodies. We hypothesize that administration of Coca-Cola will potentiate T1D development in experimental C57BL/6 mice by acting on T-cells, increasing levels of Th and Tc cells, while decreasing Treg cells. This hypothesis will be tested by extracting lymphocytes from splenic cells of treatment and control C57BL/6 mice and analyzing cell types and their frequency using flow cytometry.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Andrew Clayton

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Predatory Nature of Microtransactions

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**Abstract:**

This project and poster derives from a 10-page paper from the course Honors Seminar II. This specific project focuses on microtransactions, and how they interact with children, and delves into further detail. First, what a microtransaction actually is, a transaction within a video game in which the user spends money on an item that can give them an advantage in game, speed up some part of a process in-game, or alter some part of the experience, whether cosmetic or more directly affecting the flow of the game. This description delves into the types that there is, some aforementioned, as the profitability of them (one specific company, Blizzard, made \$5.1 billion from microtransactions in 2021). Furthermore, the project also explores what makes adolescents especially vulnerable, including their stage of cognitive development, and the danger of microtransactions, such as the correlation of players paying for them and developing a gambling habit. Other additional topics include the legislation and controversy surrounding microtransactions internationally, as well as also covering common counterarguments in favor of microtransactions. Encompasses the nature of microtransactions and how they interact with children, and covers other factors at play.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Molly Clyne

**Faculty Mentor(s):** Matthew Davis

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Evolutionary Relationships of the Butterfishes and their Allies (Stromateoidei) and the Evolution of Symbiosis with Jellyfishes (Cnidaria)

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**Abstract:**

The suborder Stromateoidei (Butterfishes and their allies) includes approximately 70 species distributed among 15 genera and 6 families of marine fishes that are found worldwide in our oceans. Butterfishes inhabit coastal in-shore environments as well as the vast expanses of the open ocean where they have evolved fascinating behaviors associated with defense and predation. To survive in the open ocean, butterfishes have evolved the ability to avoid the stinging cells of jellyfishes, and they often live among jellyfishes in symbiosis with the jellies offering a habitat and protection from other predators that avoid their stinging tentacles. Despite these fascinating behaviors and adaptations, evolutionary relationships among butterfishes and their allies have remained controversial, with incongruence in hypotheses based on molecular data and morphological data that have implications for the timing and number of how these symbiotic behaviors have evolved. The objectives of our study are to (1) provide the first hypothesis of evolutionary relationships of the butterfishes based on genome-scale data using ultraconserved elements. We will compare our results to those of prior studies based on a fraction of the amount of molecular data and also integrate our work with a total evidence approach that incorporates previously published morphological data as well. Our inferred tree-of-life for butterfishes will be used for our next objective (2) which will involve investigating the evolution of symbiosis among butterfishes and cnidarians (jellyfishes and their relatives), including how many times this symbiotic relationship has evolved within the group, and functionally is it being used for defensive sheltering or predation. Our third objective is to reconstruct the patterns of habitat transitions in this group of fishes to identify if they initially evolved in open ocean or coastal inshore environments.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Rave Andrei De Leon

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** The spread of whiteness in Southeast Asia- Philippines and whitening products.

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**Abstract:**

I am researching the history of the ideology of whiteness in Southeast Asia, specifically in the Philippines. I will also talk about the overgrowing use of whitening products and how it started, giving a bit of a background of how this market started and why it is still happening, and how we solve this issue. This topic hits very close to me; a bit of personal experience would also be in this project.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Alyssa Eggers-Gaumer

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Addressing the Communication Divide Between Patient and Provider in Health Care Settings

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**Abstract:**

This project aims to look in the divide between patients and their providers in health care settings. Solutions are proposed in a timeline of before, during, and after interactions with doctors or other care staff to provide the utmost care possible for patients. The divide is explained in detail including causes, origins, and definitions of terms and issues. Many perspectives are examined; the views of the patient, provider, family involved, and other hospital staff are all expressed. Communication barriers, such as language differences, highly specific medical terms, and rushed conversations are covered, along with specifics on how each one impacts comprehension in medical conversations. The timeline proposed as a solution covers three main areas: before, during, and after the communication that occurs in clinic settings and elsewhere. In terms of before, doctors and other providers must undergo more training in communication with their patients, which is not often stressed in medical school, along with sensitivity and awareness training. The “during” phase includes the importance of translators and patient advocates, along with important questions staff need to ask to ensure that patients understand fully what is being said. The after portion explains the importance of follow up visits or calls, patient surveys, and patient empowerment for cases in which they feel there was miscommunication. The importance of correcting this divide with the above solutions is greatly stressed with multiple scholarly sources referenced. This project is a poster presentation adapted from a ten-page paper as to fill requirements for the HONS 106 course.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Lorelei Eggert

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** 1920s Arts

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**Abstract:**

Art is not just a source of entertainment. It is a collection of mediums through which people may express themselves, their experiences, their thoughts, their lives. Art moves people; it has a noticeable impact on how we think. That is why I researched the artistic trends of the 1920s in the United States. This era was a new breakthrough for the freedom of expression. New forms of fashion, music, dance, literature, and more emerged in the decade. They changed the United States moving forward by embracing new ideals of individual freedom to be oneself. Using a variety of sources and guidance from faculty including my Honors Seminar II professor Dr. Michael Gorman, I have put together a project outlining the reasons why the 1920s was such a revolutionary time in the fields of the arts and why that matters now. I am thrilled to have the opportunity to share the knowledge I have obtained with my fellow Huskies, who might be interested in and moved by my topic, at Huskies Showcase.





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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Katelynn Fisher

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** How does Dopamine, Serotonin, Endorphins, and Oxytocin impact Mental Stability?

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**Abstract:**

These four brain chemicals control various parts of our brain and play a major role in mental stability. What would happen if these levels tanked or spiked? What triggers the release of these chemicals? I will be giving a background on each of the four chemicals as well as common reactions that occur with the release of the chemical. I will be discussing mental disorders associated with varying levels of each chemical and what causes unstable levels. There are many natural and pharmaceutical options to treat poor mental performance and I will also explore the options that aid in stabilization. Physical health issues are also a huge concern with elevated or depleted levels of serotonin, dopamine, endorphins, and oxytocin. Things as big as a poor diet or even things as small as a lack of natural light have an effect on production. For an example, endorphins are the body's personal pain reliever; they are responsible for alleviating the feeling of anxiety and stress. Prolonged/excessive levels stress can cause a drop in endorphin production—reducing the ability to cope with pain, anxiety, and stress. It sounds like a never ending merry-go-round of bad feelings, but there are simple ways that may help. Just taking a walk can help raise levels!



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Christiana Flomo

**Faculty Mentor(s):** Hector Antunez

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** How RSVP helps the Senior community

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**Abstract:**

My project will explore the ways that AmeriCorps Seniors RSVP helps the senior community through volunteering. The ways that are explored will be based on my experience working as the program coordinator intern. During my time interning, I have witnessed many great ways that seniors can get involved. The backstory behind having organizations like RSVP to help seniors is that statistics prove that seniors who engage in volunteering opportunities have a better quality of life, and it reduces the risk of loneliness and depression. RSVP has provided seniors with a connection to the community through volunteering for various community partners, the ability to contribute to the community through the age-friendly network, and the opportunity to learn new skills. With my project, I want to increase the awareness of our aging population regarding volunteer services and show them that healthy aging is possible. I want to reduce the stigma that once you reach a certain age your life is over. This is not true seniors can still have an active a fruitful life after retirement. Volunteer services provide the connection and give seniors a newfound purpose. They can remain active and use their skills to educate others all while giving back. I want my poster to highlight the ways that RSVP has helped the Senior community.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Mitchell Fournier  
Lacey Hallstrom

**Faculty Mentor(s):** Marina Cetkovic-Cvrlje

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Effects of Coca-Cola consumption in healthy mice

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**Abstract:**

The everyday consumption of Coca-Cola and other sugary drinks is very frequent in the United States. This can influence weight gain and increase blood sugar levels in both children and adults who drink Coca-Cola. Excessive drinking of sugary drinks is believed to lead to disorders such as type 2 diabetes. Some studies reveal that drinking sugary drinks such as Coca-Cola have a similar effect on the body as using other addictive drugs. This addictive reaction can lead to increased drinking and lead to users consuming more sugar. We hypothesize that drinking Coca-Cola and other sugary drinks will raise blood sugar levels and the accumulation of body weight in mice. In order to test this hypothesis, we will investigate Coca-Cola's effects in healthy C57BL/6J male mice and NOD female mice by giving them this drink in place of water. These mice will be also compared to mice drinking only sugar water and plain water. During a 6-week period, body weight will be measured three times a week, and blood glucose levels measured at the beginning of the experiment and at the end. We anticipate that mice of both strains drinking Coca-Cola will show a gain in body weights and an increase of glycemia at the end of the study.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Nathan Gegg  
Reece Meskimen  
Tyler Turriff

**Faculty Mentor(s):** Yi Zheng

**Husky Compact Dimension:** Integrate Existing and Evolving Technologies

**Title:** Portable Bioimpedance Analyzer

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**Abstract:**

Bio-impedance measurement provides valuable and quick diagnostic information about patient pathology states. Timely measurement can be critical. Some injuries need to be diagnosed in a timely fashion such as brain bleeding or brain stroke, because a completely different treatment will be applied. If the stroke is not treated in a timely manner, it can cause permanent damage. For the most serious of injuries people may only have minutes before irreversible harm is done to their body. Early intervention and monitoring of patients are key to the success of life saving care given by medical professionals. Our portable bio-impedance analyzer project relies on the natural ability of body tissue to conduct electricity. By transmitting a small electrical signal into the body through electrodes, we can measure and calculate the impedance of human tissue. Due to the capacitance effect of human flesh, electrical signals of different frequencies travel differently through the body. This impedance data provides valuable information of tissue states. Different tissue and different tissue states will have different bio-impedance. Our project utilizes a state-of-the-art network analyzer designed by Analog Devices. The network analyzer is an ultra-low power device with a small form factor allowing it to be used in high density, low power, and portable applications. Through the manipulation of the network analyzer using a microcontroller, hardware, and software we can measure and gather impedance data efficiently and effectively.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Josephine Green

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** How your mental health is affected by social media

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**Abstract:**

Since the start of social media people have noticed a difference in a person's mentality towards themselves and others. In this project, I will be doing a deep dive into the many affects that social media platforms, like instagram, may have. I will be covering the mentality of comments and how reading negative comments may make the reader/creator feel nonhuman, unappreciated, and unworthy. Along with the addictive aspects of the platforms that may be cause by FOMO, ie the fear of missing out which causes one to continuously check their phones. Additionally, in the final part of this project I will explain to the reader ways to avoid these harmful affects and reverse what has already been done.

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**2022 HUSKIES SHOWCASE ABSTRACTS**

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Ash Greer

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Microaggressions in the Workplace

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**Abstract:**

Microaggressions in the workplace, this can stem from many differences between coworkers and their beliefs. In white majority areas like Europe and North America, many minorities who differentiate in looks, creed, cultural values, and religious beliefs find themselves to be more isolated from coworkers who are a part of a culture that dominates that particular workplace. Tribalistic tendencies and behavior can be attributed as one of the main causes of bias behavior and microaggressions in the workplace. Discrimination is the outcome of these microaggressions and bias behavioral patterns, which can negatively affect how minorities can interact within a workplace that has a race imbalance. Minorities face a major issue when it comes to workplaces that lack a diverse group of staff workers and previously mentioned issues can arise in the form of microaggressions that the majority race in the office will develop. It is not just minorities that face this sort of issue, but women of all races find themselves at a disadvantage when it comes to male dominated fields and they can face microaggressions and forms of harassment from male dominant jobs as well. Certain solutions that can be suggested to counteract microaggressions in the workplace include cultural and racial sensitivity training workshops, sexual harassment awareness training, events that promote and encourage others to share cultural values and belief with the rest of the coworkers, and promotional antiracism materials.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Kiandra Grinnell

**Faculty Mentor(s):** Monica Garcia-Perez

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)

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**Abstract:**

The after-BREXIT status of England's labor market and UK immigration flows. Despite BREXIT's final implementation in 2020, the pandemic blurred the after-shock effect in the economy. Locally, the country has had to establish immigration strategies to cover labor shortages resulting from BREXIT and lockdowns policies. The course ECON 473 Labor Economics would cover the theoretical discussion of economic shocks and the labor market's adjustments. A special focus will be given to workers' internal and international mobility to rural and urban areas in England. For instance, I will plan to visit and/or connect with labor research centers paired with sectors most affected by the farming and transportation sectors' policies resulting from BREXIT and lockdown measures due to the 2020-2021 pandemic.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Nicole Gruwell  
McKenzie Kamholz

**Faculty Mentor(s):** Matthew Julius

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** A Mesocosm Approach to Test eDNA Monitoring of Ballast Tanks

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**Abstract:**

Ballast water transfer is a major source of aquatic species introductions in the Great Lakes. Therefore, ballast monitoring would be valuable to ensure viable organisms are not introduced to vulnerable habitats. DNA provides a useful detection tool, but molecular methods are underdeveloped to monitor ballast tanks at a community level across broad taxonomic scales and for specific invasive species of concern. We used grew mass cultures of microalgae (*Haematococcus pluvialis*, and *Trachelomonas abrupta*) to serve as test material in development new eDNA techniques with other Great Lakes region collaborators. To identify invasion thresholds, mesocosms containing Duluth-Superior Harbor water were spiked with individuals at varying initial population sizes, eDNA was analyzed using species specific qPCR and 18S metabarcoding.



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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Ridge Hagemeister

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** The Bioacoustics in Plants

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**Abstract:**

Plants interact with and are affected by sound just as much as any other living thing we may expect. Not only do plants create their own sound, they can also react to sound with things like growth patterns. This project will focus on the essential questions many people may have concerning the bioacoustics in plants. It starts with the effect plants have on sound. Questions such as; can plants make sound? Why/how do they make sounds? And do plants muffle sound in their ecosystems? The project then moves to focus on how plants are affected by sound. It then focuses on answering such questions as; Can plants hear? By what mechanisms can plants receive sound? Can different sounds have different effects? Can sound have physical effects on plants? And how do plants respond to sound? Can plants use sound to communicate? Finally the project will tie the previous two focuses on how the bioacoustics of plants ties into the bioacoustics of animals and or humans. The paper will then work to answer questions such as; can plants respond differently to different animals? Can animals pick up on plant sounds? And is there a difference with modern noise, i.e. city noise, verses natural ambience on plant health?



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Nick Hahn

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** The Creation of a Cinematic Icon

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**Abstract:**

One of the most magical parts of the movie-watching experience is the opportunity to lose ourselves in another world—to sit down and join a collective experience. We invest time and empathy into the characters we watch, identifying with their ordinary struggles in extraordinary circumstances. Every so often, a character comes along with such an exceptionally unifying tale that the entire world comes together in emotional investment. With "Spider-Man: No Way Home" becoming the most-watched movie of 2021 in almost every area it was distributed, the question becomes how a character from a 1960's comic book can become a worldwide cinematic icon. Why do people love this character? What makes a movie character memorable? What other film characters defined an era? By examining Charlie Chaplin's The Tramp, Sylvester Stallone's Rocky, and Stan Lee and Steve Ditko's Spider-Man, this report will seek to uncover what makes a movie character truly iconic. The project will dive into the history and culture surrounding these icons to discover why they were particularly well-received. The report will focus on the creators of these characters and the reaction of the audiences who received them—how certain generations can shape their characters and how characters can impact a generation. The project will present correlations and disparities between the examined characters to help understand how an icon can be formed.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Dan Hall  
Nathaniel Koetter  
Kwinton Dropps

**Faculty Mentor(s):** Tim Vogt

**Husky Compact Dimension:** Integrate Existing and Evolving Technologies

**Title:** Ice Fishing Alert System

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**Abstract:**

The Ice Fishing Alert System ( I.F.A.S ) is a system that utilizes BLE for wireless transmissions for remote information to users. This system also has its own battery oriented power supply. This system is designed to quickly and reliably alert anglers to a potential bite. This system works by having a remote setup in conjunction with a smartphone. The smartphone will be using an application that is specifically designed for use with the IFAS.

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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Hunter Harnett  
Asma Yusuf

**Faculty Mentor(s):** Marina Cetkovic-Cvrlje

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Does Coca-Cola consumption potentiate diabetes development in NOD mice?

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**Abstract:**

It is known that the Westernized diet in the United States contains excess sugar, and paired with minimal exercise, can lead to health impairments like type 2 diabetes. Whereas a correlation with minimal exercise and increased sugar intake has been found with type 2 diabetes, yet this influence is unknown for type 1 diabetes. Type 1 diabetes, which has a prominent autoimmune background, may be affected by excessive consumption of soft drinks. Thus, a model of a spontaneous type 1 diabetic, non-obese-diabetic (NOD) mouse, will be used to test the effects of Coca-Cola on the development of the disease. We hypothesize that Coca-Cola will exacerbate type 1 diabetes onset and glycemia levels in female NOD mice. Young pre-diabetic 5–7-week- old female NOD mice will be randomly put into the groups that will either drink Coca-Cola (n=15), sugar-water (n=15), or autoclaved water (n=31). The mice will be taken off Coca-Cola or sugar-water after six weeks of treatment and will continue to drink autoclaved water until 24 weeks of age, when about 60-80% of the control mice should become diabetic, based on our animal colony's historical data. The glucose levels and body weights will be recorded weekly. At either 24 weeks of age or when hyperglycemia is present for two consecutive measurements, the mice will be sacrificed. Data will be analyzed for a statistical difference in diabetes incidence, glycemic levels, and body weight gains between the treatment groups. Keywords: NOD mice, Coca-Cola, type 1 diabetes, autoimmunity

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Alison Helder  
Molly Lovsness

**Faculty Mentor(s):** Heiko Schoenfuss

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Acute stressor effects on biochemical markers in Fathead minnows (*Pimephales promelas*)

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**Abstract:**

The stress response is represented by a cascade of physiological and metabolic changes that allow an organism to weather hostile environments. Stressors cause stress responses, activating change in stress hormones including catecholamines and corticosteroids. These changes in stress hormones increase blood glucose concentration. The objective of this study was to measure plasma epinephrine and cortisol and develop a timeline of induction and recovery of pre-exposure concentrations. Fathead minnows were exposed to mechanical stress for five minutes. Glucose was measured and plasma was extracted at eight time points following a Fibonacci sequence from 10 to 340, using nonexposed fish as a control. Using the plasma from fathead minnows, competitive enzyme-linked immunosorbent assays were conducted. The results show no significant differences between plasma epinephrine concentration with a range from 38.6 to 188.9 mg/mL. No significant differences were seen for plasma cortisol concentration with a range of 0 to 4394 pg/mL. A separate analysis of glucose showed a spike between 80 minutes and 340 minutes, with a plasma cortisol concentration that decreases after time post-stressor. For each peak in glucose concentration, there was a corresponding peak in epinephrine or cortisol concentration. The rise of cortisol within the first ten minutes following stress exposure was matched by a rise in plasma glucose, suggesting the objective of this study was successful in measuring plasma epinephrine and cortisol concentrations after exposure to acute stress environment. The data indicates plasma epinephrine or cortisol peaks induce an increase in plasma glucose concentration. This implies that the stressor created a physiological stress response.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Hannah Helmbrecht

**Faculty Mentor(s):** Matthew Julius

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Ecosystem Health and Fish Food Quality

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**Abstract:**

In this study, one package of frozen sardines were dried in a freeze dryer for 20 hours to remove all water. Water removed represented ~ 80% of the pre-dried weight. From the package of dried sardines, 20 random individual sardines were chosen for study. 40 petri dishes were labeled numerically 1-20 A and 1-20 B. Individual sardines were placed in a numbered petri dish labeled A and were split down the dorsal side of its midline using a small knife. The stomach of the sardine was extracted at this time using a small spatula. After the stomach was completely extracted, the remainder of the sardine was placed into the respective petri dish labeled B. Lipids from the “filets” were compared to phytoplankton communities in stomach contents to identify a correlation between ecosystem health and fish food quality for human diet.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Nick Hoopingarner

**Faculty Mentor(s):** Nathan Bruender

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Enzyme kinetics of T239V mutated pyrroline-5-carboxylate reductase

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**Abstract:**

Pyrroline-5-carboxylate reductase (P5CR) catalyzes the final reaction that forms L-proline from the reduction of pyrroline-5-carboxylate using electrons from the reduced form of nicotinamide adenine dinucleotide (NADH) which becomes oxidized to form NAD<sup>+</sup>. P5CR also catalyzes the reverse reaction with NAD<sup>+</sup> and L-4-thiazolidinecarboxylate (L-thiaproline) which is a proline analog in which the  $\gamma$  carbon in the proline ring is replaced with sulfur. The absorbance of NADH at 340 nm can be used to determine the rate of reaction for P5CR. In *Homo sapiens*, the P5CR active site contains a conserved threonine at position 238. Threonine is a polar amino acid that has a methyl and a hydroxyl group bound to the  $\beta$  carbon. The hydroxyl group forms a hydrogen bond with the ring nitrogen on L-proline which holds the substrate in the active site. P5CR in the bacterium *Sinorhizobium meliloti* also contain a threonine at position 239 in addition to T238. To determine the importance of T239 on the function of P5CR, the gene encoding the enzyme was mutated at the nucleotide level resulting in an enzyme where threonine at position 239 was replaced with valine (T239V). Valine is structurally like threonine, but instead of a hydroxyl group valine has two methyl groups bound to the  $\beta$  carbon making it nonpolar. It is hypothesized that the mutated P5CR will be less efficient than the wild-type enzyme because V239 is unable to form a hydrogen bond to stabilize the transition state of the reaction. The mutated gene was cloned and expressed in *Escherichia coli* and the protein was isolated with affinity column chromatography and size exclusion column chromatography. The purity was determined using SDS-PAGE and the enzyme kinetics will be determined with UV-Vis spectroscopy in order to determine the role that threonine 239 plays in catalysis.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Naimo Hussein

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** fetal alcohol syndrome

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**Abstract:**

My poster project will be about fetal alcohol syndrome and the effects of ethanol on brain development. I plan to include information about normal brain development and how development is altered due to ethanol exposure. I plan to focus on the frontal cortex and the cerebellum. I want to show a side-by-side image comparison of brain masses with fetal alcohol syndrome and one without. Another image I would like to add is a connectome image showing the neural connections of the brain. In the poster, I would like to include behavioral and learning issues people with fetal alcohol syndrome struggle with. I want to focus a portion of my poster on talking about different teaching styles that would help these children learn. People with the syndrome have a tough time with memory-making learning difficult so a neutering and caring environment at school would be best. I would also like to include the benefits of having programs in school systems with behavioral corrections for children with FASD. It would allow a one-on-one connection for the students to learn to control their behavior and improve it. Lastly, I would like to focus my poster on prevention, education for parents, and signs of at-risk pregnancies.





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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Lindsey Hypatia

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Act with Personal Integrity and Civic Responsibility

**Title:** How Evangelism Has Undermined American Democracy Since 2016.

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**Abstract:**

My project would explore how evangelism has impacted American democracy, most recently since 2016. I will be looking into how the culture of evangelism affects the different institutions of our government. Specifically, the 3 branches of our government; the judicial, legislature and executive branches. My project explores the basic democratic principles essential for a democracy and how those institutions aren't functioning properly because of evangelism. These principles include: Voting rights, political equality and an enlightened understanding. Besides basic principles, the branches of our government, my project would also be digging into the characteristics of a modern nation-state. This would mean looking at internal and external sovereignty, legitimacy and accountability in the American government. My project explains the basic institutions, branches and characteristics of American government, democracy and nation-states, but more specifically why these principles aren't functioning properly due to evangelism. This means looking at what evangelism is, what are its core principles and how it is evading our government. Since my project explains all the basic things needed for a modern democracy, it also looks at what evangelism is and therefore why evangelism is eroding our modern American democracy. Along with that, my timeline is from 2016 onwards, since this is the time where we saw the biggest rise of evangelism influence.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Baylee Ihnot  
Ryan Orn

**Faculty Mentor(s):** Coleman Henry  
Wenjie Sun

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Tertiary Phosphorus Removal via Biological Processes

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**Abstract:**

Tertiary Phosphorus Removal is a third type of removal, in a treatment train, that removes phosphorus from wastewater. The biological process is a Side-stream enhanced biological phosphorus removal (S2EBPR) where a basin is implemented in the treatment train. The basin promotes phosphorus accumulating organisms where the phosphorus uptake will be higher. The project itself is researching and designing a basin that will fit within the St. Cloud's Nutrient, Energy, and Water Recovery Facility.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Gabrielle Imm

**Faculty Mentor(s):** Nathan Bruender

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Enzyme Kinetics Study of Pyrroline-5-Carboxylate Reductase Mutation M121A

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**Abstract:**

The protein pyrroline-5-carboxylate reductase is a naturally occurring enzyme that catalyzes the rate-limiting step of proline synthesis in cells by reducing a carbon-nitrogen double bond in the ring of 1-pyrroline-5-carboxylic acid to make proline. The purpose of this study was to determine the effect a site-directed mutation, M121A, where the methionine at position 121 was replaced with an alanine, would have on the overall function of pyrroline-5-carboxylate reductase. First, *Escherichia coli* were transformed with the mutant gene, which was then overexpressed, and the resulting mutant protein was purified. The purified mutant protein was then used in a series of enzyme kinetics experiments, where the concentration of substrates L-Thiaproline and NAD<sup>+</sup> were alternatively varied, and the results were compared to those of the wild-type enzyme. Since the amino acid at position 121 was altered from a methionine, which has a sulfur imbedded in its sidechain, to an alanine, which has a methyl sidechain, it can be expected that this change may result in a decrease in the affinity the active site of the enzyme has for its substrates. Analysis of these data will allow for the determination of how this mutation affects the function of the enzyme, if at all, and if the hypothesis was correct. The findings of this study will be presented.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Cole Jackson

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Astronomy Within the Incan Civilization

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**Abstract:**

My project will look at the influence of Astronomy on the Incan Civilization. More specifically the heavy impacts on the architecture and designs or buildings so that they served a astronomical purpose. The Inca's had a great understanding of the sky and how by mapping it they would be able to both have a reliable calendar and be able to predict crop production, droughts, and more. The Inca's also based much of their culture around the sky and rotation of sun and moon. Even looking back today astronomers and archeologists have been able to access ruins of city's and temples left over from the Incan Empire and find evidence on how these specially located buildings and towns were able to tell the date based on horizon lines and land markers they crossed over. All in all my project looks at the impact and more importantly the multitude of how the Incan Civilization used the stars, moon, and sun to build their society.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** John Jacobson

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Why Violent and/or Competitive Video Games Aren't Causes for Aggressive Behavior

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**Abstract:**

Over the years video game violence has raised many questions of concern. Many video game players act aggressively while playing video games and this is usually seen as alarming behavior. However, simply stating that violence in video games causes aggressive or violent behavior of the player is false. To really understand what causes these undesirable behaviors, we must understand human psychology, biology, and situations gaming puts players in. Neurological connections influence how humans exhibit aggression in certain situations. Science has determined that the Hypothalamus and Amygdala are the regions of the brain responsible for aggression. The Amygdala is the part of the brain that allows the experience of emotion and the Hypothalamus mainly maintains homeostasis. The frontal lobe region of the brain is used in controlling the more primitive parts of the brain. However, the brain can also choose to suppress aggressive feelings. The Frontal lobe does regulate the Amygdala and the Hypothalamus, but this regulation requires concentration and energy. Many violent video games involve fast-paced action and the brain does not have as much time to ponder how to solve a problem when a player is in the thick of the action. That's why the job of how to react to an opponent is given to the primitive, but more autonomic parts of the brain.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Bryan Jaimes

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** How film has impacted American culture

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**Abstract:**

In my project, I will talk about how movies, documentaries and short films have impacted American culture. I will be using the knowledge I have right now as a student minoring in digital filmmaking. On the poster, I will be using many pictures of history's favorite films, and using little known facts about the movies. I say that film has impacted American culture by the way that films have some of our favorite characters talk and their body language. I will also go into the work of the cinematographer and how camerawork has influenced today's photography. For this, I'll use my knowledge from my Art of Film class, where we talked about how important the following aspects are in film and how many of these parts could be one of the reasons that influenced what we as Americans have become today. First aspect I'll briefly go into will be plots of films. The plots of films are events that characters go through that make them who they are in the film. They don't necessarily need to be obstacles that make their journey hard. It can be a learning path that can lead to a more knowledgeable character through it's progression of the journey. Cinematography can be used in ways that can make a film beautiful on its own. Using realistic camerawork can make a scene of a movie feel like you're really there. I say this has contributed a little to today's photography because photography can tell a story with enhanced editing contributing to a photograph. That's only a little that I can talk about my poster as it is still in the works, and you'll be very intrigued by the final project.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Kristina Jazdzewski

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** How Mental Health Affects You Physically

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**Abstract:**

My research paper and presentation will be on the topic of how an individual's mental state and mindset affects their physical well being. I will conduct this research by working with professors from past classes I have been enrolled in here at Saint Cloud State University. These classes include Honors Seminar I (HONS 100) taught by Professor Annie Babcock and Human Anatomy and Physiology I (BIOL 202) taught by Heiko Schoenfuss, Gengyun Le, and Vitaliy Razdaybedin. In Honors Seminar I we learned about having a growth mindset and what having grit meant. In Human Anatomy and Physiology I we learned about the anatomy and physiology of the human body. Taking both of these classes and learning about each topic made me wonder how they relate. How does or how can mindset affect a person physically? Research will also be conducted using scholarly articles. I believe that mindset can and does affect people's physical well being daily and that having grit and a growth mindset can drastically change a person physically. I will be conducting research to see if this is true. Some examples of mental health and mindset affecting a person physically include the reduce of risk for a stroke and heart attack when a person has good mental health where as a person with poor mental health has a higher risk for chronic disease and depression.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** James Kaiser

**Faculty Mentor(s):** Xiaoyin Li

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** The Fourth Down Dilemma in the NFL

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**Abstract:**

When watching live NFL games we are often bombarded with meaningless stats often powered by Amazon Web Service (AWS). An example of this would be in a scenario were Vikings Wide Receiver Justin Jefferson had a 4.8% chance of catching a pass from Kirk Cousins, well he caught it so why does it matter? The answer, it doesn't, these types of statistics usually don't influence wins and losses (unless you're Stefon Diggs in on January 14th in 2018). Now, something that they bring to our attention often is 4th down situations. They often show the fans watching charts of the chance of winning being higher when they successfully convert on 4th down. What we will be looking at is does this really influence the chance of winning? Has the attempts on 4th down increased over the past 20 years? Has the conversion rate increased over the past 20 years? All of which from simply observing the game we can say, well yes. With that being said, I will be testing a few different hypotheses in this study. The first hypothesis is that when 4th down conversion rate increases we will see an increase in the team's wins over the season. The second hypothesis will be a distribution of how many attempts have been made over the past 20 years. Last and final hypothesis is another distribution that 4th down conversions have increased over the past 20 years. I will also compare the two distribution models using ANOVA to see if the conversion rate and attempts have any linearity. In these hypothesis tests I will be using R code to generate linear models, histograms, and scatter plots to analyze the data set. The data set that I will be using comes from - <https://www.nflfastr.com/>.



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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Elle Kaiser

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** The Use of Emergency to Manipulate the Masses

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**Abstract:**

The current climate of the world will most certainly be in our history books one day. The media portrays which issues and current events are the most important, and most of the content has been pertaining to COVID-19 prior to when the conflict between Ukraine and Russia broke out. What I am asking myself with this project, however, is how could COVID have been used to distract from underlying workings? I will be using the Holocaust as a basis for research. A world war certainly causes enough panic for a country to break rules without immediate consequences or perhaps no consequences at all. During World War 2, Hitler began his attempt at creating a nation with only the "best" individuals, excluding anyone with a disability or an unfavorable ethnicity, along with many other reasons. A World War was the perfect distraction so that he could get away with such horrific acts, he used prisoners of war and prisoners of concentration camps to execute unethical medical experiments and test the human body's highest limits. Could there be a similar pattern with COVID and the release of an unapproved vaccine in the name of national emergency? Along with COVID, the current situation between Russia and Ukraine creates a very interesting era to complete this research and gives the opportunity to expose a pattern.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Patrick Ken Kalonde

**Faculty Mentor(s):** Mikhail Blinnikov

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Using Drone Technology and Machine Learning to Map Plastic Pollution and Waste Disposal Locations in a Terrestrial Environment

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**Abstract:**

There exists heightened concern about the threats posed by plastics to natural ecosystems, with growing evidence of the harm presented to economies, public health, and society. Although plastic pollution is an issue of great concern, there are still challenges to monitoring the disposal of plastics into the environment. The traditional approach for identifying the location of plastics involves field surveys, including attempts to map plastics at beaches and in oceans using drones and satellites. In this study, I explore the potential for using drone technology to map plastic pollution in actual terrestrial environments by determining optimal parameters for mapping plastics in a controlled community. Targeting the Ndirande neighborhood in Southern Malawi (Africa), I assess the performance of different machine learning algorithms at detecting plastics and waste dumpsites, to generate vital information that can help in the design and implementation of policies and programs aimed at curbing plastic disposal.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Ilse Kambach

**Faculty Mentor(s):** Monica Garcia-Perez

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)

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**Abstract:**

The after-BREXIT status of England's labor market and UK immigration flows. Despite BREXIT's final implementation in 2020, the pandemic blurred the after-shock effect in the economy. Locally, the country has had to establish immigration strategies to cover labor shortages resulting from BREXIT and lockdowns policies. The course ECON 473 Labor Economics would cover the theoretical discussion of economic shocks and the labor market's adjustments. A special focus will be given to workers' internal and international mobility to rural and urban areas in England. For instance, I will plan to visit and/or connect with labor research centers paired with sectors most affected by the farming and transportation sectors' policies resulting from BREXIT and lockdown measures due to the 2020-2021 pandemic.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Kaylynn Kearns

**Faculty Mentor(s):** Tammison Smith

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Analysis of Career Findings from SCSU Data out of National Alumni Career Mobility Survey

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**Abstract:**

St. Cloud State University (SCSU) has taken the initiative to develop a solid understanding of the long-term career paths of their alumni. The first step of this process involved partnering with Career Leadership Collective, a university thought partner and consulting group, to obtain survey data from alumni around career growth and satisfaction in the context of their educational experience. The SCSU Career Center took this survey data and performed statistical analyses with it to gain deeper insight. Results from these analyses provide SCSU with information about how alumni's educational experience relates to career development in both the short and long term. From these analyses came three themes: What alumni who felt prepared for their careers felt SCSU did for them, skills alumni believed they achieved during their time at SCSU, and the support systems alumni engaged with during their time at SCSU. When evaluating skill development in the context of career readiness, it was found that adaptability, or the ability to use intra and interpersonal resources to cope with unforeseen environmental changes, was strongly related to several other skills. In other words, alumni who perceived that they learned to be adaptable during their time at SCSU saw themselves as having learned a number of other skills. Through evaluating alumni perceptions of career knowledge and advice, it was found that alumni who expressed they became skilled in the area of adaptability also learned a number of other skills to a high degree. A developmental area for SCSU was also found through the analysis, the degree to which alumni, during their time at SCSU, had the opportunity to network with other alumni. Performing these analyses provided useful data, data that can inform the practices of SCSU staff and faculty. This poster will review the findings and offer suggestions for developmental areas as well as actions in line with current administrative initiatives.

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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Abdul Khan

**Faculty Mentor(s):** Abdullah Abu Hussein

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** A tool to detect likelihood of scam in a vacation website

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**Abstract:**

With the rise in the usage of the internet due to the pandemic, more people now tend to shop online whether for physical items or other services such as flight tickets and hotels. Unfortunately, not all websites are legitimate as they appear, some of these websites are simply fraudulent sites created to steal customers' information. According to the Federal Trade Commission, almost \$80 million in losses have been claimed by consumers in vacation and travel scams since 2020. The scammers use technical tricks such as phishing to steal consumers' personal identities and financial credentials by creating counterfeit websites. This project developed a prototype of a tool that detects scams on a vacation website. This python-based web tool takes a URL as an input and responds to whether the website is legitimate or fake. The research suggests there are tools with similar functions but there are limitations and not many focuses on vacation scams. The purpose of this tool is to provide in detail the likelihood of a scam on a particular website with the rationale behind it. Such as what are the chances of it being a scam and why the tool thinks that website is a scam or not. The created tool uses various methods to identify the likelihood of a scam on a website such as verifying the SSL certificate, domain age, site's content, contact page as well as checking whether it is listed on a blacklist or not. .



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Abriana Koeniguer

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Parental Influences and Child Development Surrounding Eating Behaviors and Attitudes

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**Abstract:**

It is no doubt that one of the biggest role models in a child's life is their parent or guardian. One important topic when studying developmental psychology is the connection between parental influence and child development, especially surrounding attitudes and behaviors towards eating and food. As children look up to their mentors, the beliefs, knowledge, and skills the parents share with their children is what is absorbed and acted upon. There are many factors that parents have grown from, with a focus on parenting styles and personality. As protectors and guardians of their young, a parent needs to be able to not only supply food, but a sufficient amount as well as a healthy balance in order for children to grow and reach their full potential. There is food insecurity within many households, and not having access to an abundant amount of food can lead to health issues such as malnutrition, impaired cognition, and a weak immune system. Finally, this poster will discuss some ways that parents can begin to learn healthy habits and teach children how to have a good relationship with food. The goal of this poster presentation is to show how parents influence their children whether it be good or bad, and that there is always an opportunity to change thoughts and behaviors to achieve improvement of better health.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Sarah Kunkel

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Increasing National Debt: What can we do?

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**Abstract:**

In this project I will be talking about what we can do to lessen the national federal debt of the United States. I will define what the national debt is and what the United States Federal debt is currently at. I then will move onto ways we as Americans can lessen the federal debt. First, I will say and write that the debt is “no easy fix/ change” and that it will take a long period of federal surpluses to positively impact it. I will describe how there is a few things we personally as college students can do to lessen the debt. For example, directly donate to decreasing the national debt or by electing new officials into office who believe in lessening the United States National debt and who have a plan on how to do so. One problem with electing officials who say they can help lessen the debt is that you have no way of knowing at election if throughout their term they will follow through with those campaign promises. Lastly, I will talk about the ways that government officials and leaders can help make a change/ lessen the American debt such as raising the retirement age, raising Medicare minimums for the well off, lessen tax cuts, enact an energy tax, etc.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Claude Haneum Lee

**Faculty Mentor(s):** Monica Garcia-Perez

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Effect of Teleworking on Retirement Age

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**Abstract:**

More older adults are retiring in the U.S. since the COVID-19 pandemic has begun. This is an unusual pattern for the labor market after a negative economic shock, as the previous recessions, including the Great Recession and early-2000 recessions, brought a decrease in the percentage of retirees among older adults. Unlike the previous patterns, the share of retirees has been increasing since the start of the pandemic. Answering what caused COVID-19 to have an opposing effect on retirement requires studying the unprecedented changes that emerged due to the event. One of the key changes that the labor market has experienced since the onset of the pandemic is the sharp rise in the availability of teleworking options for many jobs. Among workers whose jobs can be done at home, the share of teleworking workers changed from 20% to 71% since the outbreak of COVID-19. This large change of work schedule availability may have discouraged older workers from working, resulting in early retirement. Therefore, this presentation analyzes the effect of teleworking in retirement age. The comparison of the level of retirement age by occupations with the availability of teleworking options for workers may reveal how teleworking affects the retirement decision. Understanding this effect provides economic evidence of a telework mechanism in retirement that can revert the previously expected relationship between recession and retirement age. This presentation is part of an undergraduate research project from the ECON 481 Economics Senior Research Seminar (optionally participation).





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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Claude Haneum Lee

**Faculty Mentor(s):** Monica Garcia-Perez

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)

---

**Abstract:**

The after-BREXIT status of England's labor market and UK immigration flows. Despite BREXIT's final implementation in 2020, the pandemic blurred the after-shock effect in the economy. Locally, the country has had to establish immigration strategies to cover labor shortages resulting from BREXIT and lockdowns policies. The course ECON 473 Labor Economics would cover the theoretical discussion of economic shocks and the labor market's adjustments. A special focus will be given to workers' internal and international mobility to rural and urban areas in England. For instance, I will plan to visit and/or connect with labor research centers paired with sectors most affected by the farming and transportation sectors' policies resulting from BREXIT and lockdown measures due to the 2020-2021 pandemic.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Maisie Leick

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Engage as a Member of a Diverse and Multicultural World

**Title:** What Has Caused An Increase In Activism Around Ecofeminism?

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**Abstract:**

When many people hear the word feminism, they think it is a one size fits all topic. However, there are many branches within this area. The branch that my project covers is ecofeminism, which is the connection and relationship between women and the environment. More specifically, my project explores what has caused an increase in activism around ecofeminism. The first part project discusses different definitions of ecofeminism and compares them to create the most comprehensive definition. I also discuss the correlation between the environment and feminism along with areas where ecofeminists organize around. The next section of my project is about important ecofeminists. While there are many, I spotlight three: Vandana Shiva, Wangari Maathai, and New York Representative Alexandria Ocasio-Cortez. For each, I discuss who they are and what they have done for ecofeminism. In the last section, I highlight four areas that I believe have caused an increase in activism around ecofeminism. These areas are oil pipelines through native land, water crises (ex: Flint, Michigan), climate change, and The Green New Deal. For the first three, I discuss where this is happening, who it impacts, and why environmental feminists are concerned. For The Green New Deal, I write about what it is, what would be the benefits of it, and who it would impact if passed. One of the main things I stress in this project is that marginalized people bear the brunt of these environmental issues and that is why we must take action.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Connor Magrum

**Faculty Mentor(s):** Amy Hilleren-Listerud

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** The Need for Palliative Sedation in the Treatment of Refractory Symptoms During the Dying Process

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**Abstract:**

The number of individuals who require palliative care is continuing to rise throughout the world. While traditional palliative care approaches may be successful for some patients, many patients do not receive adequate relief from distressing symptoms. The purpose of this research is to identify the indications, efficacy, and effects of palliative sedation in treatment of patients with refractory symptoms. To explore the effectiveness of palliative sedation, this review synthesizes the research conducted in six different studies on the aspects of palliative sedation. Results suggest that palliative sedation is an effective and beneficial application of palliative care. This review notes that while palliative sedation is shown to be effective in reducing refractory symptoms, there is a lack of standardization and healthcare provider education which may hinder implementation of palliative sedation. Healthcare providers implementing palliative sedation require adequate knowledge on the use of palliative care treatment approaches.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Gabryelle Manninen

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Movie Marketing/Advertising

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**Abstract:**

We live in a world that is consumed by streaming services like DisneyPlus, Hulu, Netflix, Paramount Plus Etc. But we all remember going to the movie theaters before the pandemic to watch that new movie everyone has been raving about. The film industry has been making new improvements each year all the way from the first motion picture. You may be wondering how this might relate to movie marketing, creating advertisements, trailers, flyers and annoying ads on social media or websites has a huge impact on the movie that is being advertised. We all love a good movie trailer, but what is it about the trailers that make us want to see the movie? There is a huge amount of psychology and film facts that go into the marketing of movies and the creation of a good film. In this presentation, I want to tell you about some of the interesting things that our minds think about when they see different filming techniques or marketing techniques that cause us to be interested in the upcoming films that we see advertised everywhere.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Noah Matzke

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Computer Engineering in Minnesota

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**Abstract:**

The goal of this project is to provide extensive insight into the goals of a computer engineer, and how they change as you focus on just the state of Minnesota. As a bit of background, I chose this topic because I am pursuing a career in computer engineering. For those who do not know much about the field, I will first define computer engineering and provide examples of common careers in the field. The project also includes key details about things like income, benefits, and the weekly schedule of a computer engineer. Furthermore, the project includes information about the job outlook in the field, showing past growth and projected growth. Once the basics of computer engineering are established, the project provides some examples of common careers in Minnesota. It goes over some of the companies that commonly hire, the average income, and the common requirements for the job. Lastly, it compares the careers in Minnesota to the global and national standards. In the end, I will be able to provide some takeaways about the career and hopefully help people decide whether computer engineering is a career that interests them.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Nicole Meyer  
Caleb Forberg  
Triton Wipper  
Joshua Killmer

**Faculty Mentor(s):** Maureen O'Brien

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Modern Misconceptions of the Middle East - Applied History

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**Abstract:**

The Middle East since the days of the Fertile Crescent, has been a breadbasket of civilization and a harbinger of innovation. Disciplines such as psychology, chemistry, physiology, and algebra had their foundations laid by Middle Eastern thinkers as early as the 8th Century CE. However, the periods of innovation ebbed and flowed with periods of warfare. This cycle continued as Western Europe became engaged in this region. The cultural exchange between the Middle East and Western Europe brought endless knowledge for medicine, arts, and the sciences for Europe. But due to cultural and ethnic perceptions of the Middle East, many of these innovations came to be attributed to European thinkers rather than the Middle Eastern forefathers. This phenomenon was only exacerbated with the development of European Empires and the beliefs of Orientalism and Islamophobia. In a nation that has been involved in the Middle East since the creation of Israel, it is imperative to recognize the rich religious, cultural, and political history of the Middle East if one wishes to have any success in future foreign policy. Our purpose here is to illuminate the wealth of innovation that the Middle East laid the groundwork for and educate the public on how Orientalism and Islamophobia impacted the origin story of Middle Eastern innovations.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Alexei Mikolchak

**Faculty Mentor(s):** Nathan Bruender

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Kinetic Analysis of Pyrroline-5-Carboxylate Reductase K75A Mutant Variant

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**Abstract:**

Pyrroline-5-carboxylate reductase (ProC) is an enzyme of the oxidoreductase family, which are enzymes that catalyze the transfer of electrons from a reductant to an oxidant. It is found in a wide range of organisms and participates in the proline biosynthesis pathway, a non-essential amino acid formed from glutamate. ProC catalyzes the reversible reduction of pyrroline-5-carboxylate to L-proline, with the net reaction: Pyrroline-5-carboxylate + NADPH + H<sup>+</sup> → L-proline + NADP<sup>+</sup>. This experiment aims to further elucidate the function and key structural characteristics of a site expected to participate in the enzyme's activity, specifically a lysine residue (K75) in a hypothesized NADPH binding-site. This was done by introducing a site-specific mutation at that residue, converting it to one with a very different structural and chemical properties: alanine. The mutation is hypothesized to interfere with the binding of NADPH to the enzyme, inhibiting the overall reaction and resulting in slower kinetics. The wildtype enzyme used for reference was obtained from the bacteria *Sinorhizobium meliloti*, and the mutant variant was generated by transforming *Escherichia coli* cultures with a pNIC28 plasmid containing a recombinant ProC gene, after which the gene was overexpressed to synthesize the mutant enzyme. The enzyme was then lysed from the cells and purified using affinity chromatography and dialysis, after which the purity was analyzed SDS-PAGE. Finally, the mutant protein of interest underwent an enzyme assay at various substrate concentrations. The formation of NADP<sup>+</sup>, a product of the reaction, was recorded using spectrophotometric analysis to determine the activity and kinetic parameters, which were compared to those of the wildtype enzyme. Based on the change in enzymatic activity, we can deduce the role and functional importance of the mutated site. Experimental data will be shown later in this presentation.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Anna Mikolchak

**Faculty Mentor(s):** Nathan Bruender

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** pH Rate Profile of Enzyme Pyrroline-5-carboxylate Reductase

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**Abstract:**

ProC (pyrroline-5-carboxylate reductase) is a mitochondrial oxidoreductase enzyme found in a myriad of eukaryotic organisms, including humans. The enzyme catalyzes the following reversible chemical reaction: 1-pyrroline-5-carboxylate + NAD(P)H + H<sup>+</sup>  $\leftrightarrow$  L-proline + NAD(P)<sup>+</sup>, which occurs in the proline biosynthesis pathway. This study aims to conduct a pH rate profile to determine the effects of different pH levels on the rate of enzyme catalysis. By varying pH levels from 5-10 at 0.5 level increments, we are able to determine the optimal pH for enzyme function, as well as what pHs cause enzyme denaturation and a poor rate of substrate catalysis. The experiment is conducted by creating various buffers to set each pH, then running an assay in vitro with the wildtype enzyme (obtained from the organism *Sinorhizobium meliloti*), the two enzyme substrates, and buffer. Absorbance spectroscopy is used to analyze the rate of absorbance at 340 nm vs time for each sample to determine which pH exhibits the most efficient rate of substrate turnover. Velocity values are then converted to  $\mu\text{M}/\text{min}$  for better comparison. In vivo, this enzyme is found in tissues functioning at physiological pH (7.4); therefore, it can be hypothesized that the enzyme will show higher rates of catalytic turnover at and near physiological pH. By determining the pH parameters for optimal enzyme function, we will have more information regarding the enzyme's intrinsic function as well as its stability and denaturation. Kinetic and experimental data will be presented in this poster.





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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Faith Miller

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Natural Disasters: Detrimental to Child Development

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**Abstract:**

The psychological and physical development of humans is fundamental for human growth, especially at a young age. Although most children are able to develop at the proper time and age, many children may struggle with their development. There are many possible reasons for children to struggle with their development, however, the one factor that will be discussed is how natural disasters can affect a child's development. The development of a child can be extremely altered when a catastrophic event occurs in their lives, which can affect their social, emotional, cognitive, and all other development children will go through. Traumatic events such as tsunamis, hurricanes, floods, tornadoes, earthquakes, volcanic eruptions, and other natural disasters can affect a child's development if exposed to it at an early age. Young children exposed to natural disasters could have detrimental effects on their early development and affect them as they grow. This poster presentation will discuss the various ways a child's development can be altered when exposed to a natural disaster and why a change in development may occur. This poster presentation will also discuss how children's development may recover from natural disasters, along with the long term effects the children may face because of the disruption of their development at an early age.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Sarah Moden  
Allison Schwab

**Faculty Mentor(s):** Coleman Henry  
Wenjie Sun

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Tertiary Phosphorus Removal via Filtration

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**Abstract:**

We are exploring tertiary phosphorus removal filtration methods for the St. Cloud Wastewater Treatment Plant's Nutrient Energy & Water (NEW) Recovery Facility to obtain low phosphorous concentrations. We will be presenting our researched filtration methods, formed calculations, and our sizing to St. Cloud's Facility.

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**2022 HUSKIES SHOWCASE ABSTRACTS**

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Joynab Mohammed

**Faculty Mentor(s):** Abdullah Abu Hussein

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Taxonomy of Smart Vehicle Security

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**Abstract:**

Smart vehicles are one of the significant advancements in technologies that the world has seen. Through modern computing, our cars today have become much safer, reliable, and flexible. However, as modern cars evolve with technology it also becomes more vulnerable to cyberattacks. This study addresses these concerns and discusses the type of technologies and protocol used in modern cars. The aim is to classify the types of security threats and vulnerabilities in modern cars, and provide the types of security solutions, efforts, and initiatives to this problem. Modern cars today are more than a simple transportation tool. With the implementation of technologies, it did not take long before Internet of Things (IoT) began prospering in the automotive industry. The many benefits it provides for both car manufacturers and drivers has allowed for many possibilities unachievable a decade ago. However, safety will always remain the most important matter. But with help of IoT infusion, driving has become safer with Advanced Driver-Assistance Systems (ADAS). The integration IoT has also helped provide these cars with both maintenance and notification functions. There are countless more features that modern cars have that has made driving more convenient and maintenance easier. With build-in advance technology smart cars are paving the way on how vehicles will drive in the future. However, with the integration of IoT modern cars are more prone to cyberattacks as it becomes dependent on these technologies such as the networks of sensors and computers that work collaboratively. In consequence, concerns for security and privacy have risen. Based on qualitative investigation, this study outlines a couple of defense mechanisms that will provide improved security against the numerous attacks on smart vehicles.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Alma Moukambi Loundou

**Faculty Mentor(s):** Nathan Bruender

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Kinetic Analysis of *Sinorhizobium Meliloti* Pyrroline-5-Carboxylate Reductase Enzyme and its K75A Mutation

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**Abstract:**

Pyrroline-5-carboxylate reductase (ProC) is an enzyme that catalyzes the reaction of pyrroline-5-carboxylate to L-Proline coupled with the oxidation of NAD(P)H to NAD(P)<sup>+</sup> in the biosynthesis of proline from glutamate. L-Proline is an important amino acid present in skin, bones, and joints that is essential for muscle repair. A substitution mutation of the lysine residue with an alanine residue at position 75 (K75A) was incorporated into the proC gene. This recombinant plasmid DNA of the proC gene was then expressed in *Escherichia coli* to make the ProC mutant protein. The purpose of this project is to investigate how this mutation affects the ProC enzyme function through kinetic analysis with different substrates. The mutant enzyme is more likely to be less selective to substrates since alanine has an aliphatic group while lysine has a positively charged group that can hydrogen bond with polar substrates. This mutant protein was purified through an Affinity Chromatography, and a sodium dodecyl sulfate-polyacrylamide gel electrophoresis was performed to separate the proteins. The proline substrate analogs L-4-thiazolidinecarboxylate (L-thiaproline) and NAD<sup>+</sup> were used to determine the effect of the mutation on the function of the enzyme. Kinetic data of this enzyme and its mutation will be presented.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Andrew Nardi  
Wengelawit Molla  
Ridwan Yussuf

**Faculty Mentor(s):** Marina Cetkovic-Cvrlje

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** The effects of Coca-Cola on diabetes incidence and glycemia levels in C57BL/6J mouse model

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**Abstract:**

In autoimmune type 1 diabetes (T1D) pancreatic beta cells are compromised due to an attack by cells of the immune system. The beta cells fail to produce insulin, a hormone molecule that serves to reduce blood glucose levels, resulting in hyperglycemia in affected individuals. Soda, and sugar are known to be unhealthy, especially when consumed in excess. The purpose of this study is to determine whether Coca-Cola or an analogue mixture of sugar water, can potentiate incidence of T1D along with increasing glycemia following T1D onset in C57BL/6J (B6) mice. B6 mice serve as an excellent experimental model for studying T1D, since a toxin that targets beta cells, streptozotocin, induces autoimmune T1D in them. Our study will be performed by administering Coca-Cola (n=10) or 10.6% sugar water (n=10) to a group of 6- to 8-wk-old B6 males, and water to the control group (n=20) six weeks before administering STZ. After STZ administration body weight and blood glucose measurements will be taken bi-weekly for the next seven weeks of observation. Blood glucose levels will be measured via lateral vein puncture in the tail and analyzed with a glucometer. The results of this study will show whether Coca-Cola and sugar water potentiate diabetes or increase glycemia to a significant degree. Keywords- Type 1 Diabetes; Coca-Cola; Streptozotocin; Glycemia; C57BL/6J Mice

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Sam Oestreich

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** The best genre of music for music therapy

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**Abstract:**

Music therapy has been around for thousands of years and is well regarded as an effective form of therapy. For the therapy to be effective, the patient needs to enjoy the music being used otherwise they would be agitated and not make any progress towards improving themselves. Before I investigated music therapy, I just assumed that the music therapists always used jazz or classical music because it is usually peaceful and upbeat, and mostly fits a particular mood very well. What I learned, however, is that no particular genre or mood simply worked for every patient, but that one person could have a breakthrough listening to death metal, and another listening to violin solos. Just like how everyone finds different music appealing, each patient will have different results in music therapy, and the songs they enjoy most will obviously have a greater effect than something they hate or are indifferent to. In my poster, I will cover some basics about music therapy for the unfamiliar, studies that have been conducted, how they relate to my argument, and present new ideas to the reader about music therapy. I hope to teach everyone that reads my poster something new about the field, just like how I learned from my research.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Mason Olinger

**Faculty Mentor(s):** Matthew Julius

**Husky Compact Dimension:** Engage as a Member of a Diverse and Multicultural World

**Title:** Little Rock Lake Project

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**Abstract:**

Over the last year and a half, I have worked on Little Rock Lake (LRL) located in Rice, MN and with the Minnesota DNR to create a sustainable plan to fix the water quality from a nutrient imbalance in the water body. An overload of phosphorus flowing into the system from runoff was determined to be the cause of extreme blue-green algae blooms in the lake. The MNDNR and the tax payers of LRL decided that a drawdown was the only viable option to repair the system. The drawdown was utilized to flush a large portion of excess nutrients down the Mississippi river and expand the area of the lake where plants are able to grow, called the littoral zone. After the drawdown, Little Rock Lake seems to be heading in the right direction for successful restoration of native plant and targeted algal groups. The nutrient levels had been moved to a more manageable volume for growth of aquatic plants and specific microorganism in the system. During this time, I had utilized wild rice as a key species to remove excess nutrients in the system. Wild rice populations grew naturally in Little Rock Lake for many years before excess nutrients dominated the system and are known for their ability to absorb large amounts of nutrients in bodies of water. With the help of the Mille Lacs Band Indigenous tribe, I was given wild rice seeds to plant in the lake bed with anticipation of successful growth and restoration.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Connor Oslund

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** The Intertwined Evolution of Technology and Linguistics

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**Abstract:**

This poster presentation is centered around the history of technology and linguistics, and how they have influenced each other. The connection goes back to the invention of the printing press, with new aspects of language being introduced. Such aspects include new characters and ways of speaking, such as a character that combines ! and ?, with further advancements doing away with that character. The poster will go in a sort of chronological order where the timeline begins with the printing press and advances towards modern technology such as social media and mobile devices. The poster will begin with the influences in writing and how new aspects of linguistics have been created, and then move towards how those linguistics have been molded by the changing times, then moving towards how those linguistics have been implemented into our daily lives and how the words and phrases have been accepted into our spoken language and how some symbols such as emojis have been accepted by some dictionaries. The poster will finish off with a conclusion breaking down the evolution in a shortened manner restating what has already been said in a more visual manner rather than spoken to give people the story with simply needing to look at the poster.





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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Rachid Ouedraogo  
Moffat Omuva  
Collince Silenou

**Faculty Mentor(s):** Timothy Vogt

**Husky Compact Dimension:** Integrate Existing and Evolving Technologies

**Title:** SCSU Smart Blind Cane

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**Abstract:**

Cane will be able to detect objects in the user's path Five feet ahead and 120 degrees. Notify user using haptic feedback Cane will be connected to GPS to give real time location A mobile App will be developed to assist in GPS handling The cane can be called in case of misplacement Power System Design

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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Meet Patel  
Nikesh Chawla  
Trilochan Thapa

**Faculty Mentor(s):** Shensheng Tang

**Husky Compact Dimension:** Integrate Existing and Evolving Technologies

**Title:** Smart Cart

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**Abstract:**

We are working on building a smart cart as our senior design project in Electrical Engineering. This cart would be capable of scanning items you get from shelves on the store, removing them if you take out stuff from the cart, Charging you automatically once the shopping is done. The main components of this cart are a weighing scale, scanner, LCD display, power supply, and raspberry pie. The Raspberry pie is used as a microcontroller to do the communicate with all these devices. it needs a power supply of 5V and 3A. The LCD display is used to display the items added to the cart with prices, and the total of all items. This will take the power supply from the raspberry pie. The weighing scale is used to detect the weight of items: if the weight goes up, that means a new item is added and vice versa. The power that needs to be provided to the weighing scale is 5V 1A. The scanner is used to scan the bar code of products. The idea came by looking at shopping conditions after covid. This cart can solve the problem of having no interaction with store people and avoids the long waiting lines at the cashier. This project has electrical and software parts to it. the correct amount of power supply should be provided so that all parts work properly and the electrical connection between all components should be proper. On the software side, the database needs to be created where all the item's information should be stored so that the correct item is read after scanning.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Graham Peterson

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Developmental Factors and Psychological Traits That Effect The Academic Success of College Students

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**Abstract:**

This research presentation will show the many different developmental factors and psychological traits that effect the success of college students. This presentation will also aim to answer the question, can college students overcome barriers that may hinder their college success? This presentation will focus and discuss the different stages of development that play a significant role in academic success. Success in college starts very early in the development of the student. Different developmental and environmental factors that effect an infant's cognitive growth can have a negative impact on academic achievement. Certain needs of children must be met in order to succeed later in life. Developmental factors socially and cognitively throughout childhood, and adolescents also play a major role in academic success. The presentation will also examine the roles of peers, role models, and culture in the decision-making process of going to college. The success of children in early childhood education will also be examined as to explain if it is a marker of future academic success. The presentation will also examine the many different psychological traits that are beneficial to successful college students. The main purpose of this paper is to critically evaluate the developmental factors and psychological traits of successful college students.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Skylar Pierce

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Art Critiques and Critical Thinking

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**Abstract:**

An art critique is simply a discussion about a particular piece of art. Art critiques are used in art education to evaluate the art you make. How do art critiques in art education impact critical thinking? Art critiques are a critical look at art but do those skills transfer into critical thinking? There are many different definitions for critical thinking, but in this paper, critical thinking means an evaluation. Critical and creative thinking are similar in many ways, such as creating meaning. When we create meaning we use both critical and creative thinking to understand the context and understand our feelings. An art critique is when people use context to create meaning within a piece of art. There are different ways of performing art critique. There are self-critiques and one on one critiques. There are group critiques, and there are question-based, and assessment-based critiques. Different art critiques give different outcomes. Like group critiques often are discussion-based, with a focus on understanding the piece. When I asked other art students how they felt about art critiques, there were many different answers. From personal experience, I find art critique works best when it is an open-ended discussion. Art critiques when based on open-ended questions do improve critical thinking.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Jayden Pikula

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Engage as a Member of a Diverse and Multicultural World

**Title:** Difficulties of Prosecuting Criminals

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**Abstract:**

TBD



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Wilson Ramon

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Engage as a Member of a Diverse and Multicultural World

**Title:** The Jim Crow Origins of Food Inequality and its Effects

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**Abstract:**

During the Jim Crow era, discriminatory housing laws and practices made it difficult for Black Americans to live in nicer neighborhoods and make economic gains that are necessary to achieve full freedoms. These kinds of laws created the systemic racism that we see today. This paper seeks to look at the history of redlining and segregation practices like infrastructural exclusion and how it led to food inequality in the present. It will examine the patterns of food availability in poorer urban neighborhoods that are predominately populated by people of color. The paper will show how what are called “food deserts” in the present were created by the racist practices of the past. It will look at the effects of these food deserts, like the reliance on less healthy convenience stores and fast food. This will show how disproportionately the diet and health of Black Americans are negatively impacted. This paper will also look at the efforts to combat these inequalities in the form of social programs like the Supplemental Nutrition Assistance Program (SNAP), federal and state legislation, and other efforts like urban farming and trans-fat bans. This research paper will look at effective and ineffective ways that these have been implemented, and how to better improve the efforts to fight food insecurity.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Isabella Randolph

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Organ Trafficking: The Invisible Crime

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**Abstract:**

Organ trafficking is the illegal and occasionally involuntary system by which human organs are harvested and sold to a buyer, frequently through an organ broker. This industry is prevalent in countries such as Israel, China, the Philippines, Iran, and India, and has a small but concerning presence in first-world countries as well. This project will examine the key distinctions between organ trafficking and organ donation, and how this appears different in practice. This includes a look at the socioeconomic, ethnic, gender, and national demographics that have been primary targets, and the nature of their organ removal. For example, it is not unheard of in countries such as the Philippines for a person to seek out an organ broker or be groomed by one, but there are more sinister cases such as those of prisoners in China who are executed and harvested by force. While addressing various contexts behind organ removal, the threats and dangers posed by the practice will also be discussed, such as how the lack of legal accountability leads to poor quality in healthcare provided both for the donors' procedure and the recipients' care in the event that the body rejects the transplanted organ after payment is complete. Finally, the project will consider the legal and ethical implications of the industry, namely how this kind of trafficking is prosecuted and how effective it is given that the crime is both transnational and "invisible."

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Annisa Rumahorbo

**Faculty Mentor(s):** Nathan Bruender

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Steady-State Kinetic Analysis of Putative Adenylosuccinate Lyase (Toy F) in Toyocamycin Production

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**Abstract:**

The rapid emergence of antibiotics resistant bacteria caused by the misuse of medications, as well as a lack of new drug development by the pharmaceutical industry, endanger the efficacy of antibiotics. These new strains of antibiotic resistance bacteria are responsible for placing a substantial clinical and financial burden on the health care system and patients. Coordinated efforts to renew research efforts to understand their biosynthetic pathways could help constitute an innovative target to manage this crisis. Early works by McCarty and Bandarian showed that Toyocamycin and Sangivamycin can be utilized as novel antibiotics that can be produced through a chemoenzymatic approach using the native bacteria *Streptomyces rimosus*. Additionally, work by Subedi and Bruender, focused on the purification and functional characterization of Adenylosuccinate Lyase (ToyF), one of the enzymes that is responsible for the involvement of Toyocamycin production. The objective of this study is to cement the data obtained by Subedi and Bruender on the reverse reaction of ToyF, as well as to characterize the forward reaction of the enzyme. To do this, the protein of interest was grown and purified. The purified protein was characterized by monitoring its activities on the conversion of ADS to AMP and fumarate for the forward reaction, and AMP and fumarate to form ADS in the reverse reaction. The kinetic activities were then analyzed using Excel SOLVER program and the data was plotted and fitted using Michaelis-Menten equation.



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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Hannah Rupar

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Why Purdue Pharma should be held accountable for the Opioid Epidemic

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**Abstract:**

The opioid epidemic here in the United States has deeply affected the lives of many Americans. Many of us have seen or heard of the effects an opioid addiction has on one's life and the lives of their loved ones. What many people aren't aware of is how companies and policymakers, through their actions, helped mold the opioid crisis into the epidemic it is today. Purdue Pharma is one such company that has played a significant role in the influx of opioid use on the market. In this paper, I would like to inform my audience of the reasons why Purdue Pharma should be held accountable for the escalation of the opioid epidemic. In order to achieve this, I will be doing research on three main components. First, I will be taking a deep dive into what an opioid is and what makes it so addictive. This will give me better insight into how pharmaceutical companies, such as Purdue Pharma, were able to market opioids as non-addictive. Secondly, I will do research into the history of the Sackler Family and Purdue Pharma company. This will help me explain the ideologies of Purdue Pharma and give a history of who they are. Finally, I would like to talk about the legal implication Purdue Pharma has been in, in relation to the opioid epidemic. Doing thorough research on these specific subtopics will allow me to better demonstrate how large a hand the Purdue Pharma company has had on the opioid epidemic and how they can be held accountable.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Emily Scheeler

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Engage as a Member of a Diverse and Multicultural World

**Title:** Levantine Art; Crossover of Art and Archaeology

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**Abstract:**

This project is a research comparison over types of rock/cave art looking specifically at Levantine Art, Iberian Basin of Spain rock/cave art, and the relation to the world. The project goes over a general history and idea of this form of art and gives the reader exposure to differences in them as well as how they are similar. With information from scholars all over the world, it gives a wide variety in types of art, the settings for it, and diversity in its content and those who have created these pieces. The ideas within the communities surrounding rock/cave art are also taken into consideration, with heavy input in Spain's history of the subject. The new experiments and data collected from the scientific and the archaeological side of the historical paintings and etchings on rock faces are discussed in comparison as well. As to how certain procedures can be done and how preservation of the works happens. This also brings the artistic side to light with the stories these pieces tell and how as such should be done. The content of the works hold many options of storytelling and hints into lives of the past and the ideas of those who created the pieces.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Brianna Sharbono

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Selective Serotonin Reuptake Inhibitors (SSRIs): Short-term Solution or Long-term Problem

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**Abstract:**

Although many people think SSRIs are helpful and a cure for mental health conditions such as moderate to severe depression and social anxiety disorder (SAD), but studies have shown that these medications can be harmful and hinder the development of the brain and body, especially in early-life users. Some scholars will argue that the treatments are more likely to produce side effects rather than benefit the user and that any improvements created from the use of these medications is likely due to the placebo effect or due to the time passed. This research presentation will firstly investigate what SSRIs are, what the typical effects are, and the harmful effects. Secondly, how the mainstream views of these medications from music, celebrities and social media lead to the overprescribing and overuse of these medications. I will also explore how these “quick fix” medications are designed to be used long term if not for life. Between the withdrawal and physical/psychological effects from these drugs, it is clear to see the issues with these kinds of medications. Lastly, due to poor mental health being “trendy” and the overall mass use of SSRIs, they have become a popular fix thus making a short-term problem a long-term addiction in society.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Sangay Sherpa

**Faculty Mentor(s):** Michner Blender

**Husky Compact Dimension:** Engage as a Member of a Diverse and Multicultural World

**Title:** 2019 COVID MAP of Minnesota

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**Abstract:**

I'm going to present a COVID distribution map of Minnesota as of November 2019. I have used ARC GIS pro for the creation of this map. the data has been collected from Minnesota health department. there are several

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Jordan Smith

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Integrate Existing and Evolving Technologies

**Title:** Photographing a Black Hole

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**Abstract:**

This project will include a detailed description of what a black hole is and what it is made of, how we first found out about black holes, an in depth explanation of the theory of relativity, the background of the lady who took the photo of the black hole, and how the technological advances in 2008 made it all possible. This project portrays the knowledge and techniques needed to both find and extrapolate the data to capture a photo of something that light can't even escape from. It will have a great detail about what a black hole is and what the different parts of it is. It shall also dive into the process of how Einstein predicted that a black hole exists and what a function of a black hole is. After that, it will elaborate on the process needed to take the photo as well as the background history of the lady. In 2008, a technological advancement occurred that allowed the process and speed of which computers functioned to take off allowing for new technologies and techniques to be explored as the computers and processors could be pushed to new limits that never have been seen before 2008.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Connor stark  
MaKenna Olson  
Jenna Becker

**Faculty Mentor(s):** Maureen O'Brien

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** The Twice Eclipse by the Sun: How China Has Outshone Japan

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**Abstract:**

In a series of visual graphs, images, and commentary, this Applied History project represents two prominent Asian powers, China and Japan, through a comparison of cultural, political, and economic history over the past 50 years. Historians, policymakers, and businessmen can gain a significant insight when looking at China and Japan's sudden exponential rise throughout the last century, discussing Japan's eventual plateau and China's continued growth past that. Fostering the return of an ancient Asian economic powerhouse against the 19th and 20th-century economic leader. China historically was the dominant power in the region only to fall and be eventually replaced with Japan. The goal is to document China's unanticipated rise in comparison to their largest competitor, Japan, and where China will expect to be within the next ten to twenty years. Looking specifically at each country and basing their economic success off of each country's GDP, Unemployment Rates, and National Debt Levels in graph form, alongside using photos with commentary for understanding culture, political systems, and economic policies. What helped China rise, and what led to Japan's rise, fall, and rise again? What instigated Japan's economic stagnation? Will China hit a peak and experience a similar path to Japan, or will they continue to unforeseen heights for the next couple of decades?



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Zachary Sunder

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Communication: Impacts of Technology

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**Abstract:**

This presentation will be focusing on how the introduction of Information Communication Technology (ITC) has changed the dynamics of learning, jobs, and communication. Through the introduction of ITC there has been many changes to learning including e-learning and better accessibility to learning materials through newly introduced technology to name a couple. Jobs have changed in the sense that they can have many more responsibilities to carry out because they can more easily connect with others and process information. Communication has changed partly because a lot of jobs are reliant on connecting with people in different parts of the world and people tend to get accustomed to communicating with others through some sort of device instead of face to face. This presentation will be summarizing these points and be focusing on what causes them to happen.

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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Yvan Tagne  
Yves Ilboudo  
Joel Adeyemo

**Faculty Mentor(s):** Shensheng Tang  
Bryant Julstrom

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Safelink - Automated Safety System for the vulnerable.

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**Abstract:**

Our project is to build a smartwatch called SafeLink for the elderly as part of our Senior Design Capstone project. The goal of this watch is to establish an automated safety system for the user. This watch will have features that will monitor a user's temperature, activity, heart rate, location, and even stress levels, parameters that will be accessible through app connectivity. In case of a falling accident, rising body temperature, and heart irregularities – a loved one or local police will be immediately notified via text. The current pandemic was a factor in why this idea was developed. There was worldwide distress caused not only by the virus but also by the physical separation as well. With Safelink we will help those who are vulnerable, and also hope to alleviate the stress of their concerned loved ones.



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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Jharef Tecsihua Tamariz  
Aaron Gregory

**Faculty Mentor(s):** Matthew Julius

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Siliceous nanomaterials from microbially produced seed particles

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**Abstract:**

The interest in bioderived (directly produced by nature) nanomaterials is globally expanding in research and development because these materials offer unique features that can advance the design and enhance the performance of products and technologies. Most often, structures are taken as-is from their organismal producers, and if modifications are made, a bioinspired methodology is used. From those structures, silica nanostructures are particularly useful in applied technologies such as targeted delivery systems, medical imaging, or catalysis. Diatoms are single-celled alga that bio-mineralize silica cell walls whose structural complexity is beyond the capacity of current technologies. We are modifying a technique to extract the organic templates diatoms use during the biomineralization process in order to produce seed material that collaborators at Queen's University Belfast will use to develop a scalable manufacturing process of silica nanostructures. If successful, this technique could serve as a precise, low-cost method for isolating organic templates that support the production of stable and uniform highly complex siliceous structures.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Megan Thoma

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Art and Math: Two Sides of the Same Coin

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**Abstract:**

Art and math have been used together in unique ways, whether those ways include how art can be reduced to mathematics using the golden ratio, fractals, or general geometric shapes, or math being seen in an artistic lens such as the math behind these fractals, the artistic beauty behind graphs, and how some math can be used to show beautiful art in things such as spirographs and natural patterns. This presentation will explore these ties between art and math in academics and how the two mingle outside of a learning environment, such as how each can be used to draw and retain interest in STEM fields, how learning both disciplines can aid in communication in a professional setting, and how art and math can collide in areas such as the sciences and performance arts.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Ian Todd

**Faculty Mentor(s):** Nathan Bruender

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Enzyme kinetics of pyrroline-5-carboxylate reductase S177A mutant in *Sinorhizobium meliloti*

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**Abstract:**

Pyrroline-5-carboxylate reductase, or P5CR, is an enzyme responsible for the reduction of pyrroline-5-carboxylate to the amino acid proline. This pathway is a branch off the citric acid cycle that starts with  $\alpha$ -ketoglutarate, and as such assures every cell has a ready supply of proline for protein synthesis. To reduce pyrroline-5-carboxylate, the enzyme must also oxidize a coenzyme; this is typically facilitated by NADPH which is oxidized to NADP<sup>+</sup>. Experiments were conducted to observe the enzyme kinetics of a mutant variant of what is currently expected to be the P5CR in the bacteria *Sinorhizobium meliloti*. A serine residue located at the 177 position that is highly conserved amongst other organism's pyrroline-5-carboxylate reductases was replaced with an alanine residue; the replacement of a conserved polar residue with a non-polar residue was expected to negatively impact the ability of this enzyme to produce proline. The protein of interest was grown in *Escherichia coli* through plasmid transformation with an attached histidine tag to purify through affinity chromatography, and SDS PAGE was employed to verify the purity of the elution. Due to a lack of available metabolite, thioproline, an analogue of proline, was used in addition to the coenzyme NAD<sup>+</sup>, an analogue of NADP<sup>+</sup>, to observe the kinetics of the reverse reaction of the mutant P5CR in comparison to the wild-type enzyme. Spectrophotometry was used to monitor the increase in NADH concentration as the reaction proceeded. All gathered enzyme kinetic data for both the wild type and mutant P5CR will be presented upon the completion of the experiment.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Alissa VanDenBoom

**Faculty Mentor(s):** Nathan Bruender

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Comparative kinetic analysis of wild type and S234A mutant pyrroline-5-carboxylate reductase in K12 E. coli.

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**Abstract:**

Proline is an amino acid synthesized from glutamate in the cytoplasm. During the synthesis of proline, pyrroline-5-carboxylate reductase catalyzes the reduction of 1-pyrroline-5-carboxylate to L-proline. The gene proC codes for the enzyme pyrroline-5-carboxylate reductase. The polar amino acid serine is present at position 234 of the wild type pyrroline-5-carboxylate reductase enzyme produced by K12 Escherichia coli. Between different species, the serine at position 234 is conserved when translated from the proC gene, suggesting that the conservation of this amino acid is necessary for the production of the functional enzyme. Exchanging the polar amino acid serine with the non-polar amino acid alanine in pyrroline-5-carboxylate reductase is expected to decrease the rate of the reactions catalyzed by the enzyme. K12 E. coli were transformed with a kanamycin-selective plasmid containing the proC gene with a S234A mutation, the expression of which is controlled by a Lac operon. Pyrroline-5-carboxylate reductase was overexpressed and extracted from the transformed K12 E. coli, then purified using affinity chromatography and the purity was analyzed using SDS-PAGE. The rate of reaction of the mutant enzyme was then compared to the activity of the wild type enzyme and this data will be presented as a scientific poster.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Jessica VanderWerf  
Maria Kroeber  
Claudia Burgos Zuniga

**Faculty Mentor(s):** Phyllis Greenberg  
Rona Karasik

**Husky Compact Dimension:** Engage as a Member of a Diverse and Multicultural World

**Title:** Age-Friendly Universities.

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**Abstract:**

As of December 2021, St. Cloud State was designated as an Age-Friendly University. Research that is being conducted now is looking at student perceptions as it relates to the Age-Friendly components of our research. Surveys have been distributed physically and virtually to help understand how St. Cloud State aligns with the “ten Age-Friendly principles.” These ten principles highlight research, involvement, participation, career development, second careers, intergenerational learning, online education, retirement, communication, and the longevity divide.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Terrance Wallace

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Exposure to Advertising and Links to Childhood Obesity

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**Abstract:**

This presentation will explore the connections between common forms of advertising and childhood obesity. In particular, it will investigate the influence of television ads and marketing in grocery stores. In addition, this report will briefly examine the long and short-term effects of childhood obesity, explain past attempts to control the problem, and describe the history of the issue in the US. For decades, children have been lucrative customers for companies across the world. They hold great power over their parents' purchases, and early exposure to marketing can develop brand loyalties that last into adulthood. Young children are especially vulnerable, as they may be unable to distinguish advertisements from entertainment. Childhood obesity can also lead to chronic health problems if left untreated, such as heart disease, high blood pressure, diabetes, and insulin resistance. Unfortunately, advertisements are found nearly everywhere in the world. From grocery stores to children's television, there is nowhere to hide from the influence of marketing. Around a quarter of the commercials shown on children's television advertise food, and a majority of those promote unhealthy diets. The layouts used in many grocery stores also play a role in promoting unhealthy diets in children and adults alike. Researching these issues will inform parents and help them make better lifestyle choices for their kids.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Cassandra Wendt

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Racism in the United States Healthcare System

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**Abstract:**

Within the United States Healthcare System, there is more going on than meets the eye. From a troubled past to pregnancy disparities and experiments done, there is a sad connection between it all, race. Race is used to put people into different groups and make a division and with it comes misconceptions from lies spread throughout history. One of these misconceptions is that Black people have thicker skin, something that has spread with no real cause. Because of the misconceptions, bias, and misinformation, the treatment of the Black community from the healthcare system is far from where it should be. A distrust forms and with it comes the discontinuation of going to a hospital or clinic. One area that there is evident disparities is with pregnancy. These range from differences in prenatal care to hospital stays. Two experiments done include the Tuskegee Syphilis Study and the Henrietta Lacks case. Both were unethical and went against doing no harm and having consent, a common practice in the healthcare system today.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Lauren Wilfong

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** The Effects of Covid-19 SARS on Our Mental and Physical Health

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**Abstract:**

In my research project, I will be explaining and describing the effects of the Covid-19 SARS virus on both our mental and physical health. The pandemic has put a tremendous amount of stress on our mental health, affecting us in more ways than we think. It is important for us to be aware of our mental health as depression and suicide rates are skyrocketing. From full force shut down to simply wearing masks at school, we are putting our mental health through so much. Struggles in our personal lives, struggles in our communities and struggles in our nation affect our well-being. Without shutting down or wearing masks, we are putting our physical health and our immune system at risk. Physical rigors of the virus can be as simple as a sniffle, or it can be a fatal disease. Common symptoms include headache, fatigue, loss of taste and smell, body aches, vomiting, diarrhea, nasal congestion, and cough. The virus not only affects us during our time of isolation, but it has many long-lasting effects that influence our everyday lives, such as intense tiredness and fatigue, hair loss, rashes and many more. The purpose of my research is to provide a resource for those looking to understand the virus more and to bring awareness to the effects of pandemic and virus on all aspects of our well-being.



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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Mainag Xiong  
Katarina Hansen

**Faculty Mentor(s):** Oladele Gazal  
Felicia Leammukda

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** EVALUATION OF AQUEOUS AND ETHANOLIC EXTRACTS OF SAUSSUREA LAPPA COSTUS ROOT ON EPILEPTIC MOVEMENTS IN DUGESIA DOROTOCEPHALA

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**Abstract:**

The high cost of anti-epileptic drugs (AED), increasing development of drug-resistant epilepsy, and lack of access to conventional AED have necessitated alternative and complementary medicine in the treatment of epilepsy. *Saussurea lappa*, *Costus roots*, are used in many in folkloric treatment of various diseases and limited studies have indicated that this plant has anti-convulsant properties. In the present study, we evaluated the pro- and anti-epileptic properties of both aqueous (SLA) and ethanolic (SLE) extracts of *S. lappa* in the *Dugesia dorotocephala* model of epilepsy. *Dugesia* worms were exposed to artificial pond water (APW) or neurotransmitters to determine whether they demonstrated either normal gliding movement (NGM) or hyperkinetic movements typical of epilepsy. They were then exposed to either 100 µg/mL and 200 µg/mL of SLA or SLE and their movement were determined for 5 minutes. Finally, the effects of pre-exposure to either SLA or SLE on blocking the effect of excitatory or inhibitory neurotransmitters and different indices of hyperkinetic movements were determined. APW administration induced NGM. Exposure to excitatory NMDA induced hyperkinetic movements. Exposure to Bicuculline at 0.25M showed NGM but exposure at 0.5M induced hyperkinesia. SLA administration at low- or high-dose induced NGM but exposure to SLE at low- or high-dose induced hyperkinetic movements. Pre-exposure of *D. dorotocephala* to either SLA or SLE did not prevent the hyperkinetic effect of NMDA. However, both SLA and SLE prevented the hyperkinetic effect of bicuculline at the high dose. Hyperkinetic data analyses indicated that neither SLA nor SLE had any significant effect on C-like or screw-like hyperkinesia. However, SLE pre-exposure significantly increased the latency ( $P=0.0008$ ) and total frequency ( $P$

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**2022 HUSKIES SHOWCASE ABSTRACTS**

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Ashley Yurkovich

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Color Psychology: What Emotions can Red Influence?

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**Abstract:**

Describes what the field of Color Psychology aims for, as well as including the science behind colors and how they are transmitted through the brain. Specific colors used to give instructions, or influence one's behavior through everyday usage. Why colors are important, and how they are generally used. How colors are interpreted in different time periods, regions, and cultures throughout the world, and how they are/were generally used. Why colors are often used to convey messages and/or meaning in everyday life. Common colors and what they can be used for. How motivation through color can be conveyed, as well as how motivation connects to emotions. Why colors might influence emotions through their usage. Specifically how messages conveyed in red have changed, influenced, and appeared over time and areas. What systems in the brain interpret color through neural pathways. Specific studies showcasing the influence of red in identifying threats and neutral subjects.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Rheana Zerna

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Genetics Predispose to Autoimmune Diseases

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**Abstract:**

My family has a history of diseases and illnesses. Since I come from a family with this history, I wanted to learn about something that was relevant to my life and my Nursing major. I chose to research how inherited genetics predisposes people to autoimmune diseases. I will cover the role that genetics has in determining whether a person will have an autoimmune disease as well as other factors that may also have an effect. I will cover what an autoimmune disease is and what may cause them like the T cells and B cells in the body. My research will show that most autoimmune diseases are polygenic, meaning it is a combination of genes that causes them. My project will go over specific autoimmune diseases and what part genetics plays in that specific disease. I will talk about specific clinical trials and their outcomes. As well as new research and the information they provided. There are many risk factors that higher the chances for a person to attain an autoimmune disease. For some autoimmune diseases environmental factors trigger the body to begin attacking itself. So, my research will bring attention to how a person may be able to lower their chances of obtaining an autoimmune disease and spread awareness. Autoimmune diseases are still being researched, there is still a lot of information yet to be found.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Courtney Zinter

**Faculty Mentor(s):** Michael Gorman

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Understanding Cybercrimes: Revenge Porn

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**Abstract:**

My project is based on the rise of revenge porn in today's society and the effects that it has on people. From child pornography to workplace harassment, sextortion ranges across many spectrums affecting many people. The research faces all aspects of nonconsensual pornography from the process of receiving the initial information, extortion of the victims, the spread of the porn, and the fallout occurring after the event. I will look into all sides of the experience, ranging from the victims to the perpetrators, as well as the advocates watching from the sidelines. Many of the cases mentioned in my research vary in their severity, some going unreported and only living in the social world, while others get reported to the police and have gone to court over the matter.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** In-Person Poster Presentation

**Presenter(s):** Ellen Zupon

**Faculty Mentor(s):** Michael Gorman  
Sarah Bavelli

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** The Lasting Effects of Nationalism in the European Renaissance

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**Abstract:**

The European Renaissance was a time of exploration in deep critical thought and housed a boom of great magnitude towards the visual arts. Through flourishes of economic power and changes in political rule, nationalistic values were born. The newfound nationalism developed within the Renaissance with help from the shift in power from the overbearing Catholic church to a more centralized political rule. This dramatic change led to more political freedom and a sense of liberation for everyone involved. The Renaissance is known as an era of rebirth and furthered an evolution of the belief that fear is a source of knowledge. The concept that the unknown should not be feared was drastically different than in previous eras. Regarding people of the Renaissance, three profound artists were Leonardo da Vinci, Michelangelo, and Raphael. These three individuals personify diverse characteristics of the Renaissance in unique ways through their talents and gifts. The artists took on characteristics of their time as the world around them further developed. The causality of this phenomenon holds a truly intrinsic essence of nationalism. In this case, nationalism can be distinguished in the attempts of beautifying the architecture, commissioning decorations, and the overwhelmingly proliferating growth of academics. Nationalism and the European Renaissance are a collective whole and worked together to create tremendous developments in academic thought and artistic disposition to leave their mark on the world for centuries to come.



## **Virtual Oral Presentations**

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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Abdulrahman Alnajrani  
Gavin Dutcher  
Salome Pantuvo

**Faculty Mentor(s):** Abdullah Abu Hussein

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Adaptive Multi-Factor Access Control

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**Abstract:**

Traditional authentication methods are not enough to protect critical business data alone. There are a growing number of sophisticated attacks that can compromise user's account information and lead to critical accounts being compromised. One advancement that helps with this issue is multi-factor authentication, which sends a one-time password to a user's email address that allows them to login. However, it is possible an email account can be compromised as well. In the system we created, it checks for the user's region and country from the IP address and time of login to calculate a threat level. An admin can create threat rules to deny certain users permissions based on the threat level score which can help prevent critical business information from unauthorized access and modifications. The system's main aim is to ensure that security elements such as data integrity, confidentiality, and availability are maintained in the following ways. The system has featured that admins can use to create rules to prevent intruders from accessing critical data, ensuring the data will not leak or get corrupted. In this way, data privacy is protected, ensuring system users are safe from threat. The system can detect suspicious IP addresses denying their users permission to access and modify contents in the system and protecting the data integrity. Data that users store in the system is always available since intrusions that affect the reliability of a system are effectively minimized by the threat rules. However, the system can allow admins to regulate how their user is accessing the data by setting rules which block users from accessing the resources outside working hours.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Michele Barron-Albers

**Faculty Mentor(s):** Amy Christensen

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Welcome to the profession: Exploring perceptions of new teacher retention supports

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**Abstract:**

Numerous studies have identified a research to practice gap regarding teacher retention (Hagaman & Casey, 2018; Carver, 2003; CCSESA, 2016). In Minnesota, teacher retention is a concern as 51.32% of professional licensed teachers were not working as a public or charter school teacher during the 2019-2020 school year. (PELSB, 2021). The objective of our ongoing phenomenological study is to identify and address what common themes exist across multiple groups of educational professionals regarding retention rates of Minnesota teachers new to the profession. Our study employs grounded theory to analyze educational professionals' reflective writings to expand insights regarding why half of the state's fully licensed teachers are leaving the field, examine supports provided to new teachers, and determine what supports would be most beneficial for retention. This study compares the perceptions of beginning teacher supports through three different lenses (pre-service, in-service, and administrative). Insights gained from this study will inform preparation program content, alleviate the research to practice gap, and empower education professionals to be agents of change for improved teacher retention rates.





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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Samantha Bromenshenkel

**Faculty Mentor(s):** Monica Garcia-Perez

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)

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**Abstract:**

The after-BREXIT status of England's labor market and UK immigration flows. Despite BREXIT's final implementation in 2020, the pandemic blurred the after-shock effect in the economy. Locally, the country has had to establish immigration strategies to cover labor shortages resulting from BREXIT and lockdowns policies. The course ECON 473 Labor Economics would cover the theoretical discussion of economic shocks and the labor market's adjustments. A special focus will be given to workers' internal and international mobility to rural and urban areas in England. For instance, I will plan to visit and/or connect with labor research centers paired with sectors most affected by the farming and transportation sectors' policies resulting from BREXIT and lockdown measures due to the 2020-2021 pandemic.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Jared Dunkley  
Mala Hamal  
Vijay Raut

**Faculty Mentor(s):** Jieyu Wang

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Educational Conversational Agents

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**Abstract:**

Conversational assistants have been a valuable new tool in the field of education technology. Their use has skyrocketed in recent years and their implementation will only become more widespread as time moves along. With such increased reliance on this technology, a need for a deeper level analysis arises and an effective change is critical. The existing studies have focused on the accuracy and feasibility of these technologies. While these were valuable groundwork for the understanding and analysis of these tools, a deeper look into the nuances behind the technology and how it affects different types of people is warranted. These are a technology that is designed to mimic and interact with humans. The overall numbers have been calculated, but the groups within those numbers have not had extensive testing. Within education specifically, learning levels are tied to comprehension and communication between teacher and learner. If these conversational assistants are only effective for some types of people, learning will not be consistent among all the classrooms. It is important that an analysis is done to see if these classroom technologies benefit all types of students and learners in an educational setting. This study will break down participants into groups. These groups are based on two personality pairs, Introverted vs Extroverted and Intuition vs Sensing. When the combination of these pairs leaves us with four distinct personality types. These groups will then interact with an education conversational assistant trying to complete the predefined tasks. These tasks will simulate a typical classroom interaction with one of these tools. The results of the exercises will then be analyzed to determine how effective educational focused conversational assistants are for all types of students. Recommendations can then be made to tweak and adjust this technology to better fit the people it was defined to serve.

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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Gavin Dutcher  
Dylan Wahlstrom  
Adow Ali

**Faculty Mentor(s):** Jieyu Wang

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Healthcare Conversational Agent (CA) Interaction Analysis

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**Abstract:**

Artificial intelligence (AI) is constantly changing how people interact with computers. There are many areas where AI can be applied and one of those areas is healthcare. One way it can be applied to healthcare is through the use of conversational agents (CAs). CAs can help to give medical diagnoses of patients which can aid doctors in helping patients. They can also help patients find care and book appointments. Typically, a CA will interact with every person in the same manner. An issue with this is that there are a variety of different personalities people can be. To help address this issue, participants will be grouped by personality and their conversations will be analyzed to see how they interact with the CAs. To find the personality of the participant, a personal style inventory test will be given to the participant and from there they can be grouped into one of four categories of personality: sensing/introvert, sensing/extravert, intuitive/introvert, and intuitive/extravert. After that, the participant will be tasked to interact with three different healthcare chatbots. When interacting with the chatbot, the participant must perform three tasks: checking symptoms, finding care, and booking an appointment. A survey will then be given to the participant based on the Likert scale asking them questions about their overall experience with each chatbot. The conversations will then be further analyzed by examining the flow, content, and turning of the conversation.

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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Noah Ellefson

**Faculty Mentor(s):** Ramya Sivaraj

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Students' Thoughts on Going Green: Designing Responsive Lessons

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**Abstract:**

This action research project examines the process of designing lesson plans in response to students' prior knowledge and perceptions related to renewable energy resources. The central question guiding the lesson design is "How do high school science students make sense of the concept of going green?" The study examines students' familiarity with renewable resources using survey methodology in a Physical Science classroom in a large midwestern high school in the United States. Students are asked both theoretical and pragmatic questions related to the large scale implementation of renewable energy options in homes and industrial settings. This project is designed to better understand whether high school science students think of renewable energy sources as a viable solution to 21st century challenges we face with the depletion of non renewable energy resources. The study is grounded by a social constructivist framework, where Variation Theory (Marton, 2015) is utilized in order to design lessons with tasks that allow students to discern critical aspects related to the use of renewable energy resources. In this case, students' perceptions of variations between different renewable and non renewable resources allows designing of lessons that aim to create conceptual models that are unique to each student (Bussey, Orgill, & Crippen, 2013). Implications of the study, consequently, apply to pedagogical research and practice, where students' perceptions and ideas about renewable energy resources fundamentally shape the design of lessons and instructional delivery in order to build better conceptual understandings about renewable energy resources rooted in the present real world context.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Moulika Gajavalli  
Kushal Kumar Maddala  
Jayanth Alla

**Faculty Mentor(s):** Jieyu Wang

**Husky Compact Dimension:** Communicate Effectively (Dimension of the Year)

**Title:** Emergency planning and management in health care priority

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**Abstract:**

Many natural disasters have substantial health consequences, putting additional strain on medical professionals. Based on a scoping inquiry, the primary goal of this project is to propose a prioritized agenda for organizational and management research on emergency planning and management applicable to UK health care. A secondary goal is to increase the greater research community's awareness and comprehension of healthcare emergency planning by stressing key topics and viewpoints on the issue and presenting a conceptual model. The study's findings are like prior scoping studies focusing on the United States, as well as a recent U.K.-based analysis, revealing the relative scarcity of research in the United Kingdom. No one research subject scored highly on all the important categories, showing that communities and organizations may have different priorities when it comes to the most pressing issues. The impacted public, inter-and intra-organizational collaboration preparing responders and their organizations, and prioritization and decision-making have been recognized as four main study priorities.

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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Bradley Harris

**Faculty Mentor(s):** Ramya Sivaraj

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Comparing Computational Simulation-based vs Collaborative Groupwork-based Learning Design for a High School Physics Lesson

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**Abstract:**

This action research project analyzes two different approaches to designing lessons for a high school physics lesson with respect to performance and engagement of students in a high school physics classroom in a large suburban city in Midwest United States. Two different lessons are designed to teach the same physics concepts -- the first learning design is guided by a social learning theory lens, which underscores collaborative learning (Mercer, 2015; Vygotsky, 1978). Key features of this first lesson include prompts to encourage group discussion, and the role of the teacher as facilitator, with appropriate scaffolds to foster joint construction of conceptual understandings. The second learning design is guided by a cognitive approach to integrating technology (Geelan & Fan, 2014), where students interact with online simulations and virtual laboratories while completing tasks individually. The second lesson incorporates individualized online tasks, with a focus on each student being able to pace themselves individually, building conceptual understandings as they complete these tasks. The teacher in this second lesson design facilitates each student's interaction with technology, adjusting instruction in response to each student's unique experience during these online experiences. The two approaches to learning and designing lessons are examined through outcomes related to student performance and engagement during the implementation of the physics lesson. Implications of this study are related to pedagogical choices and dilemmas high school physics teachers face as they decide how to optimally incorporate technology, while also creating opportunities for research-based teaching methods that provide opportunities for collaborative learning.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Kenzie Kitzman

**Faculty Mentor(s):** Monica Garcia-Perez

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Senior Research: "How does small business establishment affect economic growth by state in the United States?"

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**Abstract:**

This study will go in depth on how small businesses, measured by amount of employees, through establishment and employment affect gross domestic product across all fifty states. I seek to answer the question, "How does small business establishment affect economic growth by state in the United States?" Due to Covid-19 pandemic, the United States Economy is in a downturn. Economic growth is currently more important than ever. Small business establishment leads to new employment, and the acceleration of economic growth. In this hyper-competitive nation, entrepreneurship and small business establishment can oftentimes be overwhelming to dive into. Researching this question and topic will form clarity in defining the effects of small business on economic growth by state. Small businesses in all three ranges of employment from small businesses from

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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Kalyani Korlagunta  
BalaVikas Sabbineni  
Rithvik Panchumarthi

**Faculty Mentor(s):** Jieyu Wang

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Privacy breaches in NoSQL databases

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**Abstract:**

In today's web, mobile, and IoT applications challenges concerning ever-increasing diversity of data types and models is a common expectation among at least one or maybe more (if not all) of the following features: i. Ability to accommodate huge number of concurrent users, ii. Provide highly responsive experiences to a multinational base of users, iii. Always be available – there should be no downtime, iv. Handle semi-structured and unstructured data v. High scalability. As a result of these requirement the use of NoSQL databases has increased rapidly. NoSQL databases have flexible schema allowing users to store any data despite their structural differences. NoSQL databases are distributed in nature and offer high concurrent reading and writing with low latency, efficient big data storage, high scalability and availability with less management and operational costs. These unique features make NoSQL databases extremely effective at managing unpredictable data, often with blazing-fast query speeds. The IT professionals and developers managing the databases often gets caught up in these advantages of NoSQL databases and ignore the privacy issues it inherently carries. When it comes to privacy it is required in almost every application and industry. Sadly, most NoSQL databases treat security as an afterthought, putting individuals' personal data at risk and possibly creating severe economic losses as well as a reputation crisis. To avoid these situations, organization's need a strategy that incorporates security mechanisms and controls into their systems without ditching existing solutions and restarting the design process from scratch. Even enabling some built in features (example: User Authentication) that are usually ignored can make a difference when it comes to privacy. In this paper we consolidated all the security issues in various NoSQL databases (example: MongoDB, Cassandra etc.,). In our research we found out that different NoSQL databases have different possible security breaches and some databases have some common issues. We have documented all the security breaches and proposed possible solutions to mitigate these issues. Although the issues present themselves in different forms in different databases the generalization helps in identifying them.



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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Michael Lee

**Faculty Mentor(s):** Jennifer Lamb

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Sexual dimorphism in Western Painted Turtles (*Chrysemys picta*): weapons and wounds

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**Abstract:**

Recent studies show that male Painted Turtles (*Chrysemys picta*) may use aggressive behaviors to coerce females into mating, and that weaponry attributes, including tomiodonts and carapace projections, may have evolved to facilitate coercive mating behaviors. Additional studies of wild populations, including thorough wounding assessments, are needed to corroborate these findings. The goal of our study was to characterize carapace shape, tomiodonts, and wounding frequencies for a population of Western Painted Turtles (*C. picta bellii*) in central Minnesota. We trapped Turtles from May 2021 to August 2021 across a system of connected lakes in Stearn County, MN. For each Turtle we collected standard measurements and photographed the anterior carapace and tomiodonts. We examined each individual closely for new and old wounds on the head, neck, limbs, tail, and shell. We used geometric morphometrics to collect shape and length data of the anterior carapace and tomiodonts from digital images. We used analyses of covariance (ANCOVA) to determine whether shell shape or other measurements differed significantly between the sexes after controlling for size. We also explored other relationships, including that between head size, carapace shape, and tomiodont length or splay, and the wounding frequencies by location and sex. We collected data from a total of 112 unique Turtles (67 males, 37 females, and 8 juveniles) but only included adults without severely damaged shells in our analyses. Our results confirm that males and females are sexually dimorphic in several of the variables measured. We found a high wounding frequency across sexes, and that in both sexes wounds most frequently occurred on the ventral neck. These data validate the conclusion of previous studies as well as confirm that wound frequencies may be different across populations.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Eric Lindquist

**Faculty Mentor(s):** Gareth John

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Mapping the Effects of Vegetation on Urban Heat Islands in the Twin Cities Metro Area

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**Abstract:**

Structures such as buildings, roads, and other infrastructure absorb and re-emit the sun's heat more than natural landscapes such as forests and water bodies. Urban areas, where these structures are highly concentrated and greenery is limited, become "islands" of higher temperatures relative to outlying areas. These pockets of heat are referred to as "heat islands." Heat islands can form under a variety of conditions, including during the day or night, in small or large cities, in suburban areas, in northern or southern climates, and in any season. Drawing on temperature and land use data already collected, my project examines the relationship between the amount of vegetation and the temperature of the surrounding area. In particular, this project is concerned with analyzing different areas within the Twin Cities Metro Area to observe trends in temperature differences relative to the quantity of vegetation. I will explore the potential effectiveness of implementing mitigation strategies in the area.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Elizabeth Mitchell  
Blake Castagneri

**Faculty Mentor(s):** Coleman Henry  
Wenjie Sun

**Husky Compact Dimension:** Integrate Existing and Evolving Technologies

**Title:** Chemical Treatment Technology Proposal to Reduce Effluent Phosphorus Concentrations at the NEW Recovery Facility

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**Abstract:**

The Environmental Engineering senior design project was to propose tertiary treatment options to reduce the effluent phosphorus concentrations at the St Cloud Nutrient, Energy and Water (NEW) Recovery Facility. The class of six proposed chemical, biological and filtration options and we split into teams to further research the treatment technologies within the three options proposed. Blake Castagneri and I (Elizabeth Mitchell) took on the chemical treatment technology option. We discovered that ferric chloride storage tanks were already onsite and designed to feed into the secondary clarifiers. We took that knowledge and ran with it, calculating chemical dosages required to reduce the phosphorus concentrations below the forecasted state regulations. Socioeconomics surrounding the implementation of this technology were also taken into consideration, as the facility prefers not to apply chemicals in their treatment process to avoid irreversible harm to the onsite biological nutrient removal, Lystek and Ostara systems. Alternatives to our main proposal will also be discussed. Our presentation will include design schematics to help viewers understand the processes that the proposed chemical treatment technology uses to treat the wastewater.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Bailey Olsen

**Faculty Mentor(s):** Randal Baker

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** The academic benefits of participation in intramural sports

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**Abstract:**

This study was conducted to identify the academic benefits of participation in intramural sports at St. Cloud State University. For this study a six-question email survey was sent to students who participate in intramural sports. From the findings of this study, it's expected that there will be many benefits of participation in intramural sports.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Zackery Osendorf

**Faculty Mentor(s):** Ramya Sivaraj

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Free the Brain: Do Brain Breaks Help Students Focus Better?

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**Abstract:**

This project investigates whether students have a better experience in terms of enjoyment and engagement in class when they are allowed to take "Brain Breaks." In this study, a "Brain Break" is defined as an activity with physical (movement), mental, and social dimensions, that allows students to take a break from the primary lesson to interact more freely with peers. Research shows that brain breaks can maximize students' ability to refocus and engage in learning (Weslake & Christian, 2015). This project examines students in a 5-12 science classroom, guided by the following research questions: 1. What is the optimal length for a brain break activity? 2. What is the optimal frequency for brain break activities during a class period? 3. What is the optimal design for a brain break activity; should the students be given a content-area related task during the brain break, a non-content area related task, or choice to direct the design of their brain break? Implications of this study relate to the use of brain breaks as a pedagogical tool in 5-12 classrooms. In particular, this study adds to research related to how brain breaks can optimally contribute toward increased student engagement, enjoyment, and ability to focus in a science classroom.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Joshua Snapp

**Faculty Mentor(s):** Monica Garcia-Perez

**Husky Compact Dimension:** Engage as a Member of a Diverse and Multicultural World

**Title:** Different Perspectives of The UK Labor Market Post-Brexit and COVID-19 (#TheCloudsInTheCastle)

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**Abstract:**

The after-BREXIT status of England's labor market and UK immigration flows. Despite BREXIT's final implementation in 2020, the pandemic blurred the after-shock effect in the economy. Locally, the country has had to establish immigration strategies to cover labor shortages resulting from BREXIT and lockdowns policies. The course ECON 473 Labor Economics would cover the theoretical discussion of economic shocks and the labor market's adjustments. A special focus will be given to workers' internal and international mobility to rural and urban areas in England. For instance, I will plan to visit and/or connect with labor research centers paired with sectors most affected by the farming and transportation sectors' policies resulting from BREXIT and lockdown measures due to the 2020-2021 pandemic.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Benny Thoms-Warzecha  
Shea Garlock

**Faculty Mentor(s):** Felicia Leammukda

**Husky Compact Dimension:** Integrate Existing and Evolving Technologies

**Title:** Sick Science: The Impact of the COVID-19 Pandemic on Science Instruction at St. Cloud State University

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**Abstract:**

Due to the ongoing COVID-19 pandemic, many universities needed to swiftly adapt instruction to an online format. This process was refined during the 2020-2021 school year, and continues to adapt as we transition back to fully in-person classes. By analyzing student impressions on the overall impact that online science instruction has had in comparison to in-person instruction, we can find the strengths and weaknesses of online instruction for SCSU students.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Mariia Tikhonova

**Faculty Mentor(s):** Jennifer Johnson

**Husky Compact Dimension:** Act with Personal Integrity and Civic Responsibility

**Title:** Wellness Coaching Impact on Students Through a Graduate Student's Perspective

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**Abstract:**

This oral presentation will share about the Wellness Coaching; a free service that offers all SCSU students an opportunity to discuss their personal goals in a collaborative and encouraging environment. Wellness Coaching has shown success in positively affecting students' experiences on campus, sense of belongingness, and retention/persistence rates. The presentation will shed light on how Motivational Interviewing is an advantageous tool when working with various student populations. The presentation will cover different areas of wellness, the aspects of wellness SCSU students want to focus on the most, the results of the assessment students' take related to wellness coaching sessions. As a presenter, I will talk about my experiences with Wellness Coaching from various points of view: as a student who has completed wellness coaching sessions, as a coach who has completed practicum experience and worked with students in one-on-one sessions, as an intern who has created Motivational Interviewing related content and served as a point person for new coaches. I will elaborate on how MI skills have enhanced and positively influenced my work with students in the advising office and helped me to improve my work with students based on their strengths, collaboration, and affirmations, acknowledging that students are the ones who are able to make best decisions for themselves.



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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Nevena Vasovic  
Muideen Akinade

**Faculty Mentor(s):** Jen Johnson

**Husky Compact Dimension:** Engage as a Member of a Diverse and Multicultural World

**Title:** Sexual Health Advocacy: a comprehensive wellness approach to promoting sexual health at SCSU

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**Abstract:**

Sexual Health is much more than S-E-X. Sexual health requires a positive and respectful approach to sexuality and sexual relationships. There are many facets of sexuality, including, but not limited to safe sexual practices, access to contraception, education and communication. Healthy Huskies, with support from Proof Alliance piloted new and unique program to promote sexual health and wellness at St. Cloud State University, with a goal to help students access sexual health supplies, education, medical screenings, and coaching. The aim of Sexual Health Advocacy program is to increase awareness of Fetal Alcohol Syndrome, reduce the risks of alcohol affected pregnancies and provide students support to practice safe and consensual sex. Along with the efforts by the Medical Clinic and Residential Life, St. Cloud State engaged in population-level efforts in the residence halls. Students were trained to serve as sexual health advocates who could educate their peers on the benefits of contraception and that no amount of alcohol is safe if you are pregnant. They also dispersed sexual health kits to increase contraceptive use among their peers. Through campus-wide student newsletters and social media, students were invited to discuss their sexual health and wellness with a CHOICES-trained coach. During these conversations, a coach spoke to students about their sexual health and safety, alcohol use, and best ways of reducing the potential for alcohol exposed pregnancy. Sexual Health Advocacy is a Proof Alliance grant funded program that will continue to serve students through Condom Club, a free monthly program that provides Saint Cloud State University students education on sexual health and condom use. \*Proof Alliance, formerly MOFAS, has been delivering awareness and education to pregnant individuals, and hands-on hope to those living with FASD, since 1998.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Kristina Woischke

**Faculty Mentor(s):** Hector Giovanni Antunez

**Husky Compact Dimension:** Act with Personal Integrity and Civic Responsibility

**Title:** Coalition to End Social Isolation and Loneliness in Greater St. Cloud

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**Abstract:**

Social isolation and loneliness can have a significant impact on emotional, physical, and psychological health, especially among older adults. National data shows that in the United States, 24% of older adults aged 65 and older are socially isolated. It also shows that 43% of older adults aged 60 and older report feeling lonely. As part of Greater St. Cloud Age Friendly, the Central MN Council on Aging and Whitney Senior Center with support of the United Way of Central MN the Coalition to End Social Isolation and Loneliness in Greater St. Cloud has formed. The goals of this coalition are:- Raise awareness of social isolation and loneliness as a public health issue and take action to improve connections and a sense of purpose among older adults. - Create a research-driven knowledge base to support and inform the coalition.- Improve detection and access to meaningful and culturally relevant resources and services.- Advocating for public policy solutions that combat the root causes and adverse consequences of social isolation and loneliness.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Oral Presentation

**Presenter(s):** Val Zenteno Carvajal

**Faculty Mentor(s):** Randal Baker

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Barriers to Solo Travel among Latinx Women

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**Abstract:**

Solo travel has become increasingly popular among all generations of women, but there have been limited studies among the Latinx community. Previous studies have described the motivations and experiences of women who traveled solo from all around the world. This research sought to identify perceptions and constraints experienced by Latinx women using personal interviews. The findings reveal how Latinx women from diverse generations balance the real or perceived dangers and barriers to solo travel in a social and economic framework, with the anticipated benefits of self-empowerment, independence, and social exploration.



## **Virtual Poster Presentations**



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Poster Presentation

**Presenter(s):** Hanan Barud

**Faculty Mentor(s):** Hector Antunez

**Husky Compact Dimension:** Act with Personal Integrity and Civic Responsibility

**Title:** Center For Victims of Torture (CVT)

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**Abstract:**

My project is about an organisation called CVT (Center for Victims of Torture). I will be presenting about their work and what they do. Center for Victims of Torture is a non-profit organisation based in St. Paul, Minnesota that provides direct care to torture survivors, trains partner organisations in the United States and around the world to prevent and treat torture, conducts research to better understand how to heal survivors, and advocates for an end to torture.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Poster Presentation

**Presenter(s):** Dicke Boucka

**Faculty Mentor(s):** Nathan Bruender

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Comparison of the Kinetic properties of wild-type pyrroline-5- carboxylate reductase enzyme with K75A variant

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**Abstract:**

Pyrroline-5- carboxylate reductase is an enzyme that converts pyrroline-5- carboxylate to proline. In humans, there are three types of pyrroline-5- carboxylate reductase genes: PYCR1, PYCR2, PYCR3. Pyrroline-5- carboxylate reductases 1 and 2 are found in the mitochondria, whereas pyrroline-5- carboxylate reductase 3 is found in the cytosol. Several studies show that PYCR is a potential therapeutic target in skin cancer treatment. However, a mutation of pyrroline-5- carboxylate reductase enzyme can cause metabolic and physiologic disorders. In fact, During the first four weeks of class, an experiment was done. The lab experiment consisted of introducing K75A variant in the Pro C gene of E coli bacteria. Then, a small quantity of Pyrroline-5- carboxylate reductase containing the K75A variant was purified through affinity Chromatography and SDS page was used to separate the protein. The wild type Pyrroline-5- carboxylate reductase enzyme function was tested by using L-4-thiazolidinecarboxylate (L-thiaproline) substrate with NAD<sup>+</sup>. A test of the function of Pyrroline-5- carboxylate reductase enzyme with K75A variant will be done as well. The results from this experiment will help to compare the Kinetic properties of wild-type pyrroline-5- carboxylate reductase enzyme and the Kinetic properties of pyrroline-5- carboxylate reductase enzyme with K75A.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Poster Presentation

**Presenter(s):** Mariam Elgarhy

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** The American Dream: A False Reality

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**Abstract:**

The United States, the land of the free. The country where everyone is accepted. The country that welcomes everyone and gives them the resources to succeed. The country that doesn't discriminate against anyone based on race. Americans are all taught this in schools from a young age, and have also been told to trust the criminal justice system to protect them. But looking at the criminal justice system from the perspective of a Black person, it's clear that the system shows favoritism to white people. It's all clear from the Black people's interactions with law enforcement, the use of force, the mistreatment, and the overwhelming amount of Black people (compared to white people) being given the death penalty that the criminal justice system isn't in favor of Black people.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Poster Presentation

**Presenter(s):** Xavier Fladung

**Faculty Mentor(s):** Nathan Bruender

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Analysis of Pyrroline-5-Carboxylate Reductase's affinity for variable substrates

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**Abstract:**

The enzyme of interest is a pyrroline-5-carboxylate reductase belonging to *Sinorhizobium meliloti*, which is a gram-negative bacterium responsible for fixing nitrogen in the soil. Pyrroline-5-carboxylate reductase is an enzyme that reversibly catalyzes the reaction of pyrroline-5-carboxylate (P5C) to proline, and in the process, NADPH is converted to NADP<sup>+</sup>. This reaction is important to both the creation of proline and its degradation for energy. Since P5C cannot be readily purchased, the kinetics of the reverse reaction will be analyzed by using proline. To study the specificity of the enzyme, different substrates will be used, including NAD<sup>+</sup>, and proline with sulfur inserted into the ring. Analysis will be conducted by mixing the purified enzyme with various substrates and measuring the change in concentration of NADH and NADPH via a spectrophotometer. NADH will be measured at 340 nm wavelength, and the optimal wavelength for NADPH will be determined experimentally. The goal of this experiment is to see how specific the enzyme is to its target substrates, and if it can serve secondary functions by catalyzing similar substrates.



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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Poster Presentation

**Presenter(s):** Michael Gelaw

**Faculty Mentor(s):** Nathan Bruender

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Purification and Characterization of S177A Variant of Pyrroline-5-Carboxylate Reductase

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**Abstract:**

Pyrroline-5-carboxylate reductase is an enzyme that catalyzes the last step in the biosynthesis pathway of the amino acid proline, a necessary building block for most proteins. Due to its critical function, the enzyme is conserved and found in organisms across all kingdoms. A handful of structures of the protein have been solved from different organisms, and kinetic characteristics have been determined. However, there is limited knowledge on the exact structure-function relationship. In this project, we aim to purify a bacterial homolog of pyrroline-5-carboxylate reductase and compare the kinetic behavior of the wild-type enzyme with the mutant variant S177A to infer a role for the Ser-177 residue. Considering that conserved residues are critical to a protein's function, we hypothesize that the S177A mutant will have a significantly lower enzymatic activity compared to the wild-type enzyme if Ser-177 is conserved. Starting from the known protein sequence, we performed a multiple sequence alignment using BLAST and Clustal Omega to identify conserved residues. Next, we used a pNIC28 plasmid vector containing the mutant proC gene for transformation and overexpression in *Escherichia coli*, after which we purified the enzyme using Ni<sup>2+</sup> affinity chromatography. Following confirmation of purification by SDS-PAGE analysis, we intend to perform a kinetic characterization of the mutant and wild-type enzyme using UV-vis spectrophotometry to track the rate of formation of the reaction product. Graphical analysis of the data will subsequently be employed to determine the kinetic parameters  $K_m$  and  $k_{cat}$  for comparison of values between the wild-type and mutant version of the enzyme.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Poster Presentation

**Presenter(s):** Emma Grossinger

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Engage as a Member of a Diverse and Multicultural World

**Title:** Inequality in the United States Healthcare System

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**Abstract:**

My poster presentation examines the multiple issues within the United States healthcare system including racial inequalities and difficulties. It also includes the examination of people's access to care and the issues with finding quality care. According to my research, adults with minoritized identities receive different healthcare attention compared to those with nonminority identities. My poster presentation also takes the perspective of healthcare providers, white nurses, white doctors and their responses to racial healthcare disparities. Raising awareness surrounding healthcare disparities can help to eliminate them. Lastly, my poster presentation shows how colour-blind ideology can be adapted to accommodate whites naming white advantage and potential racial discrimination. Understanding that people categorized as white will automatically have an advantage in the healthcare system compared to minorities. The most important thing to do when it comes to healthcare inequality in the United States is to educate yourself and my poster presentation will further explain why that is.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Poster Presentation

**Presenter(s):** Katarina Hansen

**Faculty Mentor(s):** Nathan Bruender

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Proline's Capacity to Inhibit Pyrroline-5-Carboxylate Reductase

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**Abstract:**

The wild type of pyrroline-5-carboxylate reductase, derived from the prokaryotic *Sinorhizobium meliloti* bacteria, reduces 1-pyrroline-5-carboxylate to proline. The enzyme also oxidizes NADH and NADPH to NAD<sup>+</sup> and NADP<sup>+</sup> respectively. The enzyme's structure will be studied to gain new information about the enzyme's inhibition mechanisms, as this would uncover a facet of proline biosynthesis. Both the product and the cofactors are crucial for cell survival; proline is a crucial amino acid, and NADH/NADPH are critical for cellular oxidation-reduction reactions, which prevent destructive radicals. As with any metabolic pathway, proline biosynthesis needs strict regulation to avoid deficiency or abundance of its products and reactants. For example, deficiency of the reductase would result in an overabundance of 1-pyrroline-5-carboxylate, which is linked to hypomyelination. The hypothesis to be tested is if proline competitively inhibits the enzyme's reverse reaction, as proline is the pathway's product and end products typically regulate the pathway's enzymes. There is some precedent for this hypothesis, as proline in plants has been shown to regulate proline biosynthesis. One method to ascertain the inhibition method would be to measure the concentration of NADPH and NADH produced as a function of time, in varying the concentrations of ligands and inhibitors. To measure the cofactor concentrations, UV spectroscopy could be used. The independent variables that could be changed would be the substrate and the inhibitor. Kinetic data will be presented to demonstrate if proline is a competitive inhibitor.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Poster Presentation

**Presenter(s):** Steven Hartley  
RandyPaulzine  
Hamza Kherallah  
Taylor Bollinger

**Faculty Mentor(s):** Aiping Yao

**Husky Compact Dimension:** Integrate Existing and Evolving Technologies

**Title:** Smart Bird Feeder

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**Abstract:**

Bird enthusiast put out bird feeders all year long to see the birds that live in their backyard. However, the only chance they ever get to see the birds is if they should happen to spot them through the window. They have no way of knowing exactly when the birds are eating the seed. We intend to create a smart bird feeder that collects data on birds and is accessible to a bird enthusiast through the cloud. These features include an easy interface to a phone app that records data such time, bird type, feeder food level, etc. This will be powered by a battery that is charged with a solar panel. From the phone app, users can livestream and record small clips from the app. These features will help provide information to a bird enthusiast throughout the day. This allows them to both enjoy the feeder all day and tailor the food to the type of birds visiting the feeder. The smart bird feeder uses both hardware and software as well as internet networking. This project touches each aspect of the ECE department disciplines. We will use our knowledge of microprocessors and hardware design to power each component. We are also going to be going further with our learning by exploring app-based software and renewable energy. This project supplies the requirements of both the electrical and computer engineering major requirements of a capstone project. This is required for the ABET accredited program in order to graduate.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Poster Presentation

**Presenter(s):** Michelle Lanam

**Faculty Mentor(s):** Matthew Davis

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** Historical Biogeography of Lizardfishes (Aulopiformes)

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**Abstract:**

Lizardfishes are a group of marine fishes that include ~250 species among 44 genera distributed in every ocean on the planet. They are key predators in their marine habitats and are a unique lineage with species found in a variety of environments ranging from shallow coral-reef environments, the expanse of the open ocean, to the very bottom of the sea floor. Despite being widespread across the globe in a variety of oceanic environments, no study has ever investigated the biogeographic patterns associated with how different lineages of lizardfishes came to invade these varying habitats and locations in our oceans. The objective of this study is to synthesize information regarding the tree-of-life for lizardfishes using genomic data with locality information for each species to infer the biogeographic patterns through time for lizardfishes. By doing this we can address the following questions: 1) Where on the planet did the common ancestor of Lizardfishes likely first evolve and in what kind of habitat (coral reef, open ocean, deep sea)? 2) What is the evolutionary timing and pattern of distribution associated with how lizardfishes spread across the globe to invade all of the Earth's oceans leading to our present day observed species distributions?



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Poster Presentation

**Presenter(s):** Grace Larson

**Faculty Mentor(s):** Joseph Baker

**Husky Compact Dimension:** Act with Personal Integrity and Civic Responsibility

**Title:** Culturally Responsive Pedagogy: Using Mandated Texts and Remaining Culturally Responsive in the Classroom.

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**Abstract:**

This study examines preservice teachers' perceptions of culturally responsive pedagogy in classrooms using district or state-mandated texts and materials. Results and discussions for preservice teachers are outlined.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Poster Presentation

**Presenter(s):** Wengelawit Molla

**Faculty Mentor(s):** Nathan Bruender

**Husky Compact Dimension:** Seek and Apply Knowledge

**Title:** The Investigation on the Effect of Asn123Gly mutation in the Enzyme Pyrroline-5-Carboxylate Reductase

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**Abstract:**

In this experiment, we are studying the enzyme pyrroline-5-carboxylate reductase from *Sinorhizobium meliloti*. Bioinformatics proposed that the enzyme catalyzes the reduction of pyrroline-5-carboxylate to L-proline using NAD(P)H, which is the final step in proline biosynthesis. The purpose of this experiment is to study the effect of the point mutation of asparagine 123 to glycine on the enzymatic activity of the enzyme. The mutation was generated using site-directed mutagenesis to change the GGT codon to CCA in the proC gene. The mutation was confirmed via DNA sequencing and the gene was recombinantly expressed in *Escherichia coli* Rosetta 2 (DE3) cells for protein overproduction. The protein was purified using Ni-NTA affinity chromatography to >90% purity (determined by SDS-PAGE). The effect of the mutation on the function of the enzyme was determined using a continuous kinetic assay following the oxidation of the L-proline analog L-thiazolidine-4-carboxylate using NAD(P)<sup>+</sup> and monitoring the formation of NAD(P)H at 340 nm on a UV-visible spectrophotometer. The effect of the point mutation on the enzyme catalytic activity and its significance will be presented in this poster.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Poster Presentation

**Presenter(s):** Hodan Rashid

**Faculty Mentor(s):** Steven Anderson

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Social Media: Disadvantages

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**Abstract:**

Social media and the internet have allowed us to do amazing things, such as communicating across the globe. However, we fail to see the pitfalls that screen time can have on us. Although there are many benefits of social media, there are also negative effects it has on people. Social media has a huge negative impact on mental health. The usage of social media has increased through the last decades. The more people are using social media, the greater impacts it has on mental health. There are different age ranges that social media has a big effect on their mental health. The most affected are teenagers. In my presentation, I will be talking about the negative aspects of social media and the effects it has on people, especially teenagers. Also, this paper will explore the negative factors of social media, including toxic standards of beauty and the epidemic of photoshop. Research has shown that these aspects of social media are contributing to poor mental health. I will be breaking down the people that are affected based on their ages, sex, type of mental health, years, etc. The earlier teens start using social media, the greater impacts it has on mental health. Also, how they are influenced by social media and the toxic beauty standard. Again, most of the affected people are teenagers. Not only because of social media but because of the fake image celebrities portray online. Usage of social media is increasing and so is the negative of it. Lastly, this paper will also determine the growing effects of self-image social media is causing.





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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Poster Presentation

**Presenter(s):** Aaron Soderholm

**Faculty Mentor(s):** Scott Baker

**Husky Compact Dimension:** Engage as a Member of a Diverse and Multicultural World

**Title:** Culturally Responsive Pedagogy: Social Studies Education on Incorporating Student Culture in the Classroom

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**Abstract:**

Culturally Responsive Pedagogy (CRP) in social studies considers student's diverse cultures, but teaches about subjects not included in typical curriculums such as "slave revolts, the Black Panthers, and the Los Angeles Riots (Aronson & Laughter, 2012, p. 187). Sleeter (2013) offers, "combining complex instruction with a multicultural curriculum" (p. 9), teachers discuss and analyze works, but also asks questions about what history was and who decides the narratives. One component crucial to social studies education from a CRP and Social Justice Teaching (SJT) perspective is the incorporation of varied perspectives and teaching students to listen (Dover et al., 2016; Fitchett et al., 2012; Sleeter, 2013). The application of CRP and SJT methods in social studies classrooms can only help students. As many of the case studies found in the research pertained to teachers already in the field and did not concern preservice teachers in social studies tracks, research is needed to see how culturally responsive educator preparation impacts the actions of preservice social studies educators. This study investigates how student culture can be represented in a social studies classroom from a preservice teacher's view. It also explores whether preservice teachers feel they have had ample training throughout their college career to adequately represent student culture in their classrooms.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Virtual Poster Presentation

**Presenter(s):** Katie Thomas

**Faculty Mentor(s):** Hector Antunez

**Husky Compact Dimension:** Act with Personal Integrity and Civic Responsibility

**Title:** SCSU Community Health (HLTH 446) Internship Experience in the Cardiac Rehab Heart Center at the St. Cloud Hospital

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**Abstract:**

This Internship experience was completed through SCSU in the Community Health Program HLTH 446. This poster will explain the opportunity I had working in the Cardiac Rehab CentraCare center at the St. Cloud Hospital. Through this experience I had the opportunity to work in the heart center rotating through the stress lab, inpatient cardiac rehab, and outpatient cardiac rehab. I will talk about my experience through each center explaining what I did in that specific center, what I learned, and what I enjoyed the most. I will explain the goals I had and if they were met, and the timeline I was interning in the facility. I will also talk about my journal entries that was required after each week through the HLTH 446 Internship class and pull out the important information I feel is appropriate to share and helpful to share. I will also give some background on my experience with the whole internship. In that I will explain the process I went through to get this opportunity. I will also do this by explaining how I felt during the internship, what was difficult, what was easy, what I liked, what I did not like, etc. In the end, I will reflect on the experience I had and everything that came along with it.

## **Creative Works Presentations**



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Artistic Performance

**Presenter(s):** Teng Yang  
Gavin Smith

**Faculty Mentor(s):** Jennifer Tudor

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Grief Comes as an Old Friend

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**Abstract:**

My partner (Gavin Smith) and I (Teng Yang) are huge music enthusiasts and are looking to present a song talking about grief, loss, and sadness as part of a project in our class. In the class CMST 410, there were a lot of discussions centered around death or the multitude of forms it can take. Every topic was a different interpretation of what death is, but every conversation always came back to what death means to people, how people cope with it and how people use different mediums to express it. Of the multiple discussions had, a few stood out the most and are the source of inspiration for this song. Listening for Echoes is an online narrative of grief that talks about a man trying to comprehend and come to terms with his brother's death even though he passed away a long time ago. The things he wishes he had said or done, had he known that it was his last time seeing his brother, are the main inspiration for the song. Learning about hauntology and our infatuation with the past as well as Jimmy Carr's grief cast about music being a platform of preaching is what convinced us about doing a song for our project.

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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Demonstration

**Presenter(s):** Ashley Wenonah  
Anna Roggeman  
Maria Barkley

**Faculty Mentor(s):** Matthew Vorell

**Husky Compact Dimension:** Integrate Existing and Evolving Technologies (Dimension of the Year)

**Title:** Medley Mirror

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**Abstract:**

In the fall semester of 2021, the three of us partnered up randomly to study Divergent Stars Theatre Company for our Teams, Innovation, and Communication course. We spent several audition sessions and rehearsals studying the theatre troupe in their unconventional performance space and set out to address problems they were having with poor lighting and lack of mirrors in the dressing room. We did an empathy experiment where we came up with our main insight, “we can’t see or pee!” Due to a shortage of bathroom access for the performers as well. Unfortunately, we are not plumbers, so we couldn’t assist them with their toilet-related issues, but after several iterations and mock ups, we created the Medley Mirror. It is a series of square panels that are magnetized on the sides that can be attached in various ways to create large mirror panels that can be mounted on the wall or hung from a hook. There is also a detachable light element to help with poor lighting in the space. After spending more time with the prototypes, we think this could be an innovative solution for more than just actors. The Medley Mirror could be a great tool for photographers with changing locations, students living in dorms, or anybody who could use a modular mirror solution in their life.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Gallery Exhibit

**Presenter(s):** Jozi Tainter

**Faculty Mentor(s):** Jennifer Tudor

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** Me?

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**Abstract:**

Hauntology is the philosophy of history that upsets the natural progression of time by proposing that the present is comprised of the past and future. This mixed-media piece pulls from Jacques Derrida and my own experiences combined with grief. As a young woman developing into my own in this day and age, I have felt that I have been asleep or the past two years and have finally began to see how my life has been composed. This piece is very intimate to myself and its creation is my grieving process to the person I once was and who I am becoming.

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2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Gallery Exhibit

**Presenter(s):** Emilia Ramsey

**Faculty Mentor(s):** Jennifer Tudor

**Husky Compact Dimension:** Communicate Effectively (Dimension of the year):

**Title:** Loss of Self

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**Abstract:**

Loss of Self is a personal showing of how the process of how growing up—and changing as a result—has affected the way I see myself. As people, we're constantly changing and growing, and it can happen so fast that we don't even realize. Sometimes when this happens, we forget to reflect on ourselves until we're a completely different person to who we were even just a year ago. My hope is to show this emotion through mixed media including a diorama, photos/videos, a painting, and spoken word. The idea of this project is for the visitors to feel a little overwhelmed by the different types of media. It's supposed to feel messy while still trying to convey the feeling of losing oneself. Some of the topics I'm bringing in from my class are grief, hauntology, online presence, environment, and miniature art. Even though this is my personal experience, I hope it can help other people not feel alone if they are struggling with similar thoughts. I would like to talk to the visitors after they walk through my project to understand their thoughts. It would be nice if we could have a discussion of these feelings, facilitated much like the discussions we have in class about topics mentioned earlier.



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## 2022 HUSKIES SHOWCASE ABSTRACTS

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**Presentation Type:** Gallery Exhibit

**Presenter(s):** Elizabeth Mitchell

**Faculty Mentor(s):** Jeff Hegle

**Husky Compact Dimension:** Think Creatively and Critically

**Title:** On The Other Side

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**Abstract:**

I have been documenting the Huskies Swimming and Diving Team's season for the past 3 years. I have always been interested in photography and videography but I had never taken it seriously before I was given the opportunity to be the Team's unofficial "official" photographer and videographer. This gallery exhibit will showcase my progress in sports photography from my experiences with the SCSU Swim & Dive Team!