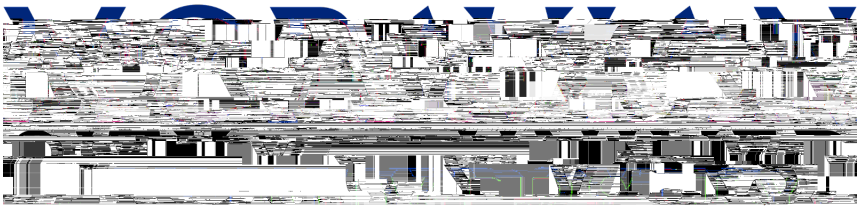

The 18th Annual Undergraduate Student Scholarship and Creative Endeavors Day

April 18, 2023

This year's scholars day includes 90 students, representing 17 different areas of study. Congratulations to these student-scholars for all of their accomplishments, and many thanks to their 25 faculty sponsors.

Since the inception of Scholars Day 17 years ago, 1,211 students have shared their scholarly work with the Moravian University community.

Schedule of the Day

11:00 a.m.	**Welcome and Opening Remarks**
11:00 a.m. – 12:15 p.m.	**Session I: Oral Presentations**
12:00 p.m. – 1:00 p.m.	**Student Poster Presentations I**
12:30 p.m. – 2:05 p.m.	**Session II: Oral Presentations**
3:30 p.m. – 4:25 p.m.	**Session III: Oral Presentations**

Acknowledgements

The 18th Annual Moravian U

The 18th Annual Moravian University Und

SESSION III

Oral Presentations
Session III: Moderator - Dr. Axel Hildebrandt
HUB: Air Products Room

3:30 PM	Brian Utzat	Modern Languages and Literatures, Economics	Drs. Axel Hildebrandt and Eva Marikova Leeds

The Impact of COVID-19 Policies in Germany and the United States

3:50 PM	Nathan Pynchon	Modern Languages and Literatures	Dr. Claudia Mesa

Contradictions in Faith: Christianity's Use in "The Interesting Narrative of the Life of Olaudah Equiano, or Gustavus Vassa,

POST

Scott Kornfeind	Biological Sciences	Dr. Sara McClelland
The Fate of Microplastics in Anuran Larvae		
Gwen Kester	Biochemistry	Dr. Shari Dunham
DNA and Protein Binding Kinetics of Novel Dirhodium Complexes		
Luke Assande	Psychology	Dr. Sarah Johnson
The Effect of Visual and Verbal Working Memory Factors on Time Perception		
Jack Wagner	Computer Science	Dr. Jeffrey Bush
Moravian Cheese Hounds		
Hayley Carroll	Biological Sciences	Dr. Christopher Jones
Molecular Analysis of Drosophila Seizure Mutations		
Aidan Malloy, Braden Kirkpatrick, Yousuf Kanan	Mathematics	Dr. Nathan Shank
A Study of Solo Chess and Strategies for Solvability		
Maria Rabih	Chemistry	Dr. Shari Dunham
Identifying		

POSTER SESSION II

4:00 PM - 5:00 PM
Poster Presentations II
PPHAC Atrium

Students		Advisor
Helen Meckstroth	Sociology and Anthropology	Dr. Adams O'Connell

Social Media Usage and Levels of Consumerism of College Students in the United States

Vanessa Gabovitz

A Slice of Moravian's History

Jillian Connelly

Students: M

Meniere's disease is a disorder of the inner ear characterized by intermittent tinnitus, a sense of pressure in the ear, vertigo, and progressive permanent hearing loss in one or both ears. A first-year college student with a focus on psychology and music, who developed hearing loss due to Meniere's disease was interviewed for a class project. Due to the low prevalence of Meniere's Disease in young adults, the opportunity to interview a young adult with the condition was a unique learning opportunity. During this presentation, we will discuss how hearing loss has an impact on this student's college performance and the unique accommodations, modifications, and coping strategies she uses to navigate music lessons, music performances, and live well with her hearing loss. Furthermore, we will provide an overview of (1) the unique challenges and adjustment options available on modern hearing aids for music perception and (2) the impact of frequency-specific hearing losses on musicians' performance. The importance of effective coping strategies and accommodations that college students can use to handle their hearing loss and achieve success will be highlighted.

At the start of the COVID-19 pandemic, Germany and the United States both experienced an economic decline, which was accompanied by rising unemployment rates. In this Honors Thesis, I examine the different economic policies adopted at the onset of the pandemic in Germany and the United States and their effect on the labor market. I argue that Germany's methods at preventing a large increase in unemployment was superior to the U.S. approach of allowing the unemployment rate to rise and providing cash and insurance payments to support their workers. I also assess the effects on German and U.S. employees of the corporation B. Braun during the pandemic.

Students: Nathan Pynchon
Advisor: Dr. Claudia Mesa
Location: Air Products Room 3:50 PM - 4:05 PM

This essay explores how, in "Olaudah Equiano's Interesting Narrative" (1789), Christianity is used as a tool to persuade English parliament to abolish the transatlantic slave trade. I put forth in this argument that Equiano utilizes Biblical references to connect his Christian faith to that of his intended audience in order to demonstrate the disconnect between their actions and that of true Christians. Through comparing his experiences to those of Biblical narratives, Equiano forces readers to examine their own beliefs. During this process, readers are intended to discover that their actions (that of supporting, or permitting, slavery) are contrary to their mutual set of ideals, thus exposing the tension between their faith, both in theory and in practice.

Students: Sophia Shienvold
Advisor: Drs. Anastasia Thévenin and Shari Dunham
Location: Air Products Room 4:10 PM - 4:25 PM

Cisplatin, a well known and effective chemotherapy drug, has many undesirable side effects. Complexes of rhodium, which have similar properties to platinum, are being explored in our laboratory to determine whether they are as effective as cisplatin at killing cancer cells. We have tested the cytotoxic effects of two rhodium complexes, Rh2(butyrate)4 and Rh2(acetate)4, on HeLa cervical cancer cells, and we aim to determine how well and where these complexes enter and target. HeLa cells were treated with each compound, then bursted before rhodium and platinum levels were quantified by graphite furnace atomic absorption spectroscopy. The amount of compound in relation to the total protein amount

Student Poster Presentations I

HUB Gallery

12:

want to move on to identifying patterns in cycle graphs with one cord. Once we can generalize for cycles, we would move into adding multiple cords until we get to complete graphs.

Students: Gabrielle Demchak
Advisor: Dr. Nathan Shank
Location: HUB Gallery

In this project, we [illegible] bility of networks represented by mathematical graphs that consist of n vertices and m edges. Spec[illegible], we explored the Harary Index as a measure of network reliability. The Harary Index is defined as the sum [illegible] al distances between all pairs of vertices in a graph and relates to its connectivity and diameter. We [illegible] Harary Index of various graphs and graph classes, such as complete graphs, bipartite and m[illegible] raph[illegible]cles, paths, and binary trees. Our focus, however, was on how this index changed when a graph was [illegible] ugh single edge-removal. Intuitively, we sought to larger change in

In this project, we define and explore properties of magic squares that have been redefined in terms of modular arithmetic. Then, we apply these properties to magic/Latin squares to construct Sudoku boards that are similarly defined to the sub-squares. A question we answer is, are these expanded boards possible and solvable? Additionally, we demonstrate the properties of unsolvable boards, along with patterns that may exist within boards.

Students: Grainne Schroeder
Advisor: Dr. Bob Brill
Location: HUB Gallery

Research has shown mindfulness-based interventions to be associated with decreased psychological struggles. The present study aimed to investigate whether breathing and self-compassion would positively enhance the well-being of subjects. Participants

Students: Jacob Freeh
Advisor: Dr. Kara Mosovsky
Location: HUB Gallery

Burkholderia pseudomallei is a gram-negative bacteria that causes melioidosis, which is a serious and potentially deadly disease. In the present day it is difficult to treat melioidosis,

Advisor: Dr.

identify the sequence change responsible for the "bas" seizure mutation. The sequence of the identified "bas" gene was amplified with PCR using three primer pairs to sequence the entire gene. Once all of the sequence data for each stock of mutants is collected, the mutant sequences will then be compared to the wild type sequence in order to determine the source of the bang-sensitive mutation.

Students: Aidan Malloy, Braden Kirkpatrick, Yousuf Kanan
Advisor: Dr. Nathan Shank
Location: HUB Gallery

In this study, we attempt to analyze Solo Chess, a modification of classical chess, with new parameters. Our analysis is targeted to the solvability of various forms of this game, as well as subsequen×

In this study, we explore various techniques used for scientific illustration as we study the diversity of the harvestmen family Cosmetidae (Arachnida: Opiliones: Laniatores) with a focus on Cuban species. Based on a recent molecular phylogeny of the family Cosmetiade, we were able to group most cosmetids of Cuba into two valid genera: Cynortoides and Cynortellana. Illustrations and high-quality photographs are important components that complement a written species description. The detailed study of the morphological structures enables us to identify synapomorphies for genera that were delimited using the molecular phylogenetic framework. By understanding and exploring the cosmetid harvestmen of Cuba, we can learn to better define genera in this mega-diverse family and apply these approaches to other genera in the continental Americas.

Students: Melody Fermin
Advisor: Dr. Daniel Proud
Location: HUB Gallery

Harvestmen, known as daddy longlegs, are incredibly diverse throughout the Greater Antilles but most families are very poorly studied. There are currently nine described species of harvestman in the family Cosmetidae that are known from the Dominican Republic. While studying samples collected in 2014, we have identified 12 morphospecies, of which only two represent previously described species: Cynortoides v-album and Arucillus armasi. In this study, we aim to elucidate the true diversity of the family Cosmetidae and understand how the species are related to one another. High resolution photographs were captured using a camera mounted on a stereomicroscope, and detailed studies of the morphology are underway. In addition, we extracted DNA from the morphospecies and will amplify three gene regions (16S, COI, and 28S) to better understand how these species are related to one another and other species throughout the Caribbean Islands.

Student Poster Presentations II

The reaction be

hydrosilylation of esters. The breadth of this approach was investigated by probing the reduction of a variety of esters with different steric and electronic properties. The

GJ assembly at the plasma membrane, opening and closing of GJs, as well as GJ internalization and degradation. Cx43 C-terminus contains a binding region for the oncogenic protein Src which is up-regulated in many types of cancers. Recent work in our lab has identified that phosphorylation of S373 on Cx43 C-terminus results in greater binding, and therefore inhibition, of Src to Cx43 ev

in a room with a lamp emitting a colored light from it. Their heart rate will be measured to examine how the color of light in the room affected their anxiety and promoted any sort of calmness in the participants. The hypothesis of this experiment is that blue or purple lights will decrease test anxiety and increase performance, and red light will increase test anxiety and decrease performance on an exam. If the hypotheses are supported, this could aid in the development of more comfortable classroom environments for students during exams.

Faculty Mentor: Dr. Shari Dunham

Gabrielle Rader:

, National Student Nurses' Association Conference, April 2023
Faculty Mentor: Dr. Elise Colancecco

National Student Nurses Association, April 2023
Faculty Mentor: Dr. Elise Colancecco

Macy Rauch.

Pennsylvania Chapter of the American Physical Therapy Association Annual Conference (MovePA), October 2022
Faculty Mentor: Dr. Kimberly Wynarczuk

Rachael Shaffer:

, Landmark Conference Research Symposium Inbox, July 2022
Faculty Mentor: Dr. Eric Sanders

National Conference on Undergraduate Research, April 2023
Faculty Mentor: Dr. Eric Sanders

Sophia Shienvold:

NCUR, April 2023
Faculty Mentor: Drs. Anastasia Thévenin and Shari Dunham

Landmark Conference, July 2022
Faculty Mentor: Drs. Anastasia Thévenin and Shari Dunham

Isabelly Silva.
April 2023
Faculty Mentor: Dr. Anastasia Thév

Rebecca Skibo. Undergraduate Research at the Capitol:
Pennsylva

Honors 2022-2023

Spring 2022-Fall 2022 (Projects completed)

Delanie Crabtree
Advisor: Dr. Sara McClelland
Biology and Neuroscience
The EXects of an Ecologically Relevant Level of Malathion on the Behavior and Neurodevelopment of the Model Organism Northern Leopard Frog Tadpoles

Scott Kornfeind
Advisor: Dr. Sara McClelland
Biology
Understanding the EXects of Microplastics on Anuran Larval Development

Tyler Rivera
Advisor: Dr. JeXrey Bush
Computational Neuroscience
Impacts of Synaptic Plasticity Within the Cerebellar Golgi Cell Circuit

Fall 2022-Spring 2023 (Projects will be completed by the end of Spring 2023)

Kaitlyn Austin
Advisor: Angela Fraleigh
Studio Art
Fable Court -

Jillian Connelly
Advisor: Dr. Joshua Lord
Biology
Impact of Ocean Acidiscation on Predator Avoidance Behavior in Shrimp

Brooke Coonrod
Advisor: Dr. Kara Mosovsky
Biology
Understanding the Mechanism of Seleno-L-Methionine Protection of Burkholderia-Infected Mac

Garrison Koch
Advisor: Dr. Nathan Shank
Mathematics
Evaluating Properties of Fractal Type Geometric Graphs

Kyle Laub
Advisor: Dr. Daniel Proud
Biology

How Added Sugar AΧects Nutrient Intake in School-Aged Children

Lila Shokr
Camille Murphy
Graphic and Interactive Design
Ecological Impact of Experiential and Environmental Design: Sustainable Solutions

Brian Utzat
Drs. Eva Marikova Leeds and Axn