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The 13th Annual Moravian College Undergraduate Student Scholarship and Creative Endeavors Day April 17, 2018



Schedule of Events

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Acknowledgements

The 13th Annual Moravian College Student Scholarship and Creative Endeavors Day would not have been possible without the commitment of many people at Moravian College.

In addition to all of the participating students and faculty listed in this program and all other faculty and students who collaborated on research projects this year, we would like to acknowledge the contributions of the following individuals and offices:

SESSION III

Optimizing Cyclization of LamD Derivatives in Preparation for Bioassays of Lactobacillus Plantarum

The Jewish American Immigrant Experience and the Superhero Genre

*Peace Education Film
(Digital Research Project)*

SESSION IV A

The Effect of the Dietary Antioxidant Seleno-L-Methionine (SeMet) on Burkholderia Thailandensis Infected Macrophages

Psychological and Sociological Effects On Concussions

The Inclusion of Kinesio Tape Into Our Society

SESSION IV B

Life Histories: Methodology and Tool for Moravian Biographies

The Flaws of Error Theory

Methods and Protocols in Place for Refugee Students in the Lehigh Valley

SESSION V A

POSTER SESSION I



*Interstrand Cross-Linking of a DNA Duplex by Rhodium
Complexes*

Synthesis, Characterization, and DNA-Binding of a Novel Rhodium Complex

POSTER SESSION II



Student Oral Presentations I
HUB, UBC Room
8:55 - 10:05 AM

Moderator: Dr. Brenna Curley

Title: Exploration of Potential Energy Functions of the Four Triplet Pi Electronic State of NaCs

*One area of research in physics is determining the potential energy of diatomic molecules, which can be used to describe the interaction of the particles and analyze other properties of these systems. This information has applications for Ultracold atoms, which are investigated for uses in quantum computing due to their unique properties. Under consideration in *ntins*, $d^{\hbar}n$*

Student Oral Presentations II A
HUB, UBC Room
10:20 – 11:10 AM

Moderator: Dr. Carolyn Mitten

Title: Do You Speak the Language? Teaching ELLs Mathematics

In many urban public schools, English Language Learners (ELLs) from many cultural backgrounds make up a significant percentage of the student body. In order to succeed in their academics, these students face the dual challenge of learning the English language and regular academic content. In this talk, we will discuss specific challenges ELLs in local schools are facing and discover strategies to help them learn mathematics. We can only be sure we are educating our students if we know they understand how we communicate.

Title: Multi-sensory Phonics Intervention for Students At-Risk for Reading Development

This project looked at how the Home Literacy Environment and intensive, multi-sensory reading intervention affected student academic achievement in reading. Through my research, I found evidence-based multi-sensory reading ¥

Title: Tourism and Poverty: The Effects of Rural Tourism on Homeless and Impoverished Communities on The Oregon Coast

Concussions have been a very popular topic in the media and in
regarding some of the long term side effects that have been newly
ranging from sports to the military, but they can also affect children
and or long term effects. This presentation will take on a psychological
a student athlete specifically in coming forward about concussion symptoms
looks at how society and peers also may determine whether an athlete
and also how they may also affect the recovery period. It was found that
education all affected whether an athlete would come forward when they were
are also provided alternatives to reduce the concussion risk such as changing
usual ~~normal~~ ~~kinesio~~ ~~tape~~ ~~performed~~ prior to practice and games.

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Title: The Inclusion of Kinesio Tape Into Our Society

*Kinesio tape, (K-tape) created in 1979 is an important tool that is used to help
their personal best. One of the unique aspects of this tape is that nearly anyzi e*



arguments, and, consequently, by demonstrating how Moral Realism is

foreign invasions have been commonplace, often a result of power struggles or intense greed. For England specifically, the Viking invasions and the Norman Conquest are indicative of such avarice and contention; they demolished significant buildings, destroyed texts, and incited horrendous bloodshed, all with the sole intention of accumulating wealth or winning the right to rule over the land. Yet, despite the carnage and devastation caused by both events, the English language indire_

Title: Mental Illness and its Impact on Recovery

A look into the growing research of Mental Illness and its'gr t

The CRISPR/Cas 9 system has revolutionized genomic engineering, and Drosophila melanogaster is widely used for molecular genetic investigations, specifically in the characterization of newly discovered mutations. Research has shown that foreign DNA can be transported across the membrane of Drosophila embryos through electroporation, and this DNA can be transiently expressed. Here, we confirm transformation via electroporation in Drosophila embryos using EGFP expression from plasmid and discuss the results and proposed optimization for a stable transformation using CRISPR/Cas9. We determined that more trials are required to assess the efficiency and practicality of this genomic engineering system.

Title: Synthesis of a Bimetallic Compound for DNA Binding Studies

Dirhodium compounds have been shown to demonstrate anti-tumorigenic properties, which may be useful for the development of chemotherapy drugs. This experiment investigated the synthesis of an inorganic bimetallic compound in order to study its binding to DNA. Even though this compound has had several papers published on its catalytic properties, it has not been made commercially available. Two different methods of synthesis were utilized throughout this research project in hopes of making enough of the bimetallic compound to test DNA binding kinetics. The challenges of overcoming air sensitive properties associated with the intermediate required for synthesis proved difficult in obtaining a yield high enough for tes reri

form interstrand cross links with the duplex of DNA and prevent it from denaturing into

family and counted; each taxon has a corresponding tolerance value which is used to calculate the habitat and water quality according to the Hilsenhoff Biotic Index. From these analyses, I have been able to document the effects that each dam has on the macroinvertebrate community. Overall, the quality of water is poorer above the dams due to the increase in sedimentation and temperature behind these barriers. With this research, dam removal was taken into consideration as an option for restoring aquatic environments in 2 of the 3 sites tested, the Millbrook Dam in the Little Lehigh Creek and the Mr

Title: Traumatic Brain Injuries: Understanding the Mechanism of Injury, Psychological Impact and Rehabilitation/Preventative Interventions for Adult Athletes (InFocus Themed Research)

The purpose of this research is to explore the general database, describe common understandings and explain interventions in concern to traumatic brain injuries in adult athletes. In doing so, three perspectives will be examined. First, traumatic brain injuries will be analyzed biologically. Understanding the mechanism of injury will helpZr

for this experiment. Several notable activators of the QS circuit were discovered, including I12NV, I12NL, L13NV, and L13NL. I12NL was the most surprising result with an EC50 value of 6.7 nM, which is 2-fold more potent as an activator than the native CSP1 peptide. These tests revealed important information about the binding region of CSP1.

Title: Derivatization of 6-acetylmorphine and Norfentanyl for GC-MS Analysis (InFocus Themed Research)

The Lehigh Valley is currently in the grips of an opioid epidemic. Between 2014 and 2016, hospital stays due to an opioid overdose have increased by 66%. The deaths related to opioid overdoses in 2016 were double that of both 2014 and 2015. Since these drugs are highly prevalent in the Lehigh Valley and they - or their metabolites - will eventually reach wastewater, testing of wastewater can be used to determine the amount of these drugs present. Heroin and fentanyl, specifically, have been big players in the opioid crisis, so their metabolites are important to test in

Fig. 6. 2. 2016 260

Graduating high school is a common aspiration for many individuals and a prerequisite

predator-prey\$

Enhancing Knowledge, Co-responsibility, and Family Planning Competencies in a Population of First-year College Students.

The Interrelationship of Text and Music in Selected Operas of Giacomo Puccini

, Supporting Literacy Development through Multimodality in Secondary Education

An Analysis of Anti-herbivore Defenses in Triplaris Americana

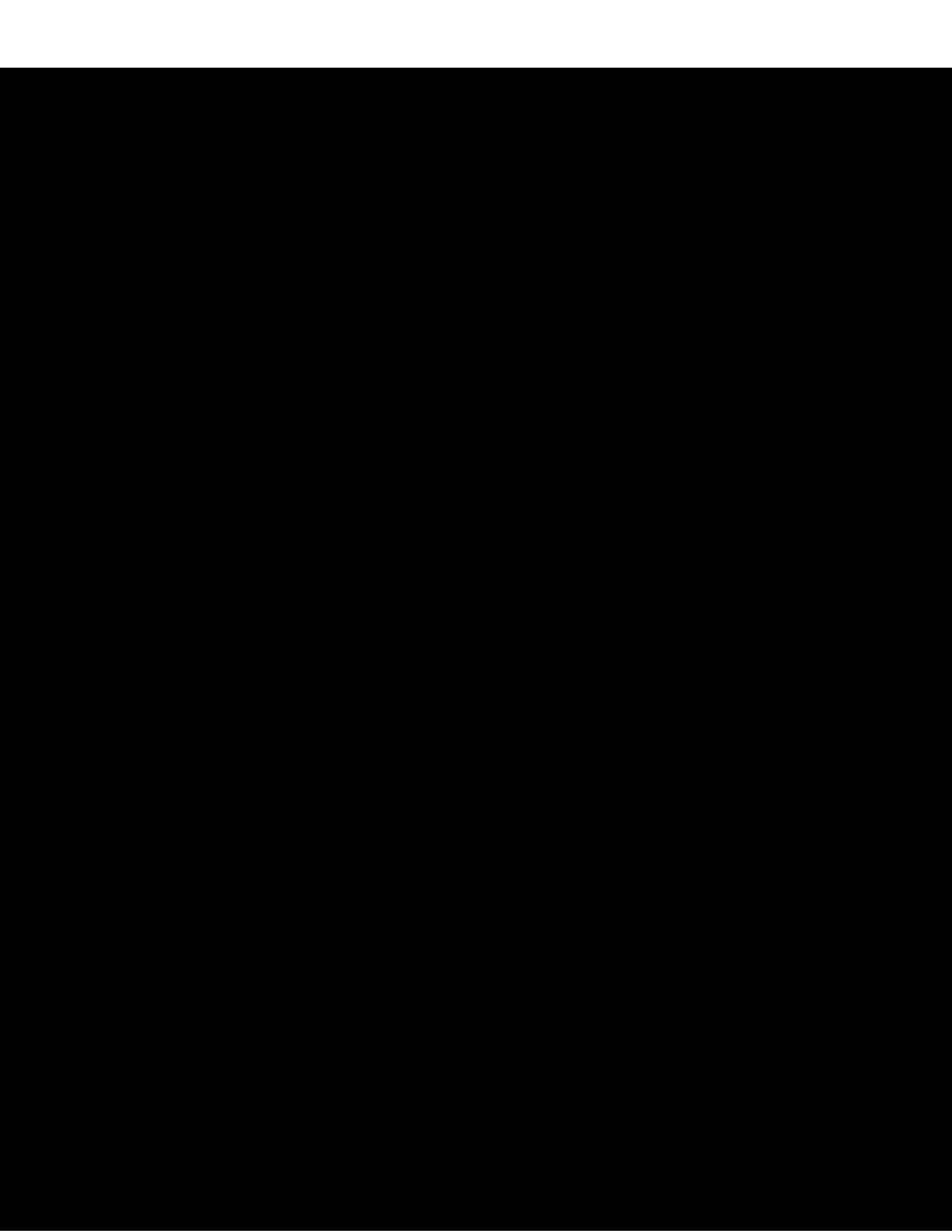
A Social History from the Carter Papers

Exhibition Opening Reception: Thursday, April 19, 6:30-8:00 pm

Exhibition runs through graduation

Exhibition Closing Reception: May 12, 2:00-4:00 pm

2017 SOAR Summer grant



National Conference on Undergraduate Research, April 2018:

