

Tower Day 2016

Columbus State University

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HONORS COLLEGE
COLUMBUS STATE UNIVERSITY



The Tower Day 2016 cover was designed by **Darby High** who is an honors student double majoring in Special Education and Theatre Education.

The cover design of *Abstract Annual 2016* (highlighted on the back cover) was created by **Julianna Wells** who is an honors student majoring in art.

Columbus State University
Tower Day 2016
A Showcase of Undergraduate Research and Creative Scholarship

Tower Day is the annual showcase of undergraduate research and creative endeavors that is the cornerstone of the Academic Week of Excellence. Students from all disciplines have been invited to present their scholarly activities to our community to share their discoveries and inspire others to study in and learn more about their fields.

All undergraduate researchers are invited to submit an abstract of their work to Columbus State University Abstract Annual which will be published May 2016. Full papers may be submitted to Momentum, Columbus State University's Journal for Undergraduate Research and Critique.

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Event Websites and Undergraduate Research Resources

Research Grants	https://aa.columbusstate.edu/student_RACE_grants.php
Abstract Annual	http://research.columbusstate.edu/undergrad/abstracts.php
Momentum.....	http://momentum.columbusstate.edu
Tower Day	http://research.columbusstate.edu/undergrad/towerday/

Tower Day Sponsors

Today's event is being supported by the Columbus State University Honors College

Colloquium Schedule

- 10:00 am – 11:00 am **Registration and Poster Set Up**
- 11:00 am – 12:00 pm **Keynote Addresses**
Davidson Auditorium
- 12:00 pm – 1:30 pm **Poster Session**
Schuster 130 and Columbus Room
- Student Art Exhibit**
Davidson Cougar Lounge
- 3D Printing Demonstration**
Davidson Cougar Lounge
- 1:15 pm – 4:50 pm **Concurrent Research Presentations**
Davidson Center 254, 256, and 258
- 5:15 pm – 6:00 pm **Award Ceremony**
Davidson Auditorium

Keynote Speakers



Unscripted Future: Solving the Problems of Public Memories

Dr. Mariko Izumi
Director, Office of Quality Enhancement Plan
Associate Professor, Communication Department



"They'll make a Cripple dance:" John Bunyan's Moral Model of Disability in *The Pilgrim's Progress*

Jarred Wiehe
Columbus State University, B.A. in English, 2011
University of Connecticut,
M.A. in English and Feminist Graduate Studies Certificate, 2013
Ph.D. in English, Candidate, 2017

3D Printing Demonstration

Davidson Cougar Lounge

10:00 AM – 5:00 PM

Three dimensional printing has introduced new paths for innovation and creativity in all disciplines. With ten plastic 3D printers, one resin 3D printer, and more to come soon, Columbus State University is giving access to this new technology to students. This spring the Honors College students listed below had the opportunity to take an Honors Enrichment course that gave them the opportunity to learn about 3D printing. Over the course of the day, one of these printers is creating a replica of the Whitley Clock Tower. Also on display, are some of the products yielded from the Honors Course.

Ameila Barton

Michael Kamar

Jared Bies

Ekta Parab

Gabriela Bokota

Manny Parrachavez

Jocelyn Canedo

Danielle Royal

Riley Carlson

Dylan Schindler

Jacob Dirkman

Nicole Sikes

Charles Drew

Joshua Staples

Jaymes Gillett

Julianna Wells

Genasis Jeziorski

Mark Yanoschik

Student Art Exhibit

Davidson Cougar Lounge

12:00 PM – 1:30 PM

"In the Making"

Participating Artists: Julianna Wells, Charles "Cole" Cowsert, Ashley Colbert, Ashley Burgess, and Cheree "Clay" Bailey

How does the interplay of process and materiality inform the meaning of an artwork? In the Making is drawn from a collection of works by the Department of Art undergraduate students who received the SRACE grants from this past year. Each student explores experimental and traditional approaches in art making. Their process and materiality addresses the multiple interpretations of making at the intersection of sensory and conceptual levels.

Poster Session

Columbus Room

12:00 PM – 1:30 PM

Rapid Orbit Refinement of Potential Near-Earth Objects and Recovery of Nearly Lost Asteroids

Presenters: Austin Caughey

This thesis project intends to rapidly confirm the discovery of new Near Earth Objects (asteroids and comets) and earn credit from the Minor Planet Center as part of each object's initial orbit determination team. It also intends to greatly reduce the uncertainty of already-discovered asteroids whose orbits are so uncertain, they are close to becoming lost.

Dr. Andy Puckett
Department of Earth and Space Science
Vivian Hoette
Yerkes Observatory, University of Chicago

Why Undergrads Leave STEM

Presenters: Chloe Chambers

The purpose of this project is to determine why undergraduate students who initially declare a science, technology, engineering or mathematics (STEM) major leave their field of study, as well as investigating potential means to improve retention rates in STEM majors.

Dr. Kimberly Shaw
Department of Earth and Space Science

Improving Medication Compliance in Psychiatric Patients

Presenters: Kristin Dean, Melody Thomas, and Cynthia Jones

Medication compliance is a significant issue in psychiatric patients leading to a relapse of symptoms, an increase in hospitalization and an increase in the rate of suicide. A review of literature shows the use of psychoeducation, motivations interviewing, and behavior therapy increases medication compliance.

Dr. Dell Miller
School of Nursing

The Translation of the Bible During the Renaissance

Presenters: Courtney Fields

The King James Bible represented the end of a long and controversial debate over how or whether to move the language of the Bible from Latin to English. Ministers, professors, and scholars in England were enlisted to carefully transcribe the original text into the common English of that time period. My study abroad research revealed the significance of the translation along with its translators' legacies.

Dr. Susan Hrach
Department of English
Dr. Andrée Martin
Schwob School of Music

Fecal Microbiota Transplantation for the Treatment of *C. Difficile*

Presenters: Travis Fite, Kristina Delpesche, Rayonna Phillips, Jordan Mercer, and Kyara Washington

Clostridium Difficile is a common hospital acquired infection that has a major impact on patient outcomes and costs of hospitalization. A review of recent research shows the use of fecal microbiota transplantation reduces recurrences of the infections and improves patient outcomes.

Dr. Dell Miller
School of Nursing

Prenatal Care: Life's Most Critical Step

Presenters: Jodi Fraser

This presentation discusses the importance of regular prenatal care in order to better ensure the delivery of a healthy baby and decrease infant morbidity and mortality. It addresses what to expect during prenatal visits, how often to see a doctor throughout the pregnancy and the benefits of prenatal care.

Additionally mentored by Dr. Curtrina Strozier

Dr. Kathleen Hughes
Department of Biology

Robots Teaching Emotions to ASD Children

Presenters: Sarah Hays, and Crystal Chase

A NAO robot is utilized to allow children with Autism Spectrum Disorder to see and learn the appearance of different emotions through emotional poses and behaviors.

Dr. Hoda Mehrpouyan
TSYS School of Computer Science

Retrospective study of birds of prey treated at the Southeastern Raptor Center in Auburn, Alabama

Presenters: Cecilia Hernandez

Medical records from 2010 to 2014 (n = 1,225) were analyzed for morbidity and mortality rates, release rates, and survivability in raptors admitted to the Southeastern Raptor Center in Auburn, Alabama in order to identify species-specific and age-related trends in injuries and release rates.

Thanks to Dr. Seth Oster, Southeastern Raptor Center, Auburn University

Dr. Jennifer L. Newbrey
Dr. John Barone
Department of Biology

Fitness Changes in Female Gymnasts Using the Gymnastics Functional Measurement Tool

Presenters: Amber Holmes

The Gymnastics Functional Measurement Tool (GFMT) was created to determine the fitness of competitive female gymnasts using a series of sport specific tests. The purpose of this study was to utilize the GFMT to determine if differences in female gymnasts' fitness exist at the pre-season (PS) and beginning-season (BS) time points.

Dr. Brian Tyo
Department of Health and Physical Education and Exercise Science

Visualization of Cybersecurity Attacks with Gephi

Presenters: Solomon Jones, Shekail Ashbury, and John Johnson

The proliferation of Internet-based devices has attracted the attention of rogue nations and criminals to exploit their security loopholes. Many datasets of these attacks have been collected, but they are difficult to decipher and communicate to general audiences. Gephi will be used for visualizing cybersecurity attacks in this work.

Dr. Angkul Kongmunvattana
TSYS School of Computer Science

Checking Up On The Past: An analysis of the Mayan skeletal population at Tipu, Belize using secondary age indicators

Presenters: Jane Mader, Malina Miller, and Mike Powers

Utilization of secondary aging techniques to truth check the age of individuals from the Mayan Tipu Site in Belize.

Prof. Danielle Cook
Department of Earth and Space Science

Implementation of a Patient Discharge Time-Out to Decrease Medication Discrepancies in the Elderly

Presenters: Darryl Nichols, Patricia Waller, Emma Gibson, Kriss Maroko, Janeka Moody, and Elisha Germain

Polypharmacy in the elderly population leads to adverse effects for patients and increased medical costs. After a review of literature a nurse practice guideline was developed that shows the use of a patient discharge time out reduces the risk of adverse events as a result of polypharmacy.

Dr. Gail Jones
School of Nursing

Losing the Night: A Survey of Light Pollution in Columbus, GA

Presenters: Brendon O'Keeffe, and Ryan Hutto

The initial assessment of the effects of current outdoor illumination on the brightness of the night sky in the Columbus, GA area.

Dr. Rosa Williams
Department of Earth and Space Science
Dr. Brad Huff
Department of History and Geography

Are Morally Responsible Investors' Returns Penalized?

Presenters: Jamila Porter

Little research has been conducted on morally responsible investing (MRI) despite increasing interest and popularity among investors. We bridge this gap by measuring the risk adjusted performance of a portfolio of "violating" firms. The results suggests that U.S. public equity markets are efficient in that investor returns are not financially penalized by applying moral or ethical filters.

Dr. Alan Tidwell
Department of Accounting and Finance

An Analysis of the Impact of the CSU Peer Leader Program on Student Performance in 2014-2015

Presenters: Harrison Sharitt

In efforts to retain students and increase student performance, Columbus State implemented a peer leader program. With access to archival data on the CSU Peer Instruction Program, the goal of this project was to determine if the program at CSU had a significant impact on students' performance.

Dr. Tim Howard
Department of Mathematics

Why the Glass Transition is Far from Clear

Presenters: Nicole Sikes

It often been argued that the glass transition cannot be explained thermodynamically, but instead kinetics are the cause. However there is no proof of any equilibrium glass state. Here the glass transition is viewed through the lens of nonequilibrium thermodynamics in an attempt to gain better understanding into this phenomenon.

Dr. Anil Banerjee
Department of Chemistry

Building a stress monitoring system using wearable sensors and smartphones

Presenters: Gogineni Sneha

The goal of this project is to build a computing system for obtaining data related to physiological markers for stress in humans via wearable sensors. The computing system will consist of the following: A galvanic skin response (GSR) sensor, an Arduino microcontroller, and a Bluetooth device

Dr. Lydia Ray
Dr. Hoda Mehrpouyan
Dr. Alfredo Perez
TSYS School of Computer Science

An Optimized FPGA Implementation of AES Encryption

Presenters: Joshua Staples

This project seeks to create a circuit that performs AES encryption on input data at a faster rate than that of software methods of performing the same algorithm.

Dr. Angkul Kongmunvattana
TSYS School of Computer Science

Kangaroo Care in the Neonatal Intensive Care Unit

Presenters: Ellyse Tyree, Taylor Chasteen, Hannah Ritter, Mary Wheeler, and Ryan Lang

Evidence shows that continued skin-to-skin contact between the baby and mother (or father) combined with education of the parents on the proper way to use kangaroo care improves baby's stability, oxygenation needs, and vital signs and promotes normal growth and development.

Dr. Cheryl Smith
School of Nursing

A Public Relations Approach to Greek Life

Presenters: Mark Yanoschik

This thesis will serve as a case study examining how public relations theories could be utilized to enhance to current position that Greek life has with the media and community.

Dr. Mariko Izumi
Department of Communication
Dr. Gina Sheeks
Student Affairs

Poster Session

Schuster 130

12:00 PM – 1:30 PM

Oxford Castle

Presenters: Elizabeth Biggs

Oxford Castle and the Tower of London were gruesome prisons, but today, they are tourist attractions. Oxford Castle's history is presented differently when compared to the Tower of London. Both have dark, gruesome pasts, but Oxford's is bluntly broadcast, unlike the Tower of London, which focuses on more pleasant history.

Dr. Susan Hrach
Department of English
Dr. Andrée Martin
Schwob School of Music

Interventions to Address Childhood Obesity

Presenters: Roderick Cabey, Meagan Harrison, Charisse Crute, and Leon Manville

Childhood obesity is a growing problem in the U.S due to poor lifestyle choices, lack of appropriate eating habits, and inadequate education of the family support system. A review of literature shows that a combination of providing structure and motivation in the schools along with education of parents will have an impact on the occurrence of childhood obesity.

Dr. Cheryl Smith
School of Nursing

A Geographical-based Visual Analysis of Botnet Attacks

Presenters: Josef Chua, Raul Esteras, Robert King, and Aaron Anecchiarico

A botnet attack is a wide-spread security problem on the Internet. Several research groups have collected data of these attacks but they are typically hard to analyze. Visual analysis is a new approach that enables users to grasp the information embedded in the data points quickly.

Angkul Kongmunvattana, Ph.D.
TSYS School of Computer Science

Principles of Biology Tutorial Videos

Presenters: Brandi Fine

The goal of this project was to create 48 Camtasia videos to help students enrolled in Principles of Biology achieve a higher level of success in that class. The videos target students who are unable to attend tutorial sessions, students who miss a lecture, and students with hearing impairments.

Dr. Tim Howard
Ms. Amy Sandy
Department of Mathematics

Completing the Puzzle: Exploring Possible Antecedents to Rape Myth Acceptance

Presenters: Skye Geeslin

This project surveyed college students to assess their levels of social competence, semantic knowledge of sex, bystander attitudes, and rape myth acceptance (RMA). The purpose of this project was to explore possible antecedents to rape myth acceptance, and determine the individual and combined influence on RMA levels overall.

Dr. Diana Riser
Department of Psychology

Preserving Periods: English Manor Home

Presenters: Colleen Gottfried

Studies of English manor homes, Blenheim Palace and Ingatestone Hall, during a study abroad experience in Oxford illuminated the varied methods families and organizations use to preserve and present the past to the public. One facet of historical preservation includes the role religion played in the lives of prominent English families.

Dr. Susan Hrach
Department of English
Dr. Andrée Martin
Schwob School of Music

Bluetooth Security, Then and Now

Presenters: Christopher Lamberson

This presentation includes a timeline of attacks against Bluetooth Technology and our efforts to sniff the Bluetooth traffic to analyze the inner workings of the security protocols in place.

Dr. Yesem Peker
TSYS School of Computer Science

The Management and Treatment of Preeclampsia

Presenters: Bailey Lenz, Rachel Byrne, Haley Luttrell, Regina Shoemaker, and Jung Lee

Preeclampsia impacts maternal and fetal outcomes during labor and delivery. Evidence shows that the use of folic acid prenatally, immediate cesarean section if near term, and use of the drug magnesium sulfate can improve the mortality and morbidity rates associated with preeclampsia.

Dr. Cheryl Smith
School of Nursing

A serious game to foster social skills for autistic students.

Presenters: Terrance Maxwell, and James Sanders

A project that provides a safe learning environment to foster social skills of autistic students who might suffer from Social Behavior Disorder. The project provides feedback based on the students performance to help stay on track.

Dr. Rania Hodhod
TSYS School of Computer Science

Kangaroo Care for Reducing Procedural Pain in the Preterm Infant

Presenters: Chikilia Parks, Judith Ospina, Ann Harber, Michelle Woodruff, and Jennifer Alexander

Premature infants may undergo as many as 10-16 procedures per day during their stay in the Neonatal Intensive Care Unit. Research shows that the use of kangaroo care before, during and after procedures reduces pain and improves vital signs in the premature infant.

Dr. Cheryl Smith
School of Nursing

Preventing Medication Errors by Nursing Students

Presenters: Moensania Phillips, Nashia Heard, Myesha Wagner, and Marquita Williams

Medication errors made by nurses, especially nursing students, impact morbidity and mortality of hospitalized patients. Evidence shows that simulation of medication administration processes in the lab during the nursing program decreases the number of medication errors made by the students in the hospital environment.

Dr. Gail Jones
School of Nursing

Utilizing OpenSSL for Personal Cybersecurity Protection

Presenters: Dakota Reyes

The number of non-technical users on the Internet has grown drastically during the past decade. Security has become an important issue. OpenSSL is an open-source software toolkit that allows users to safeguard their data without cost and only a small learning curve.

Dr. Angkul Kongmunvattana
TSYS School of Computer Science

Zircon Separation of Metamorphosed Basalts in the Southern Appalachians

Presenters: Anna Sartell, James Kee, Jenna Bowman, Jason Neale, and Ryan Lloyd

Radiometric dating of metamorphosed basalt is uncommon because of the difficulty of extracting minerals that date crystallization of the lava. We use hydraulic, magnetic, and density separation techniques in an attempt to extract zircon from metamorphosed basalt. Radiometric ages gathered from extracted zircon will help geologists better understand the Paleozoic evolution of the southern Appalachians.

Dr. Clint Barineau
Department of Earth and Space Science

Indoor Navigation Using Bluetooth Low Energy Beacons

Presenters: Justin Sewell

Due to the weaknesses of GPS signals indoors, indoor navigation is an important topic of research that can be utilized to implement useful applications. An indoor navigation application can assist people with physical and cognitive challenges in locating a specific room and guiding them around buildings on campus. This project presents a method of navigation CSU's buildings using Bluetooth Low Energy beacons and a mobile device.

Dr. Alfredo Perez
TSYS School of Computer Science

The Demise of Anne Boleyn

Presenters: Andrea Shaver

A mere three years after her wedding to King Henry VIII, Anne Boleyn was imprisoned and beheaded at the Tower of London. In this research project, which includes a study abroad component to England, I analyze the events that resulted in Anne Boleyn's execution and her haunting execution speech.

Dr. Susan Hrach
Department of English
Dr. Andrée Martin
Schwob School of Music

Creating Dynamic Role Playing Games using AstroStory

Presenters: Dominique Tillman

AstroStory is a system that takes real time data into account when creating a narrative. Because of this, AstroStory has a wide variety of applications, but video game implementations are where it truly shines. In this presentation, an RPG (Role Playing Game) game is showcased that will use AstroStory as its main storytelling mechanism. The goal of this endeavor is to one day create a truly dynamic system that can adapt to any and all circumstances.

Dr. Rania Hodhod
TSYS School of Computer Science

Scientific Justification of Neo-Impressionist Color Theory

Presenters: Julianna Wells

The scientists Eugène Chevreul and Ogden Rood impacted the neo-impressionist artists Georges Seurat, Paul Signac, and Camille Pissarro. A complex relationship exists in which these artists read the essays being written on psychological interactions between colors and used that knowledge as a base to invent divisionism as a painting technique.

Professor Michele McCrillis
Department of Art

Italian Influence on English Life

Presenters: Rain Williams-Twolions

In today's society, many people are remixing parts of others' culture and making it their own. Who would have thought that this happened in Renaissance England? Through research and travels abroad to Oxford, I was able to view how English music, literature, and architecture reworked products of Italian culture.

Dr. Andrée Martin
Schwob School of Music
Dr. Susan Hrach
Department of English

Developing Mathematical and Algorithmic Thinking Skills in Children using an Adaptive Augmented Reality Game

Presenters: Kristen Wright and Marko Maksimovic

Mathematical and Algorithmic thinking are important cognitive skills in modern education. This project aims to develop an augmented reality educational game to develop these skills at children. The game tracks and evaluates the student's performance to determine aspects of the gameplay, style of guidance, and provide an individualized learning experience.

Dr. Rania Hodhod
TSYS School of Computer Science

Research Presentations

Davidson 254

1:15 – 2:05 PM

Degredation of musk ketone by *Pleurotus ostreatus*

Presenters: Sarah Darville

White-rot fungi may have the ability to remove persistent toxins in the environment using the same enzymes they produce to break down lignin in trees. The enzymes work like grenades, attacking molecules indiscriminately. This project was created to provide evidence that a particularly tasty mushroom could also save the world!

Special thanks to Dr. Marin Brewer, Assistant Professor of Plant Pathology, University of Georgia

Dr. John Davis
Dr. Jennifer Newbrey
Department of Biology

Impact of a diesel spill on macroinvertebrate communities in ponds in S.E. Alabama

Presenters: Katie Winkles

Macroinvertebrate communities were studied to observe possible effects of the diesel spill. Freshwater macroinvertebrate communities are a choice group of organisms for monitoring water quality because of how sensitive they are to changes in their environment. Samples were collected at increasing distances from the spill site and taxonomic groups were analyzed in the laboratory.

Dr. Jeffrey Zuiderveen
Dr. Harlan Hendricks
Department of Biology

Identification of tree species using DNA barcoding for nature interpretation at the Columbus Botanical Garden

Presenters: Anisha Patel

Plant DNA barcoding, in particular, involves the DNA sequencing of a short DNA segment from a standard part of a chloroplast genome. In collaboration with Trees Columbus and the Columbus Botanical Garden, the goal of my Honors contract was to DNA barcode trees species along hiking trails located in the Botanic Gardens.

Dr. Kevin Burgess
Department of Biology

Davidson 256**1:15 – 2:05 PM****Medication Non-Compliance in the Elderly**

Presenters: Mansi Patel, Taylor Jenkins, Shauna Travis, Amanda Hutchinson, and Karen Higgenbotham Norman

Medication non-compliance is a growing issue in the elderly population increasing the financial burden placed on healthcare facilities and decreasing the quality of life for the patient. Evidence shows that the use of medication reconciliation at every patient encounter and patient teaching about the expected side effects versus adverse effects increases medication compliance.

Dr. Gail Jones
School of Nursing

Twelve-step Program for Mothers Diagnosed with Neonatal Abstinence Syndrome

Presenters: Myranda Harbuck, Natalie Permenter, Brandy Harbuck, Morgan Brooks, and Kaitlynn Dervan

Neonatal abstinence syndrome occurs in infants born to a mother who participated in illicit drug use during pregnancy. After a review of literature, a plan of care was developed to help addicted mothers recover while assisting with the bonding process with their babies.

Dr. Cheryl Smith
School of Nursing

Overcrowding in the Emergency Department

Presenters: Keyla Fudge, Kerry McKenzie, Tiffany Jones, and Stephanie Villadamigo

A review of current research shows that the use of a physician-nurse supplementary triage assistance team greatly decreased patient wait times. The use of a Emergency Severity Index questionnaire improved patient flow and decreased patient wait times leading to less overcrowding in the ED.

Dr. Dell Miller
School of Nursing

Davidson 258**1:15 – 2:05 PM****On the Page and On the Stage: What Qualifies a Text as Postcolonial?**

Presenters: Cailee Davis

Chinua Achebe's Things Fall Apart and Wole Soyinka's Death and the King's Horsemen respond to British colonization of Nigeria in the early 1900s. Both are considered postcolonial texts, despite Soyinka's insistence otherwise. When classifying a text as postcolonial, is the content/context enough, or must scholars consider the author's intentions?

Dr. Patrick Jackson
Department of English
Dr. Cindy Ticknor
Honors College

Were Torture and Execution Methods During the English Renaissance Determined by Gender and Class?

Presenters: Kara Jackson

This question will be addressed through historical research of three men and three women from a range of social ranks, and study abroad visits to Oxford Castle and the Tower of London in England.

Dr. Susan Hrach
Department of English

Who Was the True Guy Fawkes? What is the Meaning of Bonfire Day in England?

Presenters: Care Bacon

The goal of this presentation is to understand the motives for Guy Fawkes' intended bombing of the English Parliament in 1605 and its subsequent celebration as Bonfire Day. Personal visits to related sites in England on study abroad will supplement scholarly research.

Dr. Susan Hrach
Department of English

Davidson 254**2:10 – 3:00 PM****Across-clutch variation of carotenoids in House Sparrow (*Passer domesticus*) eggs**

Presenters: Madison Williams

*Laying sequence variation in carotenoid allocation has been documented in several bird species, with most females allocating higher concentrations of carotenoids to their earlier-laid eggs. We collected full clutches of eggs from house sparrow (*Passer domesticus*) nests to determine how carotenoids are distributed throughout the laying sequence.*

Co-authors are Dr. Jennifer L. Newbrey and Dr. Michael G. Newbrey

Dr. Jennifer Newbrey
Dr. Micheal Newbrey
Department of Biology

Pathways of neutrophil cell death in response to nonetypeable *Haemophilus influenzae*

Presenters: Rachel Pearson

*Nontypeable *Haemophilus influenzae* (NTHi) is a commensal gram-negative bacterium that inhabits the human nasopharynx in up to 80% of people. Upon exposure to NTHi in vitro, neutrophils rapidly lost membrane integrity, suggesting that *H. influenzae* may damage these immune cells in vivo as well, offering an explanation for ineffective clearance.*

Co-authors is Lauren King

Dr. Lauren King
Department of Biology

Patient Subjective Pain Rating and Duration of Action of 0.5% Ropivacaine and 0.25% Bupivacaine in Brachial Plexus Nerve Blockade.

Presenters: Joshua Rogers

Anesthesia is an invaluable asset in the medical field that has helped reduce risks in surgeries of varying complexity for over 150 years. This study assesses the statistical significance of subjective pain ratings in comparison to blockade duration in 59 qualified participants.

Dr. Kathleen Hughes
Department of Biology

Davidson 256**2:10 – 3:00 PM****Increasing Family Based Teaching to Reduce the Prevalence of Childhood Obesity**

Presenters: Joshua Copeland, Chamaine Bjornson, Shannon Dempster, Sadie Tollberg, and Emily Anders

Significant, valid and reliable evidence shows that families who receive early interventional health education as a family unit has overall lowered body mass indexes and maintains healthy lifestyle choices over time. Implementation of guidelines can be easily incorporated into pediatric nursing practice.

Dr. Cheryl Smith
School of Nursing

Postpartum Post-Traumatic Stress Symptoms: Implementing Change in Clinical Practice

Presenters: Chandler Padgett, Haley Love, Meghan Jones, Amanda Miller, and Jessica Howell

After a review of current research a nurse practice guideline was developed. Acknowledgement of PTS symptoms and immediate interventions are key in prevention or worsening of the condition. The use of nurse-initiated screening tools can identify new mothers at-risk for postpartum post-traumatic stress symptoms that impact mother/baby relationships.

Dr. Cheryl Smith
School of Nursing

The Use of Pitocin and its Effects on Postpartum Hemorrhage

Presenters: Fawn Miller, Xandria Vo, Colby Nicholson, Abigail Goins, and Jazmine White

A review of literature found significant and reliable evidence that the use of Pitocin during labor can result in uterine atony, the number one cause of postpartum hemorrhage. A nurse guideline was developed that identifies when Pitocin should be used in the labor and delivery process.

Dr. Cheryl Smith
School of Nursing

Davidson 258**2:10 – 3:00 PM****The Sound of Black Internationalism**

Presenters: Mickell Carter

In 1985, fifty-four artists collaborated to produce a musical record to raise global awareness and oppose the Apartheid system in South Africa. By analysing this record, this study explores how musical artists understood and rejected borders among peoples and nations and how Black internationalism affected the history of the Anti-Apartheid movement.

Dr. Ilaria Scaglia
Department of History and Geography

Improvisation with Max/MSP: Exploring Sound Possibilities using Live Audio Processing

Presenters: Jordan Walsh

I will discuss the history of live audio processing in contemporary music and perform a live controlled improvisation that explores the sound possibilities of a multitude of percussion instruments when processed through a program of my own design using the audio processing language Max/MSP.

Dr. Matthew McCabe
Dr. Paul Villancourt
Schwob School of Music

Explaining Nazism: A Study of Culture and Historiography

Presenters: Cailee Davis

History seeks to understand and explain. When attempting to understand and explain Nazism, a historian's culture influences his/her theory. By examining three historians from different cultures who have contrasting theories about Nazism, this paper will evaluate the impact that varying cultural, social, and political climates have on said interpretations.

Dr. Neal McCrillis
Department of History and Geography
Dr. Becky Becker
Center for International Education

Schuster 101**2:10 – 3:00 PM****Developing Computational Thinking and Problem-Solving Skills in Children Using Augmented Reality Video Game**

Presenters: Jonathan Vered, and Valencia Coleman

This presentation has two aims. Firstly, to highlight the importance of using technology to foster children's computational thinking skills. Second, to show a demo of our augmented reality game that provides a problem-solving mission. Through achieving the goals of the mission children should develop their problem solving skills.

Dr. Rania Hodhod
TSYS School of Computer Science

CSU Cyber Security Awareness Module

Presenters: Christopher Lamberson and Nathaniel Gibson

This presentation will include background thoughts that led to the creation of the Cyber Security Awareness Module (CSAM), an explanation of future plans for the project, a demo of where the project stands today, and a projection of where the researchers expect the project to be in the near future.

Dr. Yesem Peker
Dr. Lydia Ray
TSYS School of Computer Science
Dr. Stephanie da Silva
Department of Psychology

Davidson 254**3:05 – 3:55 PM****When Size Matters: Deviations of the Glass Transition Temperature of Polystyrene Nanoparticles**

Presenters: Nicole Sikes

Here temperature-varied fluorescence spectroscopy was used to study the glass transition temperature of polystyrene nanospheres of varying sizes (including down to 10 nm) and anomalous size independent T_g for particles below a certain size was found. In addition, three unique size regimes of T_g behavior were found and characterized.

Dr. Wade Holley
Department of Chemistry

An Experimental Study of Various Medicinal Plants Utilized by Uncontacted Tribes on Astrocytes

Presenters: Tatyana Foster

This project is significant to society because it will inform the general public about the alternative treatments that herbal remedies offer for a plethora of diseases.

Dr. Kathleen Hughes
Dr. Kevin Burgess
Department of Biology

An Examination of Carotenoid-based Selectivity in the Diet of the Eastern Bluebird (*Sialia sialis*)

Presenters: Walker Rogers

This project focuses on a particular group of chemicals found in the diets of many bird species. Carotenoids are biologically-active pigments that birds use for coloration and for their immune systems. This research examines spiders as one potentially important source of carotenoids for birds.

Dr. Jennifer Newbrey
Department of Biology

Davidson 256**3:05 – 3:55 PM****Tying Knots: An exploration of mental disorders**

Playwright: Cassidy Richards

Actors: David McCray, Nathan Petty, Brianna Mitchell, Amanda Black

Tying Knots is a one act play that explores the hardships that come with having or caring for someone with a mental disorder.

Prof. Joseph Miller
Department of English

Davidson 258**3:05 – 3:55 PM****Exceedance Probability of *E. coli* in Weracoba Creek's Watersheds**

Presenters: Amanda Hall

Weracoba Creek is one of the many watersheds that supply water to the Chattahoochee River, and to ensure that the water is safe, organizations like Chattahoochee RiverWarden sample the creek's bacterial parameters. By calculating the exceedance probability, I determined what the chance is of the creek exceeding protocol with E. coli.

Dr. Brad Huff
Department of History and Geography
Dr. Troy Keller
Department of Earth and Space Science

An Exploration of the Roles of Music in Shakespeare's Plays

Presenters: Jordan Walsh

*This talk will include an analysis of what roles music played in Shakespeare's plays, with a focus on interpretations of *The Tempest* and *A Winter's Tale* by the actors and musicians of the Globe Theatre.*

Dr. Andrée Martin
Schwob School of Music
Dr. Susan Hrach
Department of English

Poetry in the Classroom

Presenters: Rachel Funk

Teachers today face the tension of testing and students' lack of motivation to analyze poetry; however, it is still crucial to guide students into experiencing and analyzing poetry. So, I completed research to find out how to best engage students with poetry in the classroom, while still covering standards.

Dr. Erinn Bentley
Department of Teacher Education
Dr. Nick Norwood
Department of English

Schuster 101**3:05 – 3:55 PM****Evaluating educational games: A case study to evaluate AreaKids (an Educational Game to Foster Mathematical Thinking at Young Children)**

Presenters: Kristen Wright, Valencia Coleman, and Jonathan Vered

Evaluating educational games is very important to determine how efficient the game is in helping students acquire certain skill. This presentation will present our results from evaluating AreaKids (an educational game to develop children's mathematical skills).

Dr. Rania Hodhod

TSYS School of Computer Science

Dr. Andrea Frazier

Department of Counseling, Foundations and Leadership

Using Augmented Reality Mobile Games to Teach the Java Programming Language

Presenters: Richard Myers

This project uses an augmented reality game to teach the Java programming language.

Dr. Rania Hodhod

TSYS School of Computer Science

Davidson 254**4:00 – 4:50 PM****Evidence Based Approach to Negative Pressure Wound Therapy**

Presenters: Jorge Borboa, Brandon Skiles, and Giovanni Lewis

Significant and reliable evidence was used to develop a nurse practice guideline that identifies negative pressure wound therapy as the premier wound closing technique. The use of NPWT minimizes infection and is better for complex and chronic wounds.

Dr. Gail Jones

School of Nursing

Multi-theoretical Approach to Democratization in Saudi Arabia

Presenters: Elizabeth Nelson

Discussion on democracy, Saudi Arabia's economic systems, the theories of democratization and how the state fits into those theories.

Dr. Troy Vidal
Department of Political Science

Nihilism in America

Presenters: Diego Castellanos

Modern American society has fallen into nihilism and action is not sought the very foundations of American society will devolve into the administrative despotism described by Tocqueville in the 19th century.

Dr. Troy Vidal
Department of Political Science

Davidson 256**4:00 – 4:50 PM****"Moved by fear": The United States and the Jewish Refugee Crisis (1933-1945)**

Presenters: Taylor Langevin

This presentation will focus on the response of the United States to the Jewish refugee crisis of 1933-1945 in order to engage with the audience in assessing how we remember our involvement in World War II and how we respond to similar crises in today's world.

Dr. Daniel Crosswell
Department of History and Geography

Teaching Empathy in Social Studies

Presenters: Rachel Funk

Teaching a Social Studies class not merely made up of names, dates, and regions is difficult. The goal of my research, which was based on my experience in the classroom and research done outside, was to help students connect the information with an event that could have easily happened to them.

Dr. Victor Salazar
Department of Teacher Education
Dr. Becky Becker
Center for International Education

Cache In, Trash Out: How Geocaching is Cleaning Up Columbus

Presenters: Kaitlynn Howard

A short documentary-style film on how geocaching, a high tech, worldwide scavenger hunt, affects Columbus and communities around the world in a positive way.

Dr. Becky Becker
Center for International Education
Mr. Chris Robinson
Department of Communication

Davidson 258**4:00 – 4:50 PM****Japan's Style: Ancient through the late 19th Century**

Presenters: Jobie-Leigh Snyder

My research aims to identify the progression of Japanese ink style painting through time. I will be discussing the changes that occurred that might have caused the alterations. I will also be discussing the different laws that painting is held to, whether in ink or other styles.

Sam Renner
Department of Theatre

French Baroque Performance Practice in Jean-Marie Leclair's Sonata for Flute or Violin Op. 9 No. 2

Presenters: Ty Gable

Research regarding the performance practice of Jean-Marie Leclair's Sonata for Flute or Violin in E minor Op. 9 No. 2 was augmented during study abroad through a private tutorial with early music specialist Rachel Brown from the Royal Academy of Music.

Dr. Andrée Martin
Schwob School of Music
Dr. Susan Hrach
Department of English

Shakespeare's Use of Music

Presenters: Lauren Rosenblatt

Using examples from a few select plays such as Twelfth Night and Two Noble Kinsmen, this presentation investigates Shakespeare's use of music and lyrics in his plays, the audience's familiarity with these references, and how they may have affected the audience's expectations.

Dr. Lawrence Dooley
Department of Theatre

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Abstracts 2016

Highlights of Student Research and Creative Endeavors

Tower Day abstract submissions will be included in
Columbus State University's *Abstract Annual 2016*.



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