

**Lauren Helbig, Katrina Griffieth, Darren Martin, & Logan Rowe**

Ryan Walker

### **Subacromial Impingement Disorder**

We will be demonstrating how subacromial impingement occurs in the body and the treatment we propose to correct it based off of extensive study.

**Crista Purcell & Desiree Bapst**

Ryan Walker

### **Carpal Tunnel Syndrome**

Proposed study based on Carpal Tunnel Syndrome.

**Breanna Butler, Adrien Dunn, Justin Clevenger, & William Weems**

Ryan Walker

### **Plantar Fasciitis**

A poster presentation to describe what plantar fasciitis is and a proposed study to describe what treatment options would be good for those who suffer with plantar fasciitis.

**Destiny Vanderpool, Jenna Brown, Alec Graham, & Matt Williams**

Ryan Walker

### **Lateral Epicondylitis**

We formulated a question "What are the long term effects concerning pain free range of motion on lateral epicondylitis produced by eccentrically strengthening the wrist and elbow extensors compared to deep friction massage?" We determined eccentric strengthening was more effective in treated lateral epicondylitis.

**Cassandra Christain, Mary Hinton, Julie Puckett, & Lindsey**

**Schobelock**

Ryan Walker

### **Greater Trochanteric Bursitis**

A fictional study on the treatment options for greater trochanteric bursitis and which would be most appropriate for strengthening hip muscles.

## **Jacob Ashton & Dakota Thornton**

Timothy Hamilton

### **Finding the Age of the Largest Star Cluster in the Milky Way: Is Omega Centauri a Galaxy its Own?**

The Milky Way Galaxy is composed of many wondrous objects from comets, black holes, to star clusters. This presentation will focus on a specific globular cluster called Omega Centauri. A globular cluster is a type of star cluster that contains more stars than most star clusters. Omega Centauri is the largest of the globular clusters in the Milky Way, and it is thought that due to its size that it was once a galaxy of its own. We can look for evidence of this by measuring the age of its stars and comparing them to other globular clusters. Also some have claimed that Omega Centauri has different populations of stars that were born at different times which is not common among other globular clusters. This means that Omega Centauri must have had much more gas to form stars than most globular clusters.

## **Aaron King, Joshua Barney, & Robbie Gates**

Wendi Fleeman

### **Nickel Diimine Complexes for Dye-Sensitized Solar Cells**

In recent years, transition-metal dye molecules have been studied for their use as sensitizers in dye-sensitized solar cells (DSSC). Previous studies have utilized multiple transition metals such as ruthenium, osmium, and platinum and reported respective solar cell efficiencies up to 11%. However, these metals can be expensive and require a complicated, synthetic path. Therefore, this study focuses on the use of nickel diimine complexes as sensitizers in DSSC because of their inexpensive, simpler synthetic path. Currently, the synthesis of the nickel sensitizer dye molecules, [Ni(dcbpy)(qdt)] and [Ni(dec bpy)(qdt)] are under investigation where dcbpy = 4,4'-dicarboxy-2,2'-bipyridine; dec bpy = 4,4'-di(CO<sub>2</sub>Et)-2,2'-bipyridine; and qdt = quinoxaline-2,3-dithiolate. After synthesis of the nickel sensitizer dye molecules, steric conformation on the nickel diimine ligand will be altered to obtain maximum efficiency of the DSSC.

## **Kailyn Smith**

Aaron Bruewer

### **Online Testing vs. Paper Pencil Testing**

With technology advancing, there is a push for schools to administer assessments online. Many reasons are geared towards faster grading and cutting back on the cost on test materials. This research outlines the differences in student performances for online testing and paper pencil testing. This study examines how the socioeconomic status of students and their access to computers relates to their performance on online testing. These factors lead to the examination of students with more computer access having more computer skills and if this results in those students performing better on online assessments. The results of this study leads to an extended study on whether online assessments lead to non-cognitive skills being assessed. These results state the advantages that students with access to computers have as well as the non-cognitive skills that are being assessed during online testing.

**Monica Colley**

Amanda Hedrick

### **Teaching Tips for Professional Partnerships**

This presentation will outline and describe the different types of co-teaching models, explain the pros and cons of co-teaching, and give real-life examples from the teacher candidate perspective. During the presentation, multiple areas of progress in adapting co-teaching into student teaching experiences will be reviewed, as well as why implementing inclusive practices for all students and teachers in an early childhood environment is vital for student and teacher development.

**Emilee Hedrick**

Amanda Hedrick

### **Documentation in the Early Childhood Classroom**

Do you want to know more about documentation in a classroom setting and how to incorporate it into your classroom? Documentation in a classroom setting is using the child's work to demonstrate learning going on in the classroom. Documentation can also be used as a teaching tool to expand on the knowledge that was taught previously or start up a new conversation where new concepts are introduced. My research will consist of real documentation going on in a preschool classroom setting and the outcomes of documentation. Documentation has been seen to drive curriculum and collaboration in the early childhood classroom setting. With documentation it not only allows the students to gain a sense of community, but it also allows the parents to visually see what is going on in their child's classroom. Documentation can be effective in the classroom if documented correctly.

**Autumn Hodge**

Kyle Vick

### **EEG Correlation of Empathy: Image Response vs. Auditory Response**

The major purpose of this study is to look at the neural response of an auditory stimulus, seeing if this can cause an empathetic response similar to looking at visual stimulus and having an empathetic response. These neural responses can be applied to video game design and how we react to the different auditory stimuli in video games. This study's research design will compare the activity level in the brain when shown the two different types of stimuli. Using a single subject with multiple measures, this design will identify patterns within subjects and look at how those patterns generalize across subjects.

**Brooke Dunigan**

Sarah Minter

## **Morphometric Analysis of Metapopulation Parameters using Museum Specimens**

Members of the same species may exhibit significant variation among metapopulations, especially when populations are isolated spatially and temporally. We hypothesized that mammal species having populations in multiple physiographic regions of Ohio exhibit measurable distinctions among populations. To test our hypothesis, we are comparing cranial measurements among mammal skulls collected across physiographic regions for all species of native Ohio mammals. Cranial measurements are being obtained from university and museum collections across Ohio. The Mammalogy collection at Shawnee State University, which was assessed first, houses 250 skulls representing 10 orders. Diversity of represented species and summary statistics for species represented by 5 or more skulls are presented. As this is a long term project, data collection will continue over the next several months. Following data collection, statistical analyses will be used to test our hypothesis. Cranial measurements will be used to construct a dichotomous key to the skulls of Ohio mammals.

**Abigail Henke**

Bob Deal

## **Moss Diversity Associated with Several Microhabitats at High Elevations in the Northern West Virginia Mountains**

Moss specimens were associated with microhabitats from three sites in the northern West Virginia Mountains: western edge of the Dolly Sods National Wilderness, Canaan Valley, and Canaan Mountain. The microhabitats that were evaluated included sandstone rocks in full sun and rocks that were shaded; sunny and shaded sphagnum bogs and swamps; sun exposed and shaded soil; and shaded logs. Mosses from the microhabitats were collected, identified to species, and voucher specimens were prepared for storage at Shawnee State University. The overall goal of this research is to determine which mosses are associated with the several microhabitats typical of the high elevations of the northern West Virginia mountains. To date, 46 moss species in 27 Families have been identified from the seven microhabitats investigated.

**Andrea Wyatt**

Sarah Minter

## **Comparison of Resident and Non-Resident *Peromyscus* spp. Using Radio Telemetry**

A radio telemetry study comparing the behavior of residential and translocated *Peromyscus* spp. was completed on the campus of our university. We hypothesized that total meters traveled over an observational period would be greater for residential mice compared to translocated mice. Residential mice were trapped on campus grounds, while translocated mice were collected from rural locations within Scioto County. Trapping occurred weekly prior to each monitoring period. Pairs of captured mice were collared before being released from a central location. Observations began one hour after sunset on Friday and continued until one hour after sunrise on Saturday. This tracking routine was repeated the following night. Sherman traps were set in the last known location; mice were recaptured, euthanized, and identified to species. Our study established a procedure for studying

Peromyscus behavior. Non-residential mice traveled a greater distance overall; however, mice in both treatments remained unusually stationary on the second night.

## **Emily Meddock**

Amanda Hedrick

### **Be a Superhero and Use the Power of Play**

Most learning in early childhood is done through play which builds social, emotional, physical, language, and cognitive development. As advocates of learning through play, we can be a superhero and get involved with different types of interactions to model play for students. This poster will demonstrate a variety of teaching strategies to help children learn how to play and get along with others. To the world you may be a teacher, but to your students you are a hero. Adults can provide preparatory experiences, serve as a spokesperson for reality, co-play, and take a closer look and discover the power of play. How can you be a superhero in your classroom?

## **Johnathan Blount**

Andrew Feight

### **Historic Tree Species in Shawnee State Forest: Recreating an Historic Virginia Military Tract Survey on Upper Twin Creek**

This project involves the recreation of an historic Virginia Military Survey on Upper Twin Creek in the Shawnee State Forest. The original boundary corners from 1847 were located, and the current tree species at these locations were compared to the species listed in the original survey. By straightening the boundary lines into a single transect line, the corner pins become sampling locations, allowing for the documenting of tree species variety at the time of the survey. I joined Prof. Andrew Feight in retracing the original survey and recording the current tree species located along the historic transect line. Dr. Logan Minter and I then placed this information into a T-chart to calculate species abundance/dominance between both time periods. As a pilot research project, this was intended as a proof of concept experiment, which can now be used in future historic surveys of tree species in Shawnee State Forest.

## **Irais Garcia Rivera**

Bill Bratt

### **Interior Design, a Sensory and Functional Experience**

Architecture and Interior Design are two disciplines that complement each other to give the user an experience in living. Based on my architectural project, the presentation shows the Interior Design proposal of Kitchen and Dining Rooms and how this design is based on the optimization and functionality of space.

**Tiffany Knauff**

Amanda Hedrick

### **Enriching the Diverse Learner**

Within the realm of a single classroom a percentage of students will be learning at a higher level or pace, while others need extra scaffolding to reach their full potential and blossom. This pivotal moment is where the trickiness occurs. I've heard stories of students becoming frustrated because they are not grasping hold of the concept, while the higher level student is becoming bored. And what happens when a child becomes bored? He or she will act out. Is this child a bad student? No. This child is thirsty for enrichment. Therefore, how do we go about enriching both the higher and lower level learner at the same time? How will I meet that need as a future educator? I will do so by researching scholarly articles and observing a local classroom.

**Liu Wu**

Leila Lomashvili

### **The Japanese Language: A Grammatical Sketch**

The paper investigates the grammatical structure of Japanese in the typological perspective by conducting the interviews with a native speaker consultant and the research on the scholarly sources which focus on various aspects of this East Asian language. The paper is written in the form of the research report of the various linguistic subsystems including phonetics, phonology, morphology, syntax and even pragmatics which is particularly interesting in this language due to its extensive inventory of the politeness markers. These markers are used to register the social status of the addressee in formal and informal contexts and serve as a stylistic device to indicate the formality of the speech. The paper includes many interesting original facts about this language.