Abstracts

**Listed by the 3-digit project identification number next to the authors' names.*

641 Jenna Hallapy, Joe Copploe, Sam Jacobowitz, Jozsi Jalics

Tachykinin Modulation of Prefrontal Cortex Neuron Activity

Tachykinins are neuromodulatory peptides found in the mammalian brain and high levels of tachykinin receptors are expressed on pyramidal neurons of the prefrontal cortex (PFC). The present study used the whole cell patch clamp technique and a mathematical model to investigate the ionic mechanisms underlying the responses of guinea pig PFC neurons to senktide, a tachykinin receptor agonist. Senktide (500 nM) depolarized neurons, and at -70 mV in voltage-clamp, induced an inward shift of the holding current, a change that was accompanied by a decrease in membrane conductance. Current-voltage (I-V) relationships showed that the senktide-sensitive current reversed at -91.6 mV, very near the calculated potassium equilibrium potential (EK) of -93 mV. Elevations of extracellular potassium shifted senktide-sensitive current in accordance with the Nernst equation. The I-V relationship of the senktide-sensitive current was similar to the sensitive currents obtained in the presence of extracellular cesium (5 mM) or barium (200 BμM), known inhibitors of the inward rectifier potassium current (IKiR). Simulations using a detailed biophysically-based PFC neuronal model consisting of eight differential equations showed that decreased IKir conductance yielded neuronal responses consistent with our biological data. We thus conclude that the depolarizing response of PFC neurons produced by tachykinin receptor activation may result from inhibition of the potassium current, IKiR.

642 James J. Taylor

Using Digital Elevation and Regional Forecast Models to Determine the Impacts of Orographic Uplift on Lake-Effect Snow

Lake-Effect Snow (LES) is a unique meteorological phenomenon in which highly localized, intense and persistent snow squalls form on the lee sides of inland water bodies such as the Great Lakes of North America. Over the decades, many meteorologists who forecast LES events have failed to take into account the impacts of topography on snow development. This may be due to the high processing power required for accurate terrain modeling or because many climate scientists perceive much of the Great Lakes region (especially the western basin) as having near-level topography. To test the impacts of orographic lift on LES events, this paper will propose the creation of two mesoscale reanalysis models enhanced with a Digital Elevation Model (DEM). The first numerical simulation will combine surface and upper-air observations collected in the Great Lakes region during a LES event that occurred along the eastern shores of Lake Michigan on 10-11 November 2011 with an actual DEM of Michigan's Lower Peninsula to create a base model. A second simulation of the 10-11 November 2011 event will be created that uses the same atmospheric parameters but replaces the standard DEM with a pseudo-DEM of Lower Michigan that has a standard elevation of 183 m (600 feet) above mean sea level (MSL), which represents a land surface without orographic enhancement. These two models will then be compared to detect any differences between precipitation values for the 10-11 November 2011 event and to see if a positive linear relationship between LES and topography can be established.

643 Hanna Koscinski, Miranda Monroe, Anna Converse, Elizabeth Widomski

Lifestyle Characteristics of Yoga Practitioners

Yoga has gained in popularity among Americans as an exercise alternative for fitness as well as relaxation. This study will evaluate the lifestyle characteristics of yoga practitioners in a college setting by conducting a cross-sectional survey. Subjects for this study will include YSU students, faculty or staff members who are enrolled in yoga classes on campus. Socio-demographic data will be collected for participants, as well as data on personal health preferences and practices such as dietary intake, food patterns and anthropometrics. Their perceptions about their knowledge regarding health and nutrition will also be assessed. Participants will also be asked to provide a 24 hour food recall which will be analyzed for adequacy in relation to recommended dietary reference intakes using Nutritionist Pro. Statistical analyses will be conducted using SPSS 18.0.0. Data will be pooled for analyses so that no individual answers can be identified, and participants will compared for significant differences in responses by anthropometric categories and other health preferences and practices.

647 Kayla Elser, Kellie Marett, Kaitlyn March, Sarah Gabel

Dietary Habits of Students at On-Campus Dining Facilities

Obesity is a growing epidemic in the United States, three out of ten college students are either overweight or obese. Previous research has shown that college students eating habits have been notoriously bad. This study aims to investigate eating habits of college students at on-campus dining facilities. To accomplish this, approximately 100 students will be given a questionnaire to obtain data on eating habits, factors influencing food choices, dining facilities, and exercise habits. It is anticipated that females will report consuming significantly ($p < 0.05$) more servings of fruits and vegetables than males per week at on-campus dining facilities, health majors will not report consuming significantly ($p < 0.05$) more servings of fruits and vegetables per week at on-campus dining facilities than non-health majors. It is also predicted that significantly ($p < 0.05$) more students with a YSU meal plan will report eating less fast food than students without a YSU meal plan and significantly ($p < 0.05$) more students with a YSU meal plan will report eating more fruits and vegetables than students without a YSU meal plan. Students who eat more fruits and vegetables are significantly ($p < 0.05$) more likely to have a BMI in a more desirable range.

651 Callie Makoski

Online social networking and texting: A new replacement for face-to-face interaction and personal relationship formation in adolescents

As social media is becoming more highly used in the lives of children, it is important to understand the implications that it may be having on their social anxiety, communication style, and relationship formation. This program aims to investigate the effects of social media on social anxiety and communication in order to better understand how heavily children are relying on this as a replacement for face-to-face communication. Good communication skills are important for a child's successful academic and social future, and this program may help adults to gain insight as to what social media is doing to our student's communication, whether positive or negative. In addition, understanding their reliance on social media can help teachers and parents to be more aware of their child's activity to ensure safety and proper use of social

media tools such as text messaging and online social networking. In this program, several factors will be examined, including gender differences in frequency of use of online social media, as well as any relationships between high frequency of use and social anxiety or face-to-face communication comfort. To examine these relationships, online questionnaires will be presented to middle school/high school aged students. These questionnaires will be scored and compared in a correlational study using an independent samples t-test. Results will help adults and school personnel gain insight into adolescent's use of social media, and it's possible affects on their communication patterns. This program will bring about more ideas for future studies of social media's positive and negative affects on younger generations.

652 Danilo Comicista

Gangs of Antiquity

A story of crime and punishment in antiquity. Greek organized crime and examples of extortion. In Rome, there was laws against such crimes as property, gambling debts, interest rates. In mezzo-America there was evidence of counterfeitting.

653 Gerard Kelly

Who Volunteers and Why: An Analysis of the Motivations and Demographics of Volunteers in Ohio's Mahoning Valley

The Mahoning Valley has been experiencing economic and population declines for decades. As government support for the Valley shrinks non-profit organizations increasingly are responsible for providing basic and secondary human services to those in need. Many non-profits rely heavily on volunteers to deliver goods and services. Nationally it is estimated that 44% of the adult population have been, or are currently, volunteers. Susanne Ziemek, in a study of volunteer motivations in Europe, found that motivations vary depending on the level of perceived government spending. This study examines survey results from a spectrum of volunteers across the Valley to measure their perception of levels of government spending and analyze their motivations relative to this perception. It also looks at the socioeconomic abnd other demographics of these volunteers and compares them to the results of other studies on volunteering.

654 Molly E. Toth

(Female) Bodies and Power in Context: A Rejection of Empowerment

Feminism as social movement, philosophy, and ideology since its inception has long struggled internally with defining its central tenets, beliefs, and aims. Examining power as a dynamic is intrinsic to feminism's objectives of understanding and combating oppression. Differing feminist schools of thought acknowledge the existence of power, but find significant disagreement over who has power, how it is used, and how it acts upon (a) person(s). The primary concern of this paper is the conceptualization of power in relation to bodies. Of significance is the manner by which diverging feminisms have arrived at a definition of "woman" and of "bodies." This paper argues that a feminist understanding of power as "power-to" or "empowerment", though not without merit, cannot account for power as experienced by bodies (female or otherwise) in the context of the definitions both of "bodies" and of "power"offered by phenomenological, radical feminist, psychoanalytic, and poststructuralist philosophers.

655 Anna Converse, Dema Esper-Halaza, Mary Yacovone

A Training Program in Nutrition-Focused Physical Assessment for Dietetics Students

Nutrition-related problems are best identified through the Nutrition Care Process (NCP), completed by Registered Dietitians (RDs). Here, objective and subjective data are gathered in order to complete a thorough nutrition assessment (i.e. the first element of the NCP). Nutrition-focused physical assessment (NFPA) is an important part of the five-component approach to nutrition assessment, but often not performed due to the lack of education and training. We recently incorporated NFPA training into supervised, clinical practice for students in our Coordinated Dietetics Program. The training, conducted in two, four-hour sessions, included demonstration and simulation for measurement of body composition, anthropometric indices, indirect calorimetry, vital signs and blood glucose. In addition, a Respiratory Therapist reviewed thoracic examination, respiratory pattern and breath sounds. A post-training survey was then administered to students (n=12) where they were asked to rate their interest in NFPA, and likelihood to use NFPA techniques in future dietetics practice based on a10-point, Likert-type scale (1 indicating the least amount of interest/likelihood, and 10 indicating the greatest amount). All students ranked their interest in NFPA as 8 or greater, while more than 90% of students ranked their likelihood of using NFPA in future practice as 7 or greater. We concluded implementation of NFPA in dietetic education might have a prolonged and favorable impact on students' Nutrition Assessment skills-set and future practice.

660 Dorian Monroe, Alexis Gagliardi, Megan Hughes, Katie Beish, John Kocher, Megan Meek, Dorian Monroe

Ability to Estimate Appropriate Serving Size Among YSU Students

Typically served portion sizes in America have continually increased since the 1960s and have been cited as a contributing factor to the obesity epidemic. The USDA established official serving size guidelines in the 1990s partly in response to this issue. This study will assess the knowledge of portion sizes and label reading in YSU students. A survey will be used to collect data on college major, age, and sex, household composition, meal preparation, and other eating behaviors. Three sizes of sample foods will be presented and participants will choose which they think is the recommended serving size for each food. Knowledge of food labels will also be assessed by having participants identify servings per container, calories and selected nutrients per serving on a food label. YSU students enrolled in Normal Nutrition (n=80), Medical Nutrition Therapy 1 (n=24), and Nutrition and Aging (n=24) will be invited to participate in the study. YSU students 18 years or older and currently enrolled in FNUT 1551, FNUT 2603 and FNUT 5873 will be eligible to participate. All data collected will be pooled and entered into SPSS 18 so that no individual data is identifiable. Male and female participants will be compared for their knowledge of actual serving sizes. T-tests will also be used to compare the serving size knowledge of nutrition and non-nutrition majors. It is anticipated that there will be gender, age and class rank differences in knowledge of serving sizes as well as food label usage.

662 William Macomber

The Dark Side of the Land of the Rising Sun: The Yakuza in Japanese Soceity

The Yakuza or Japanese mafia is problematical. Since the end of World War Two, the yakuza have embedded themselves into the structure of Japanese state and society. This includes

Japanese political parties. Indeed, the yakuza founded Japan's most powerful political party and their support behind a political party can ensure victory. Yet the yakuza are a plague on Japanese society; they are involved in protection rackets, human trafficking, drug trafficking and other deplorable and illegal activities. This presentation seeks to explain how the yakuza came into existence, how they maintain their existence, and what might be done to eliminate their existence. The presentation will start with a brief history of the yakuza and their rituals, then describe how yakuza profit from various activities; personal accounts will provide the audience with an idea of various industries' underlying machinery and the affects yakuza have on individuals. Next, popular culture and current events will be examined, followed by recommendations and problems with the subject. Ultimately, Japan's yakuza are a harmful element of Japanese society that should be carefully eliminated.

667 Chuck Hunter, Andrew Bender, Ben Reppert

Hydraulic Descale Valve's Prefill Crossover Plate Failure Investigation

The failure investigation was approached from the view of an engineering consulting firm. The main possible causes of failures were tabulated and then tested. The results of these tests then led to the suggested design of the part. The Scanning Electron Microscope (SEM) is a valuable materials tool that was used to investigate the homogeneous nature of the material and the fracture surface. To confirm that the material was properly heat treated other material tests were conducted, including a hardness test and a tension test. Computational Fluid Dynamic Software was used to model the complicated fluid flow path. The software was used to calculate the velocity, pressure, dynamic pressure and the wall shear stress of the fluid on the body of the part. A simple two dimensional model was created and its results verified real life cases. A more complicated three dimensional model led to the design of the crossover plate.

671 Ethan McLaughlin, Christopher Fenstermaker, Matthew Kowal, James Pupino

Hydraulic Power Transmission System for a Wind Turbine

The main issue preventing wind turbines from becoming more widely used as an alternative energy source is that most residential areas are located in low-wind-speed regions. Other difficulties in utilizing wind turbines include fluctuations in power generation due to the varying wind input and frequent failure of gears and gearboxes due to impulse forces on mechanical components caused by wind gusts. In addition, there are maintenance difficulties due to the main components being housed at the top of the tower. A solution to these problems is by replacing the core components with a hydraulic powered transmission system. The hydraulic system will allow for constant power generation through fluctuating wind speeds. It consists of fewer mechanical components resulting in a lower failure rate, and the bulk of the mechanical equipment can be located at ground level with the use of hydraulic hoses. This project resulted in the installation of a small-scale, 5kW-rated wind turbine, and the modifications made to effectively utilize it in the low wind speeds. The tasks that were completed for this project include: purchasing and organizing the construction of a 5kW wind turbine, sizing hydraulic components for a complete hydraulic transmission system, calculating the anticipated results of the hydraulic system, and designing modifications to the existing structure to be able to house the alternate hydraulic components while maintaining aerodynamic and structural integrity.

673 Katie Hyden, Mike Juhasz, Larry Lynn, Cory Vesey, John Wilaj

NASA MOONBUGGY COMPETITION

When designing the first Moonbuggy for the Apollo 15 mission to the moon, the engineers at NASA faced many unique challenges. To celebrate their design achievements, NASA holds an annual Great NASA Moonbuggy Competition in Huntsville, Alabama at the U.S. Space and Rocket Center. The annual competition challenges high school and college teams to design and fabricate a vehicle to compete in the race that emulates various features from the original buggy such as a collapsed configuration of 1.22 m (4 ft) cube, turning radius of 4.57 m (15 ft), and a ground clearance of 0.381 m (15 in). The vehicle must be a two person, human powered vehicle with a functioning steering and braking system. The student teams will then compete in the race which simulated terrain traversed by a real lunar rover. The simulated terrain includes sand pits, rocky inclines, and meteor craters. Ultimately, this project allowed the students to apply the engineering theories learned in the classroom to a hands-on assignment and test their understanding of the engineering design process.

677 Joshua Engle

Sir Francis Drake: Elizabeth's Pirate

The paper discusses the origins and life of Sir Francis Drake from an organized crime perspective. It details his youth and upbringing. It also goes into detail about many of his exploits as a pirate for both personal gain and his country.

679 Brandon Strahin, Joe Myers, German Natal

Intermittent Leveling of High Strength Steel Plate

Correcting surface defects in high strength steel is a specialized application that cannot be handled using traditional plate leveling techniques. One theory for achieving the high strength plate leveling is to use intermittent bending to correct the material. A test was developed to determine the relationship between the theory of traditional roller leveling and the proposed intermittent bending approach. The results were analyzed and the desired relationship was developed. With a proven correlation between valid roller leveling theory and intermittent leveling techniques, a conceptual design for an intermittent leveling machine for use with high strength steel plate was developed. The required calculations and analyses were performed to determine the forces that such a machine would experience and to size the machine components accordingly. The conceptual machine was modeled using 2-D and 3-D software packages and Finite Element Analysis was run on the model to verify that the design was suitable for the desired application.

680 Kingsley Oloo Alala

IFRS Implementation: Can the U.S. Learn a Few Lessons from Kenya?

The U.S. Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) signed an agreement in September 2002, aimed at eliminating differences between their accounting standards. Kenya adopted International Financial Reporting Standards (IFRS) and International Accounting Standards (IAS) in 1999. Over time, Kenya has developed a wealth of experience on the use of IFRS which may serve as a guide for

the U.S. In this study, I explore significant differences between the FASB and IFRS in terms of what the U.S. can learn from Kenya. I specifically document Kenya's implementation challenges that can provide benefits to the U.S. as they converge towards IFRS. The accounting profession in Kenya is regulated by the Institute of Certified Public Accountants (ICPAK), the equivalent of the U.S. AICPA. All companies, both private and public, are required to prepare financial statements based on (IFRS). To address implementation challenges, ICPAK adopted a policy of working with various regulators to sensitize them on the importance and need for IFRS.

681 Kristina Delco

The Underworld in Chicago and Al Capone

During the beginning of the 20th century the city of Chicago saw a rise in criminal activity. A few individuals made Chicago notorious for its abundant gambling houses, brothels, speakeasies, and bootlegging businesses. Many people participated in these activities, but three people in particular controlled these illegal services in Chicago. They were known as вЂњBig JimвЂќ Colosimo, Johnny Torrio, and most importantly, Al Capone. While Al Capone was not originally from Chicago, he was the person who made the city a center for underworld activity by being one of the most successful gangsters that America has ever seen. By working with Torrio in what is considered one of the most successful bootlegging businesses of the Prohibition era, and later on orchestrating one of the most notorious mass murders in Chicago's history, Al Capone certainly helped shape not only the underworld in Chicago, but also the world of organized crime in America for years to come.

685 Diane Stahl

Puentes al Exito

Teranishi, Suarez-Orozco, and Suarez-Orozco (2011) reported that in addition to working either part or full time while attending college, 75% of immigrant students from Mexico and Central America report family obligations like caring for siblings, running errands and translating for parents. The additional obligations make social and academic integration into college more challenging. Tinto's model of student persistence emphasizes the importance of academic and social integration for college students and points to the need for students to feel connected to their classes, peers and the campus (Tinto, 1975, 1986, 1983, as reported in Weissman, Bulakowski & Jumisko, 1998). Students who experience incongruence are more likely to exit college and report feelings of rejection and loneliness at a higher rate than students who report feeling integrated on their campuses (Weissman, Bulakowski & Jumosko, 1998). The purpose of this program is to provide pre-college and matriculated undocumented community college students with psycho-educational resources aimed to improve retention rates by increasing feelings of congruence and integration.

686 Brett R. Aiello

Correlation of bone strain and muscle function in the hindlimb of the river cooter turtle (Pseudemys concinna)

Limb muscles have important roles during locomotion, such as counteracting ground reaction forces (GRF) and generating propulsive mechanical work and power. Depending on the magnitude and direction of the GRF or the performance demands of locomotion, limb muscles

may produce high forces that impose substantial loads on limb bones. While bone loading has been studied over a relatively broad phylogenetic and functional range of tetrapod lineages, much less is known about how muscle contractile function directly influences patterns and magnitudes of bone loading. To better understand mechanisms of limb bone loading in terrestrial locomotion, we correlated direct measurements of in vivo bone strain with muscle strain (via sonomicrometry) and EMG activation in a major hip extensor/knee flexor muscle (m. flexor tibialis internus) of river cooter turtles (Pseudemys concinna) during treadmill walking. EMG recordings indicate activity prior to footfall that continues through approximately 50% of the stance phase. The muscle fascicles reach their maximum length just after footfall and actively shorten to their minimum length at 35% of stance. At the time of peak bone strains (both principal and axial), the muscle fascicles are active, but are lengthening as the knee joint begins to extend. On average, the time difference between peak bone strain and muscle strain was 57msec. The coincidence of peak bone strain and muscle shortening strain suggests peak bone loads are correlated with the action of certain limb muscles, and these muscles can directly add to locomotor bone stresses imposed by the GRF. Supported by URC #3-11.

687 Alyssa Sansone

Why your number one workout accessory should be your iPod: The use of motivational music as an ergogenic aid to aerobic performance.

Some evidence indicates that listening to motivational music, while performing aerobic exercise, may enhance performance. The purpose of this study was to survey the perceived effect of music on aerobic exercise performance, within a convenience sample of exercise science students at Youngstown State University. Survey data were obtained from 136 (n=71 male, n=65 female) students, aged 18 to 39 years, who voluntarily participated. The survey instrument consisted of six questions, assessing age, sex, and use of music during aerobic exercise. Results showed that 68% of participants reported “always” listening to music while performing aerobic exercise, while 28% and 4% reported “sometimes” and ”never”, respectively. Sixty-two percent, 34%, and 4% reportedly perceived their aerobic workouts to be “always”, “sometimes”, and “never” enhanced by listening to music. Based on the results, it appears that the majority of exercise science students within this sample regularly listen to music while engaging in aerobic exercise, and feel that it enhances their performance.

688 Drew Saluga, Bill Seidler, Brandon Mirto, James Munyon, Mike Seifert, Tim Shreeve

Discrete Markov Chains

Our poster analyzes aspects of the game Candy Land using basic and advanced probabilistic techniques. We used discrete Markov Chains to analyze this board game; in particular, we modeled the game using a transition matrix of size 135 x 135. After importing our 135 x 135 matrix into Excel and MatLab, we were able to manipulate and investigate it to get information such as the probability of moving from space to space, how many moves it takes to win the game, how many moves an average game lasts, and much more. We performed various mathematical tasks such as raising this probability transition matrix to high powers, generating a transient matrix, and analyzing these matrices to obtain our results. These manipulations gave us many interesting results regarding the classic game Candy Land.

692 Michele Jordan

Performance Enhancement: Myosin heavy chain isoform changes to sport-specific training

Elite performance has become the main focus of modern sports. Coaches and athletes must take advantage of any means available to become the best at their sport, and an understanding of muscle fiber types can help increase performance. Myosin heavy chain (MHC) isoforms are the primary determinants of muscle fiber type and their distribution reflects the contractile properties of muscles. Human skeletal muscles are composed of three different MHC isoforms: 1, 2A, 2X. Each isoform has different properties related to their aerobic (1 and 2A) and anaerobic (2X) metabolism. Muscles composed of predominately MHC-1 and 2A fibers are classified as slow and are used for endurance activities, while muscles with a larger distribution of MHC-2X fibers are fast and better suited for activities requiring speed and power. Muscle fibers, however, have the plasticity to change fiber type and it may be possible for athletes to train in a way that adapts expression for a specific MHC isoform. Endurance, sprint, and resistance training can cause a transformation in the fiber types found in limb muscles, although the mechanism is not fully understood. This report reviews the effects of sport-specific training on the expression of slow and fast MHC isoforms and the extent of fiber type plasticity observed in studies of athletes.

693 Joe Rupert

Analysis of myosin heavy chain isoforms in prehensile tails of Didelphid marsupials: muscle specializations for arboreal versus terrestrial locomotion

Contractile properties of muscles are determined by the myosin heavy chain (MHC) isoforms expressed in muscle fibers. Contractile performance requirements are generally specific to species and dependent upon the environmental limitations present within the occupied niche. Compared to their terrestrial relatives, arboreal mammals should have different compositions of MHC isoforms in their skeletal muscles largely due to the different requirements of arboreal versus terrestrial locomotion. Arboreal species commonly display specialized, derived morphological features such as a long, prehensile tails that facilitate complex maneuvering in trees. Use of a prehensile tail (i.e., prehensility) varies among species, and its muscle function can be unique depending upon the specific locomotor behavior employed. Didelphid marsupials provide an excellent model to study tail muscle structure and function because they represent a group that includes a range of arboreal and terrestrial locomotor habits, and all species exhibit a tail with some degree of prehensility. This study aims to compare MHC isoform composition of the tail musculature between a terrestrial opossum (Mondelphis domestica) and a highly arboreal opossum (Caluromys derbianus). Caluromys is expected to have a greater distribution of fast, glycolytic fiber types (MHC-2X, 2B) for transient arboreal behaviors compared to Monodelphis, which should possess slower, more oxidative fiber types (MHC-I, 2A) for postural tail-function. These hypotheses will be tested by identifying specific MHC isoforms present in the tail muscles using gel electrophoresis, immuno-blotting, and immuno-histochemistry techniques.

694 Dom Sikora, Ralph Roth, Jennifer McAnallen, Nico Minniti, Matt Lehman, Zach Abraham

Art and Science of the Trebuchet

Our team is designing a trebuchet. We will do the mathematics behind it and do trials of shooting different things in it. We will try to modify the trebuchet to the best of our abilities. We will have AutoCAD drawings made up from the actual model. We will also have a 3-D model made up on either Inventor or Solid Works.

695 Amanda Gittings, Angie Altiero

Cost of Self-grooming

The purpose of the study was to investigate how much university female students spent on self-grooming products. The "Cost of Self-Grooming Questionnaire" was used to collect the data. The questionnaire covered topics that ranged from cost of tanning, nails, hair, teeth, makeup, and toiletries. The sample population was 100 university female students. The average income of the female students who participated in the study was $630 per month. The average amount that the participants spent on self-grooming was $140 per month. This shows that the participants spent about 22% of their income on self-grooming products. ANOVA showed age and ethnicity were not significant factors in the way female students spent on self-grooming. In conclusion, the study found that there is no difference in the way different ages and different races of female students spent on self-grooming products.

699 Jennifer Terek

Biodiesel Process and Production

With the rise in energy demands and the dwindling supply of fossil fuels, the development of biodiesel fuels has influenced a possible replacement for diesel fuel. Generating the methyl esters essential for creating biodiesel requires the reaction of triglycerides with alcohol and the aid of a catalyst; this process is known as transesterification. Crude corn oil, methanol, and potassium hydroxide were the chosen components. To produce a high conversion of biodiesel a microwave was utilized in place of a batch reactor. Once the reaction occurred, a mixture of glycerol and fatty acid methyl esters were produced and ultimately separated. The ester solution was then repeatedly washed with water and boiled to remove any excess methanol. To test the conversion, a comparative method using viscosity was conducted, in addition to a thorough chemical analysis. The results show that 98% conversion is attainable using this method.

700 Debra Gratz

Impact of Pre-Kindergarten Program, Success by Six, with Parental Involvement in Closing Achievement Gaps

Early intervention prior to kindergarten is an effective strategy in closing the gap in pre-readiness skills for reading and appropriate behavior which may occur because of disparity in socioeconomic status, parenting styles, and the education experience of the parents. The United Way Success by Six Program was created to provide the opportunity to engage children and their parents prior to the kindergarten experience in an intervention process to close the gap which exists for a multitude of reasons. The purpose of this study is to understand the reasons why parents are hesitant to be involved and then create programming engaging parents in shared discussion and skill reinforcement workshops. A pre-post non-random control group

design will be utilized. The outcome should reveal the learning gaps closing upon the completion of the program for those students in the intervention group.

701 Gengkon Lum

PlantSecKB: A Knowledge-Base of Plant Secretomes

PlantSecKB (http://proteomics.ysu.edu/secretomes/plant.html) provides a resource of all secreted proteins, i.e. secretomes, for all plants. The database was constructed with all the available plant protein data from the UniProt database. The secreted proteins contains information from three sources: (1) the entries were identified using a computational protocol including SignalP, TMHMM, TargetP, Phobius and PS-Scan; (2) the entries that were mapped to UniProt database with annotation of subcellular locations that were either manually curated or computationally predicted; (3) the entries we manually curated from recent literature. With a web-based user interface, the database is searchable, browsable, and downloadable by using UniProt AC, NCBI GI, RefSeq accession number, key words, and species. A BLAST utility was integrated to allow users to query the database based on sequence similarity to protein sequences of their interest. A tool was also included to support community annotation. With the complete data available for plants and associated web-based tools, PlantSecKB will be a valuable resource for exploring the potential applications of plant secreted proteins. This work is supported by the Ohio Plant Biotechnology Consortium.

702 Erin Griehs

Comparative Fraudulent Practices: International Differences between the U.S. and the European Union

This study compares financial statement fraud that occurs in U.S. companies versus companies in the European Union. The U.S. currently uses Generally Accepted Accounting Principles (GAAP) as the standard framework for preparing financial statements; whereas, the European Union utilizes International Financial Reporting Standards (IFRS). As the U.S. works towards converging GAAP with IFRS, the potential increase in fraud risk that the U.S. may face in their reporting standards is discussed in this analysis. For example, because IFRS relies primarily on fair value accounting, compared to the GAAP-based historical cost method, accountants have more latitude in their judgments under IFRS. Therefore, this relation opens the door for increased potential bias in the financial statements. By examining firms in similar industries, this study investigates how firms in the European Union, compared to the U.S., deter fraud. Also examined are differences in their legal systems in terms of civil and criminal penalties incurred based on committing fraud.

703 Kaitlyn Lucas, Dr. Koteswara Rao

Magnesium Based Metal-Organic Frameworks

Metal-Organic Frameworks, or MOFs, are crystalline materials consisting of metal ions or clusters coordinated to often rigid organic molecules to form one-, two-, or three-dimensional structures. MOFs can be porous and the voids within the MOFs can host other molecules such as solvents or gases. A current and newly explored area of MOFs involves the reaction of magnesium salts with different carboxylates. The specific aim of this project is to develop novel

magnesium metal-organic frameworks, characterize them and then test their adsorption properties for different types of gases.

704 Cory Okular

The Effect of Local Unemployment on College Graduation Rates

The unemployment rate influences several aspects of the economy, including college graduation rates. Research has indicated that students who enter into the labor market during poor labor conditions begin their working lives disadvantaged (Kahn 2009). Because of the large number of unemployed workers, college graduates often do not have optimal selections of jobs, so new workers may be underemployed, may not be working as many hours as they prefer, or new workers may enter a career for which they are not matched. In the long-run, these situations result in lower earnings, and because of this, students have incentive to delay graduation when the labor market is not optimal. This research will apply regression analysis using variables of local unemployment to examine their effect on college graduation rates. The independent variables will include county de-facto unemployment, county unemployment, and a dummy variable indicating if the county unemployment is greater than the national unemployment.

705 Poornima Oruganti

THE SUBCLONING AND IDENTIFICATION OF MONOCLONAL ANTIBODIES FORMED FROM VIRAL PROTEIN R (Vpr) IMMUNIZED MICE.

Viral Protein R (Vpr), is a protein that directs the nuclear import of the Human Immunodeficiency Virus pre-integration complex. Recent research has suggested that Vpr can act as an anti-cancer agent by overcoming the apoptotic resistance, or resistance to programmed cell death, displayed by some cancer cells and by holding cancer cells in the G2 phase of the cell cycle (LeRouzic and Benichou, 2005). In this study, monoclonal antibodies formed from Vpr immunized mice were subcloned and tested for specificity. Hybridomas were cloned using limiting dilution with MRC-5 feeder cells. The multi-well plates were examined microscopically to identify the wells with single clones. Supernatants were collected from wells that showed healthy, monoclonal cells and tested for antibodies that bind to Vpr. An ELISA was performed with purified Vpr as the antigen. Mouse antiserum against Vpr was used as a positive control. The absorbance was read using a 450-nanometer wavelength to determine antibody binding. Subcloning of the three different hybridomas (DF.VPR.G4, EH.VPR.A2, and DF.VPR.C4) was performed using limiting dilution analysis. In the first subcloning, DF.VPR.G4.B11 was weakly positive. Two additional hybridoma supernatants, EH.VPR.A2.G3 and DF.VPR.C4.E11, tested positive for antibody against Vpr. The antibodies produced in theses studies will be purified and used to identify Vpr in Western Blots. Using these antibodies, molecules that regulate Vpr production in host cells will be identified.

706 Cory E. Muraco

Isolation and Characterization of Lysozyme Oxidized By A Copper (II)/Hydrogen Peroxide Metal Catalyzed Oxidation System

Proteins can be oxidized by molecules known as reactive oxygen species (ROS). ROS include hydrogen peroxide, the hydroxyl radical, and the superoxide anion. Knowledge of site-specific oxidation of proteins will aid in the understanding of how these altered proteins can be

correlated to disease states and help to determine the relationship between the level of protein structure and susceptibility to free radical damage. The purpose of the current project was to isolate and characterize hen egg white lysozyme (HEWL) that had been oxidized using a copper (II)/hydrogen peroxide system. The different oxidized forms of lysozyme were separated into seven peaks using high performance liquid chromatography (HPLC). Each of these peaks was assayed, using native lysozyme as a standard, for lytic activity via visible spectroscopy. Each oxidized variant had a lower activity than native lysozyme with Peak IV having the highest relative rate, 73.8% that of native lysozyme.

708 Justin McIntyre

Arriving at Justice and Retribution: A Comparative Study of the Treaty of Versailles and the Nuremberg Trials

On June 28, 1919, the Treaty of Versailles was signed. This piece of international legislation placed severe impositions upon the state of Germany. This included territorial changes, military restrictions, exorbitant reparations, and many other punishments. Years later, on November 20, 1945, a different means of international law began the Nuremberg Trials. In this contrasting instance, punishment was not implemented through a treaty targeting a nation as a whole; instead, individuals were held responsible for their actions. Individual indictments included crimes against humanity, acts of aggression, crimes against peace, and general war crimes. These two international legal happening, the signing of the Treaty of Versailles and the Nuremberg Trials, are both considered monumentally important and unique; for that reason, they have been the subject of scholarship for years. This study aims to compare these two documents by first examining how the Treaty of Versailles punished Germany for actions that brought about the Great War. Secondly, the manner in which the Nuremberg Trials punished those responsible for the war, as well as their actions during the Second World War, will be surveyed. Finally, a direct comparison of these two events and their respective relation to international law will be provided. This arrives at the general conclusion that the Treaty of Versailles and the Nuremberg Trial, while primarily characterized by differences in means of delivering retribution and penance, share similarities in ambitions.

709 George Kubas

THE MORPHING PROPERTIES OF A SHAPE MEMORY COMPOSITE

This research work has investigated the morphing characteristics of a shape memory composite (SMC) activated by high temperature shape memory alloy (SMA) wires. Initial attention focused on manufacturing the smart SMC-SMA system in which the alloy wires were sandwiched between the adaptive composite layers. Following the composite-alloy assembling process, an airfoil based on antagonistic SMC-SMA coupons has been manufactured. Here, the SMA wires have been activated using an electrical power supply, and a morphing system has been achieved by switching the electrical stimulus on the antagonistic composite-alloy system. Initial results, have suggested that the SMC-SMA airfoil is able to achieve up to 14in of bending deformation. The present study has also impulsed the development of smart Fiber Metal Laminates (FMLs); here, the SMC-SMA plies has been embedded between two aluminum alloy skin layers. Preliminary results have shown that the composite-alloy system appears to successfully induce a structural change in the FML.

710 Joshua Pastor

2D GEL ELECTROPHORESIS PROFILE OF CYANOGEN BROMIDE CLEAVED BOVINE SERUM ALBUMIN AS A 2-D GEL ELECTROPHORESIS STANDARD

In many proteomic studies a protein standard is essential to validate the molecular weight (MW) and isoelectric focus (IEF) of unknown proteins visualized via 2-D gel electrophoresis (2-DE); however, commercially available standards are relatively costly. This problem might be circumvented by using cyanogen bromide (CNBr) digestion to cleave bovine serum albumin (BSA) at its Methionine residues to generate defined fragments. The resulting CNBr BSA should make an ideal candidate for a 2-D gel standard. Our objective is to characterize the CNBr BSA 2-DE profile so it can be used as a standard for future 2-DE gels. Varying concentrations of CNBr BSA were loaded onto IEF strips (pH 3-10) and a 2-DE performed. All gels were stained with Coomassie blue then imaged and analyzed for MW and isoelectric points (PI) using REDFIN software and commercially available 2-DE standards for comparison. Eight distinct spots and a triplet cluster were visible on each gel. All of these were consistent with observations in the literature. The density of the spots was directly proportional to the concentration of BSA at 3, 5, 7, and 10 Âµg, and higher concentrations of BSA correlated to denser bands. Specific MW and PI of CNBr BSA fragments have yet to be determined, but this protein profile demonstrates a strong potential for use as an inexpensive and reliable standard for 2-DE.

711 Deborah McCurdy

Negotiating China: The shift to individualism

The paper analyzes culture in China as compared to America through the lens of one of the most widely-used concepts for studying cross-cultural communication: individualism and collectivism. Cultural and social influences on individualism and collectivism are investigated and emphasis is placed on parents as being the primary socializing agents. The causal relationship between cultural individualism-collectivism and conflict behavior is examined as well as its influence on self-construal and face, which is a concept including prestige, honor and reputation, common in Chinese culture. Ingroup-outgroup status, power distance and gender are discussed as they are also found to have influence in a conflict setting. Researchers have found a socioeconomic mix of individualism and collectivism among emerging nations which indicates a shift from traditional collectivism to contemporary individualism. Implications of the findings are discussed in terms of China's One Child Policy as that may affect a change in traditional social behavior. Keywords: individualism, collectivism, face, self-construal, ingroup-outgroup, power distance, gender, conflict behavior

712 Brittany Chalfant

Polyimide Aerogels for Next Generation NASA Space Suits

Polyimide aerogels have been found to exhibit higher strength than other aerogels, making them a promising material for space related applications. One method of synthesizing polyimide aerogels involves the use of 4,4'-oxydianiline (ODA), 3,3',4,4'-biphenyltetracarboxylic dianhydride (BPDA) or benzophenone-3,3',4,4'-tetracarboxylic dianhydride (BTDA), and 1,3,5-tris(4-aminophenoxy) benzene (TAB) to create a poly-amic acid solution which is then chemically imidized. By substituting a percentage of the ODA in this procedure with an aliphatic diamine such as 1,12-diaminododecane (DADD) or 1,10-diaminodecane (DAD), it is believed that these

aerogels will exhibit greater flexibility, which is a desired characteristic for applications including insulation for space suits. Gels formed from these components were chemically imidized and dried by supercritical CO2 extraction. In this way, aerogels with densities as small as 0.12 g/cm3 were fabricated. Aerogels made with BPDA and aliphatic diamines were found to have comparable densities, modulus of elasticity values, and porosities as aerogels made with just ODA, and appear to be considerably flexible.

713 James Hamilton

Effects of Clothing on Positive Identification in a Sequential Police Line-up

An experiment was conducted to determine if clothing color has an impact on identification of a suspect in a serial line-up of seven people, one of whom was the perpetrator in a staged video depicting a robbery. After viewing the video, 87 participants were randomly assigned to one of three groups: Group 1 saw suspects wearing a variety of clothing colors; Group 2 saw suspects wearing red clothing, which was the color worn by the suspect in the video; and Group 3 saw suspects wearing gray clothing. Correct identifications and confidence in the identifications were measured. Results are still being analyzed, but preliminary results showed no significant effect of clothing color on correct identifications X^2 (2) = 5.021, p = .081. Also, a one-way ANOVA showed no significant effect of clothing on confidence in identifications.

714 Breanne Szmara

Sustainability - The Challenge for Accountants

Accountants base valuations on historical cost or market value, which can easily be determined for man-made assets and for some natural assets. However, corporations use a large amount of natural resources that have no cost or market valuation because they are neither bought and sold nor owned. Corporations need to know how much their use of these natural resources cost society, so as to reduce their total costs as well as inform stakeholders of the effect of corporations' natural resource consumption. I will compare the efforts of entities in the UK and the US to account for sustainability of corporate operations. This examination should help determine what paths of accounting valuation and reporting development as well as accounting methods are most productive in producing information about the sustainability of corporate operations.

715 Brittany Trask

Unnatural Morality: Libertinism and Ethics in the Works of Byron and Wilmot

This paper argues that wealth, status, and opportunity plays a more persuasive role in enforcing conventional behavior than any "natural feeling" or intellectual conviction. Using the concepts of sadomasochism, libertinism, and Thanatos, as well as writings by Lord Byron and John Wilmot, 2nd Earl of Rochester, the role of wealth and privilege is examined.

716 Abby Kulisz

The Woman at the Window: Exploring the Death of Jezebel

There are few characters in the Bible who are more vilified than Jezebel. Traditionally, the ancient queen has been smeared as a temptress who corrupted Israel with her heretical beliefs.

In Jezebel's final scene, she appears at her palace window to meet her murderer, Jehu, with painted eyes and elaborately styled hair. One of the oldest interpretations of this story portrays Jezebel as a harlot whose stance at the window is an attempt to seduce Jehu. However, like many of the "bad girls" in the Bible, Jezebel may have been severely distorted by the Biblical writers. In fact, historical inquiry suggests that Jezebel was a courageous woman who defiantly confronted her death. This presentation will critically examine Jezebel's appearance at the window to reveal the identity of this demonized queen. Emphasis will be placed on the historical context of the ancient world and textual issues in the Bible to provide evidence for Jezebel's misrepresentation.

717 Joseph Crook, Mark Womble

Functional Neuroanatomy of Autism

Autism is a complex developmental disorder that first appears in childhood, typically before age three. Autism affects the social and communicative behaviors of the child. The main characteristics of the disorder include anti-social behavior, repetitive actions and lack of or delayed communication. This review is primarily focused on the neuroanatomy and neuropathology of autism. Non-intrusive brain scans have revealed anatomical structures of the brains of autistic individuals differ substantially from the brains of non-autistic individuals, specifically with enlargements in certain areas of the frontal lobe. Post-mortem studies have found that these enlarged areas of the brain also contain an overabundance of neurons. A potential role of the amygdala, the emotional component of memory in the brain, has also been shown to be altered in autistic individuals and this has been linked to antisocial behavior. Additional research has focused on the rate of brain development in autistic children, and a pattern has emerged of excessive, rapid brain development during specific periods early in life. Changes in behavior during these periods may serve as warning signs for autism. Neuroimmune theories are also discussed, as current research is indicating an apparent prevalence of autoimmune disorders in first-degree relatives of autistic children.

718 Adeel Abbas, Abdurrahman Arslanyilmaz, Abdur Rehman Tahir

AN ONLINE LEARNING TOOL AND ITS EFFECTIVENESS ON ENHANCING NEGOTITATION OF MEANING

The purpose of this study was twofold. The first purpose was to describe a prototype for an online task-based language learning (OTBLL) tool designed and developed for Turkish as a foreign language. The second purpose was to investigate the effectiveness of the OTBLL tool with respect to negotiation of meaning. More specifically, the experimental study examined the role of teaching approach in foreign language acquisition by comparing task-based instruction through the online task-based language learning tool to multimedia-based form-focused tool on the amount of negotiation of meaning. Two intermediate-level Turkish classes consisting of 28 high school students participated in this experiment. The classes were randomly assigned to two treatment groups: a control group with multimedia-based form-focused foreign language instruction and an experimental group with online task-based foreign language instructions. Instruction lasted for 10 days. The dependent variable was the amount of negotiation of meaning sequences in Turkish language produced by students in the two conditions. Statistical analyses revealed that students with the online task-based instructions produced significantly more negotiation of meaning sequences than students with multimedia-based form-focused

instructions. Based on those results, it was concluded that online task-based foreign language learning was more effective than multimedia-based form-focused instruction in increasing the amount of negotiation of meaning students produce.

721 Kevin Siembieda, Bronson Lamocha, Richard Thimons, Ryan Wayslaw, Brian Carey

Design of Planatery Gear Box

Given a bench top lathe design from MIT and a given input, our group was tasked with designing a planetary gearbox for producing an output to a shaft. The motor is .5HP and spins at 1740RPM and our goal was to produce a gearbox that reduces this by 120:1. A multistage planetary gearbox is what we will be designing to meet the criteria.

723 Kent Cunningham, Michelle Gbur, Clayton Reakes, Honggan Dong

Linear Motion System of Lathe

The hand crank screw and rail system of a simplified machine lathe must be designed to withstand the assumed operating conditions. The reference of this design is found at the Massachusetts Institute of Technology's website, and the emphasis of this is to obtain the basic concepts of applied machine design principles. The focus of this project is to design a ball screw mechanism to move the table of the lathe. Within the scope of this project includes choosing the correct bearings, bushings, spacers, and rails to assemble the system. The linear motion section of the lathe was designed to an assumed designed factor.

729 Aubrey Garland, James Neiheisel, Ray Hudran, Brock Elsea, Jason Reiner

Design and Analysis of a Lathe Spindle

This project involves the design and analysis of the spindle of a small hobby lathe. Given a 0.5hp motor operating at 1740 rpm, an initial design was presented to the group for modification and analysis. The input and output diameters of the spindle were fixed and the spindle itself had to fit within a housing of given size. A specific type and size of bearing was selected and the spindle designed to match these bearings. Once an initial spindle design was produced, it was analyzed for both static and dynamic loading conditions. After performing hand calculations and finite element analysis a final design was obtained with a minimum safety factor of 3.5.

733 Jarrett Scacchetti, Aaron Bishop, Michael Sammartino

Rubik's Cube Solving App on the Android Platform

The Rubik's Cube is a historical puzzle dating back to 1974 when Ernest Rubik first created the world's best-selling toy. Although they are fun to solve by hand; it is more fun to solve using a robot to achieve inhuman speeds. By implementing a color recognition algorithm using the camera API of an Android phone, and a solving algorithm using the principle of God's Number and look-up tables, we've programmed the phone to solve 3x3x3 Rubik's Cubes. Once the phone maps and solves the cube, it will send the data to an FPGA, an Altera DE2 Board in our case, which will control the stepper and server motors. A separate stepper motor driver using CMOS logic transistors is used in conjunction with the FPGA to properly drive the stepper motors. The phone will be programmed in Java, while the FPGA will be in VHDL.

735 Marjan Moro

Electron Crystallography of Ceramic-Metallic Interpenetrating Phase Composite

Ceramic-metallic interpenetrating phase composites (IPCs) investigated in this study consist of a mixture of Al2O3 and various Al-based intermetallic phases. The material was produced by Fireline TCON, Inc. of Youngstown using reactive metal penetration (RMP) process of vitreous silica (SiO2) pre-forms with molten Al-7.5wt.% Fe alloy. These IPCs posses superior thermal resistance, corrosion, and impact properties, and are lighter then traditional materials used in various application, such as automobile breaking components and military armor systems. Material characterization was performed using transmission electron microscopy (TEM) techniques, particularly electron crystallography and atomic resolution imaging. Electron transparent samples for TEM investigations have been prepared using Focused Ion Beam (FIB) methods. Electron diffraction reveled the presence of binary Al13Fe4 (C-centered monoclinic C2/m, a = 1.549 nm, b = 0.807 nm, c = 1.2474 nm, OI=107.7B°) and ternary Al4Fe1.7Si (hexagonal P63/mmc, a = 0.7509 nm, c = 7594 nm) phases within the composite material. In addition, crystallographic orientation relationships have been obtained between corresponding phases: Al2O3/ Al13Fe4, Al2O3/Al and Al2O3/Al4Fe1.7Si.

736 James Kinnick, Sam Jacobowitz, Poornima Oruganti, John Guy

American Medical Student Association

Here at the Youngstown State University chapter of AMSA, we aim to benefit the community through a two pronged approach. The first prong is volunteer work. Volunteering is a way to share our compassion and commitment to serving others on the local level. We believe that volunteer work provides positive experiences for our members as well as for the community. Our members volunteer at local hospitals like Humility of Mary Health Partners and aid organizations such as The Rescue Mission in Youngstown, Ohio. We will also participate in various events around town, including Relay for Life, Mahoning Valley Walk Now for Autism Speaks, and the English Festival. The second prong is healthcare experiences. AMSA members participate in activities that will help them as future healthcare professionals. These activities include opportunities for shadowing doctors and opportunities to attend information sessions about local and international medical schools. Furthermore, we are working on getting research jobs and internships for our members. Overall, the Youngstown State University chapter of AMSA is a great help to students who plan on entering the medical profession.

738 Caitlyn Rodomsky, Justin Getz, Chris Scheckelhoff, Dakota Joy, Lauren Rodomsky

Comparing Drag Coefficients For Two Types of Snowmobile Windshield

The objective of this investigation was to experimentally measure the drag coefficients for two snowmobile windshield designs. Our experimental design will be described, and we will discuss the relationship of the drag coefficient to the force of wind resistance on the windshield. The importance of this investigation to the overall design of snowmobiles will be discussed.

742 Nichole Patton

The Generation, Transformation, and Expression of Mutant Hen Egg White Lysozyme into Pichia pastoris for Oxidation Studies

Reactive oxygen species (ROS) are compounds that are produced by the reduction of molecular oxygen; these species can generate free radicals. The most common and most reactive ROS include the superoxide anion (O2-), hydrogen peroxide (H2O2), and the hydroxyl radical (OH). Metal-catalyzed oxidation systems are experimental systems that use a metal ion, such as Fe2+ or Cu+, hydrogen peroxide, and often a reducing agent to generate a free radical. Free radical damage to biomolecules has been directly connected to a variety of diseases. The purpose of this research is to observe the pattern of oxidation of a model enzyme, hen egg white lysozyme (HEWL), and to determine its relationship with the level of protein structure it affects- the primary or tertiary structure. In order to accomplish this, a suite of 4 mutants were generated for site-specific oxidation by utilizing the Polymerase Chain Reaction (PCR). The mutants were then confirmed by gene sequencing and were transformed into Escherichia coli. The gene was then ligated into a plasmid that would support replication in both a bacterial and a yeast system. After using E. coli to generate microgram amounts of the plasmid, the gene was linearized in preparation for transformation into the yeast system. The genes were then transformed into Pichia pastoris using electroporation. These experiments were done to confirm the correct phenotype for the plasmid and to determine the conditions of highest HEWL expression.

743 Stacey Pavlik, Laura Kosiorik, Sean Satterlee, Heidi Hall

Estimating the Impact of House Sparrows on Eastern Bluebird Reproductive Success Across an Urban Gradient

Non-indigenous species are widely reported to compromise the population growth of native species but quantitative estimates of this phenomenon are often lacking. Management recommendations are frequently subjective speculation and have poor predictive power. The non-native House Sparrow (HOSP) has increased its range to encompass all of North America, where it usurps nests of native cavity-nesting birds, frequently destroying eggs, and killing nestlings and adults in the process. Here, we quantify the among-habitat impact of HOSP on the reproductive success of the Eastern Bluebird (EABL), a native species. Our primary objective is to assess the impact and management of HOSPs on EABL reproductive success. To do so, we attempted to found new EABL populations in rural and urban areas to assess whether the high expected HOSP management of newly placed EABL nest boxes in urban areas is sufficient to promote EABL nesting success. In our first year, we found that fledgling success was higher is rural areas compared to urban areas, 32 and 2 respectively ($F = 28.848$, $p = 0.002$) but this was not driven by HOSP abundance. Additionally, we will utilize long term data sets and data from our 8 newly founded urban and rural EABL populations to assess the effectiveness of HOSP nest removal on EABL reproductive success. Lastly, we will determine whether a correlation exists between distance from building and HOSP abundance to establish a distance threshold in which EABL nest boxes will be more successful. By quantifying these two interrelated variables and others, we will provide good guidance to managers as to some key habitat features conducive to establishing EABL populations.

744 Sean Geizer

The Ballad of Booth and the Balladeer in Sondheim and Weidman's "Assassins"

This paper traces the development and relationship between the characters of John Wilkes Booth and the “Balladeer” in Stephen Sondheim and Jonathan Weidman's 1990 off-Broadway musical Assassins. The musical features historical figures that either assassinated or attempted to assassinate Presidents of the United States of America. Although there is no linear plot, the scenes progress in approximate chronological order from John Wilkes Booth to Lee Harvey Oswald. The special connection between Booth and the Balladeer in terms of staging, song content, and dialogue, is examined in detail. Also examined are the implications of the 2004 Broadway staging, in which has the same actor play the Balladeer and Oswald. Analysis of lyrics, music and dialog is presented as evidence.

745 Sean Geizer

Der Lindenbaum: Ironic Dualism in Schubert's "Winterreise"

“Der Lindenbaum” is infused with irony in a remarkable number of ways. On a large scale, there are the contrasts of modality, which Schubert uses in an unexpected manner, such as depicting death with major and life with heavy minor. For the small scale, Schubert uses an upper-neighbor motive decorating the dominant scale degree. Schubert first uses the motive in both major and minor inflections, and the serenity of the major mode in “Der Lindenbaum” provides an ironic major version of the scale-degrees 5-flat 6-5 grief motive. The brief 5-6-5 motive can be viewed as a concise summary of the broader poetic narrative of the song. When first heard in m. 2, the motive has a quality of being a simple, toss-away motive ending the first introductory phrase. However, in its very next appearance still in the introduction, the motive now occurs at several structural levels simultaneously. The motive continues to be worked into the fabric of the Lied until it becomes the structural foundation for the B section (mm. 46-58). It appears prominently in the bass and is layered into the upper voices of the piano and the vocal line with varying degrees of subtlety. The agitated nature of the B section highly contrasts the opening of the song, and strongly shows that calm of the introduction may be nothing more than an ironic veneer. “Der Lindenbaum” is a wonderful example of Schubert's compositional talent for infusing a concise motive with deep emotionality, distilling it down to its very essence. This paper examines only one song out of a cycle of twenty-four, yet “Der Lindenbaum” continues to provide myriad analytical opportunities nearly two centuries after its initial publication.

747 John Swisher, Joe Knepper, Bill Chachko

Identification Interface

For our senior design project we are designing a project in collaboration with M7 Technologies. The goal of the project is to provide an autonomous system engineering solution for M7 Technology's ID issue. Our solution is a dimple system to represent 1’s and 0’s, 32 to be exact. This project will increase productivity and reduce error. This is a broad project that can be applied to multiple facilities in manufacturing. The main problem we are trying to reduce is human error and time issues. These problems we are going to solve by creating an autonomous system. This system we are currently creating will not entirely create the final process, but will make major strides toward completing that process. This process allows for easily recognizable ID codes in small spaces. This project will increase M7’s output, decrease their downtime, and allow for a marketable M7 product in the future.

748 Chris Kamykowski, Ken Minteer

Monkey Mania

Collaboration between artist and engineer to create sculptural bronze casting.

751 Robert Ragan, Mark Kosec, Phil Ciprian, Ryan James

SMART BADGE

The personal communication between professor and student is an important part of a college education. The use of personal computers and access to the internet at an institution has revolutionized the speed of messages being sent from one party to another. The internet has infinite references and material relating to almost every concept covered in oneвЂ™s education. Email allows classmates to stay in touch, and professors to reach their students anywhere, anytime. However, this personal communication through learning has a heavy reliance on an internet connection. Our group plans to create a wireless programmable display device, the SMART BADGE, which will enhance the communication between class peers as well as replace an outdated numbering system to identify classrooms on campus. The SMART BADGE will replace the paper badges installed currently outside of each classroom. With an electronic version in place, simple messages could be displayed that would aid in the identification of rooms, classes, and even homework assignments.

755 TaQuaesa Toney

Monoclonal Antibodies against Staphylococcus aureus

Staphylococcus aureus type 5 and type 8 are a leading cause of hospital-acquired infections in immunocompromised patients. Type-specific monoclonal antibodies help to induce phagocytosis of capsulated type 5 and type 8 by polymorphonuclear leukocytes. Polyclonal hybridomas were created by taking spleen cells from a mouse immunized against S. aureus and fusing them to myeloma cells. These cells were then serially diluted to isolate single subclones by dilution elimination, resulting in monoclonal hybridomas. Each hybridoma was tested for antibody production against the capsule of S. aureus type 3, type 5 or type 8, or for binding to S. epidermidis, by an indirect enzyme-linked immunosorbant assay. Of the 97 subclones tested, 15 were positive for (produced antibodies to) type 3, 3 were positive for type 5, and 13 tested positive to S. epidermidis. Future studies will include further subcloning of type-specific hybridomas which may be useful in diagnosing or treating Staph infections.

756 Kari Crawford

Organizational Compromise of Animal Protection and Welfare Laws

The problem investigated in this study is the welfare of animals, both livestock as well as companion. Although there has been an abundance of research in relation to animal abuse and its connection to human violence, there have been few studies focusing solely upon animal abuse and welfare, the laws which currently govern such issues, and the varying opinions and potential compromise of those issues. Specifically, this research explores the perceptions by those in the animal industry. Those who support animal welfare laws, as well as those potentially on the opposite side of such issues will be queried with respect to their perception of these controversial issues. Animal welfare legal enforcement remains a serious concern,

particularly in relation to livestock within major agricultural companies and the confinement and slaughter of those animals. Laws are oftentimes not enforced for various reasons even by appropriate police units and cases are often ignored by the court system. In an attempt to find agreement upon the animal welfare systems and their potential business counterparts, a survey was administered to various groups surrounding both sides of the issue. It is hypothesized that if those in the animal industry agree upon anything, it is more likely they would agree on issues surrounding companion animals rather than livestock.

758 Maria Sliwinski

Risky Socio-Economic Factors for Early Death Here in Ohio?

The research question guiding this project is how do socio-economic factors (SEF) influence obesity, diabetes, and mortality in Ohio. The impact of SEF on health is considered large. Prior studies have shown that SEF such as low social status, unemployment, poor nutrition and environment, and inactivity are powerful determinants of health. The descriptive purpose of this study is to highlight the proposed relationships among various socio-economic factors and health in Ohio. Drawing upon a convenience sample of 20 Ohio counties, a content analysis is used to investigate how income, employment, and education may influence obesity, diabetes and premature mortality rates. Descriptive, comparative, and connective analyses are employed to examine these potential relationships. Preliminary results from the Pearson's correlation coefficient analysis indicate that SEF and health are related. Although these results cannot be generalized because of sampling limitations, program development does apply, especially with respect to community health programs targeting nutrition and exercise to improve health outcomes.

759 Zachary Morse, Ashley Ballester

Glutathionylspermidine as a Potential Protective Agent against DNA Damage induced by Oxidative Stress and UV Exposure

Glutathionylspermidine synthetase/amidase (GspSA), a bifunctional enzyme found in Escherichia coli, catalyzes the amide bond formation between spermidine and glutathione (GSH) to produce glutathionylspermidine (GSp). GSH is a known antioxidant and provides protection against DNA damage; however, the function of GSp remains unclear. This study aims to determine whether GSp is capable of protecting DNA from oxidative and UV damage. Plasmid DNA pET-20 underwent treatment either by UV light or reactive oxygen species, and the sensitivity of DNA to damage in the presence of GSH, spermidine, and GSp was compared. We found that GSp provided DNA protection under oxidative stress but not during UV exposure. S-nitrosoglutathione (GSNO) which has been shown to exert antimicrobial properties was also tested as a potential agent for protection of DNA under these conditions. Surprisingly, we found that GSNO behaved similarly to GSp providing DNA protection only during oxidative stress.

761 Sarah Tolson

Appalachian Experiences with Multisystemic Therapy

The purpose of this study will be to explore the phenomenon of Appalachian culture, as it relates to Multisystemic Therapy (MST). A phenomenological approach will be utilized as an attempt to find descriptions of the everyday experiences of individuals residing in the

Appalachian region and participating in MST, and to find out what those experiences mean to those individuals. Moustakas (1994) states, “Phenomenology is committed to descriptions of experiences, not explanations or analyses” (p.58). Therefore, the question is how do Appalachian families perceive and describe their experience of MST. The design for this research will involve 5 rural Appalachian families participating in MST. Each family will be asked a series of open-ended questions. After the interview has been completed and transcribed, researchers will thoroughly review the material. From each transcript, significant responses which are specific to the lived experiences of Appalachian families participating in MST will be identified. Themes and patterns are expected to emerge from responses to specific interview questions regarding the experience of individual and family involvement with MST in Appalachia. The results of this study will help further the mental health professional's understanding of the experience of MST in Appalachia beyond any previous knowledge or assumptions.

762 Jennifer Moy

A Continuous Process for the Production of Biodiesel from Soybean Oil

It was desired to create a continuous process for the production of biodiesel fuel from soybean oil in order to power two 130 kW microturbines. Studying both virgin and waste oils, a transesterification reaction was used in order to create the biodiesel. The transesterification was carried out using soybean oil and excess methanol in the presence of a catalyst to produce biodiesel and glycerol. After the reaction was completed, the two products were separated and the biodiesel underwent a water wash in order to remove any excess methanol. The variables studied in this project included catalyst type, reaction specifications, separation processes, and extraction processes. It was concluded that a continuous process was able to be executed using the right processes and equipment. Unfortunately, due to equipment limitations, it was not possible to conclude whether or not the amount of power required for the microturbines is able to be met. However, an understanding of various parameters and their effects allows for a prediction of how the process will work upon scale-up.

763 Jenna Smaldino, Lauren Baker

Caring Theory in the Art of Nursing

Throughout our endeavors in nursing school, Lauren Baker and I have endured many different situations with patients of all walks of life. We have provided health care to those in nursing homes, community agencies, individual homes, and various hospitals across the tri-county area. While our clinical experiences are detrimental to helping us form the technical skills and leadership responsibilities that come with being an independent RN, we have learned that is imperative that we incorporate various aspects of the lecture material into our practice. In addition to learning the pathophysiology, pharmacology, and medical/nursing interventions commonly performed, Lauren and I have also found deep interest in the Caring Theory by Jean Watson. Watson’s work in creating a healthy, healing, and warm environment is often overlooked, due to the overwhelming atmosphere found in a hospital unit. Under the advisement of Dr. Susan Lisko, DNP, RN, Lauren and I will create a verbal and PowerPoint presentation in which we plan to present to professionals at QUEST. By studying evidence-based nursing articles, we plan to research various ways in which nurses across the nation in multiple health care settings can relate and implement Watson’s findings. Lauren and I also plan to

incorporate personal experiences we have encountered during our time spent in Youngstown State's nursing program and explain how our actions as students helped us to grow.

764 Brian P. Peppel, Kathryn A. Tessmer, Michele L. McCarroll

Physiological and perceptual responses to Nintendo's Wii Fit in young and older adults

Physically active video gaming (AVG) provides a technologically-modern, convenient means of increasing physical activity (PA). This study examined cardiovascular, metabolic, and perceptual responses in young adult (AP) and older adult (OP) participants engaging in Wii Fit AVG play, and compared PA levels during play to recommended PA levels. Heart rate (HR), percent heart rate reserve (%HRR), oxygen consumption (VO2), energy expenditure (EE), rating of perceived exertion (RPE), enjoyment level (EL), and step count data were obtained from 10 YP and 10 OP during 15 minutes of rest and four 15-minute bouts of Wii Fit activities (yoga, balance, aerobics, strength). For all participants, AVG significantly increased HR, VO2, and EE measures above rest, with significant between-activity differences. Responses were similar between YP and OP, except that the activities were more intense for OP, in terms of %HRR and RPE. Most games elicited responses consistent with light-intensity PA, though peak HR and VO2 values for aerobic and strength games met or approached recommended PA intensities. Wii Fit appears to provide an enjoyable form of light PA for both YP and OP, which can reduce inactive screen time and provide beneficial cardiovascular, musculoskeletal, and metabolic stimulation.

765 Mihiri Meepegama

Fractures and Child Abuse

Child abuse can range from emotional and physical neglect, to actual emotional and physical abuse (Rockwood et al, 1984). A common manifestation of child abuse is the presence of multiple fractures. In many instances, the fractures caused by physical child abuse can mimic those caused by accidental trauma, as well as, fractures caused due to bone diseases such as Osteopenia and Osteogenesis Imperfecta. As a result, many researchers have carried out studies to differentiate between the fractures caused due to abuse (non-accidental trauma) from those caused by accidental trauma. Literature from 1980 to present was reviewed to identify the locations and types of fractures most common in cases of abuse. It was found that a child who has undergone abuse would more likely present with older fractures in different stages of healing, and with new fractures overlying the old, or in a different location. The most common locations for the fractures include the skull, vertebrae, ribs, long bones, and the metaphyseal (Kemp, 2008). Most common type of fractures seen in non-accidental trauma cases involve linear fractures of the parietal bones, multiple and bilateral fractures in the skull, rib fractures, spiral fractures on the shaft of long bones, and finally fractures in the metaphysis of the long bones. It was worth noting that only looking at the fracture at hand was not enough. In cases of suspected child abuse, the investigator should take a look at the case history and take into account previous injuries and even the family history of child.

766 Braden Walters, Gengkon Lum

Plant Alternative Splicing Database

Alternative splicing (AS) is a process of generating more than one mRNA transcript or isoform from a gene. More than 20% of plant genes showed alternative splicing. In plants, the functional

relevance of certain AS-derived isoforms has been observed in responses to biotic and abiotic stresses. Relative to the predominant transcript, four basic AS types have been observed, including exon skipping (ExonS), alternative donor (AltD) or acceptor (AltA) site, and intron retention (IntronR). In an attempt to identify and annotate AS genes in plants, we develop a plant alternative splicing database. The database can be searched using key words, gene identifiers, species, and AS types. The database provides an online resource for researchers to select genes for further experimentation.

767 Demetrius D. Williams, Julie Sarnowski

College Student Anxiety: Triggers and Treatments

Anxiety is a normal reaction to stress, but some individuals become debilitated by fear and apprehension. They become so impaired that anxiety impairs their behaviors, thoughts, and feelings. Physical symptoms may emerge (i.e., irregular breathing, sweating, and muscle tension; Akca, 2011), and anxiety moves from a normal reaction to a mental disorder requiring attention. College students are vulnerable to anxiety disorders due to the nature of higher education (e.g., constant evaluation, sepration from family, new social environments). College students report Social Anxiety (O'Grady, Collum, Armeli, & Tennen, 2011; Terlecki, Buckner, Larimer, & Copeland, 2011), Test Anxiety (Akca, 2011), and Separation Anxiety (Seligman & Wuyek, 2007). Out of the 70% of college students that reported significant difficulties with anxiety, only 13% sought help (Joyce, Ross, Vander Wal, & Austin, 2009). College students experiencing an anxiety disorder may have difficulty graduating, may develop substance abuse or dependency problems, or may develop long-lasting psychological issues (e.g., Obsessive Compulsive Disorder, Eating Disorders, and Depression). In addition to preventative outreach programs, effective treatments include counseling from a Transtheoretical model (Joyce et al., 2009) and a brief therapy model including Motivational Interviewing techniques. Counselors must understand the unique dynamics of college student anxiety, the triggers for specific types of anxiety, and establish prevention and treatment options to address this growing population.

769 Marlene Mears

SafeFix II vs. 10% Neutral Buffered Formalin: A Morphological Tissue Comparison

Formalin is a popular fixing reagent used in the field of Histology. It is inexpensive, readily available and fixes a variety of tissue types. The health hazards associated with formalin are quite insidious and prolong exposure can be quite deleterious and potentially cancerous. Formalin substitutes have been created; yet, they have not been widely adopted due a multitude of reasons (cost, lack of research or knowledge, testing protocols). The majority of substitutes have been considered potentially non-carcinogenic and unlike the popular formalin-based fixatives, they do not produce copious side-effects which can warrant mutagenic effects. Use of these substitutes can have a positive impact on the health of health care professionals. The purpose of this study was to morphologically compare 10% Neutral Buffered Formalin (NBF) and SafeFix II, a formalin substitute. Twenty samples comprised of seventeen different types of human tissue were fixed in the two reagents. Each sample was examined by two board certified Pathologists using a rating scale to score the staining and preservation properties. An independent-samples t-test was calculated to compare the mean rating of 40 tissue samples prepared using 10% NBF (n=20) and SafeFix II (n=20). No significant difference was found ($t(38) = .597$, $p > 0.5$). The mean of 10% NBF ($m = 32.15$, $sd = 3.44$) was not significantly different

from the mean of SafeFix II (m = 31.60, sd = 3.09). Ratings showed that both SafeFix II and 10% NBF were equally able to preserve the morphology of the tissue samples to allow for proper diagnosis. These findings suggest that SafeFix II can be a safe and effective alternative to 10% NBF.

770 Kylie King, Sylvia Grdina

Fireline

The authors of this QUEST presentation worked with supervisor at a local manufacturer, Fireline. This study was done for credit in the methods engineering class as a part of the Industrial and Systems Engineering program. Motion and time study analysis were performed using the techniques of video capture of the process, analysis of the fundamental motions and establishment of standard times using both classic and predetermined time study procedures. Work sampling techniques were used to help characterize the non-repetitive work content associated with a highly coupled man-machine process. The analysis that was done on the subject and the surrounding operations were characterized through methods engineering tools, such as, man-machine process charts, flow charts, and plant diagrams.

771 David Macek, Zac DiVencenzo

Shapes Unlimited Time Study

A student team of Industrial and Systems engineers performed work at Shapes Unlimited to set the foundation for productivity and quality improvement. This QUEST presentation will demonstrate the application of Methods Engineering course work with in a typical product line. This study consisted of analysis of the production of piece parts, finishing processes, and final assemblies. Several related processes and their interfaces were studied, documented and analyzed for improvement opportunities. Techniques that were employed included classic work measurement methods as well as computer- based video analysis. The use of a variety of analysis techniques supported process improvements and the establishment of time standards. The analysis techniques are also laying the foundation for improvements in ergonomics, safety, and the definition of plant wide objectives.

774 Kelcie Herberger

Wind, Temperature, and Moisture Variations on San Salvador Island, The Bahamas

Local temperature and moisture conditions vary widely in coastal settings. Sea surface temperatures play an important role in dictating local temperature conditions. The role of sea surface temperatures can be dramatically impacted by wind strength and direction (offshore versus onshore breezes), topography, and convective heating. Utilizing a sling psychrometer, anemometer, and barometer I measured differences in wind speed and direction as well as temperature and dew point conditions for different environmental setting on San Salvador Island in the Bahamas. I found that in this setting, the predominant influence on temperature was the sea surface temperature. Wind speed and direction did little to offset the impact on onshore breezes. Convective heating was not an issue in the near-shore environments.

775 James D'Andrea, Daniel Fernback

Altronic

Industrial & Systems Engineering students conducted studies at Altronic, Inc. for Methods Engineering at Youngstown State University. Altronic, Inc. is a local manufacturer of diesel ignition systems primarily for use in the petroleum industry. The students completed a time study, as well as MTM-1, MTM-2, and MOST analyses to determine a time standard and allowances for material handling. The students also compared two different sized work stations in an attempt to determine which was the most beneficial. This was completed by analyzing both workers movements and work stations and comparing the efficiency of each.

777 Danielle Rudloff

Social Networking: Friend or Foe?

Traditional, in-person bulling has been widely studied in children and adolescents. Recent research has begun to investigate bullying through other means, such as online or text messaging. The availability of social networking sites may lead to broader social connectedness for some individuals. Thus, the current study attempted to detect the prevalence of bullying behaviors through social media in college age adults. Further, the duration of the bullying behavior, resulting emotions, management of emotions, gender of the bully, and the relationship of the bully to the victim were examined through a self-report survey. There were 184 participants with approximately equal proportion of males and females. Results demonstrated between 6-23% of participants reported experience being bullied, with traditional bullying behavior reported most frequently. This study may lead to further education in the prevalence of online bullying in young adults as well as ways in which to manage bully attacks.

778 Cody Rigney, Ashley Wagner, Mike Weaver, Nick Popovich, Kevin McLane, Ben Tadla

A Study of the Mathematics and an Optimization of Ray Tracing

Ray tracing allows for the rendering of three-dimensional graphics with very complex light interactions. It is based on the idea of modeling reflection and refraction by following the path that light takes as it bounces through an environment. Using this method, it is possible to create pictures full of mirrors, transparent surfaces, and shadows, with striking results. The process can be explained mathematically using vector analysis. This project is aimed toward understanding the process of ray tracing. This understanding may possibly lead to the idea of optimization of ray tracing, so that it may be useful in applications where it is currently not practical due to time factors.

781 Jocelyn Steiner

The use of computer-mediated communication in long distance and geographically close dating relationships

This paper overviews the different aspects of long distance dating relationships (LDDRs) and geographically close dating relationships (GCDRs). The definitions of LDDRs and GCDRs were primarily the same amongst the articles. According to Dainton and Aylor (2002), LDDRs are relationships where the people involved cannot see each other on a day-to-day basis due to the physical distance between them. Stafford and Merolla (2007) study the same definition for LDDRs and proclaimed GCDRs to be relationships in which both partners are able to see each other on a daily basis. This paper addresses some of the ways that LDDRs are different from GCDRs with respect to communication. Three main points will be addressed, the use of

computer-mediated communication (CMC) in relationships, the geographic location of partners in those relationships, and the uncertainty reduction strategies used in the relationships. This paper comes to find that CMC, geographic location of partners, and uncertainty reduction strategies are all inter-related within the LDDRs and the GCDRs.

785 Adam Geiger, Thomas Hartman, Brittany Soroka

Shaft Design for Lathe

The goal of the design of the lathe power transmission shaft is to successfully design a shaft that can safely and efficiently transmit the power from the gearbox, supplied by the motor, to the lathe. The outer housing of the shaft assembly, input shaft, and output shaft are of a set diameter. The remainder of the shaft and bearings must be designed to fulfill the needs of the lathe. The inner housing of the shaft assembly will also be modified in such a way that it can hold all of the components involved. This design will aim to be efficient and cost effective to produce.

786 Amanda Cox, Justin Seguin, Angelo Pelini

Non-Planetary Gearbox

The objective of this project is to design a gear box for a power lathe. The gear box has to be able to handle a 1 Hp motor at 1740 rpm. The main purpose of this objective is to gear down the lathe at a ratio of 1:96. This design is a multi-stage, non-planetary gear box. This simply means that each gear is fixed on its own shaft and the power is transmitted easily through each gear and shaft. The design criteria states that the motor is to be flush with the ground, the shaft has to be 0.5 inches in diameter and be two inches out with the coupling. The bearings associated for each shaft will come from McMaster which is a well-known, reputable manufacturer.

790 Stephen Rakocy, Bret Bole Stephen Rakocy Joseph Reedy Adam Restifo Samantha Rovnak

Manual Lathe Guide System and Ball Screw Assembly

A design of a guidance and traversing mechanism for small, manual, table-top lathe was developed. The main priority of designing the guidance system was considering the deflections to retain the ability to machine precisely and accurately. The traversing mechanism method was designed to utilize a ball screw that would be operated by a manual hand crank. This method was chosen because ball screws give smooth and precise control over the movement of the machining bed. A final design was reached which satisfies strength and deflection criteria necessary for a precision machining tool.

794 Scott Brand, Brian Crawford Michael Hernandez Sean Gabriel Paul Jones Jessica Grimm

Mathematical Modelling of Fracking Chemical Dispersion in Groundwater

An axial dispersion model was applied to experimental data simulating fracking chemical contamination of groundwater, which determined the degree of mixing of the chemical with the groundwater. The experiments determined that mixing is increased one-hundred fold when there is a significant density difference between the fracking chemical and water. The mixing is a function of how the chemical is introduced into the groundwater. When the higher density liquid (fracking chemical) is introduced beneath the lower density liquid (groundwater), very

little mixing occurs. In contrast, when the higher density liquid is introduced above the lower density liquid, significant amount of mixing occurs which would cause the fracking chemical to disperse over a much larger distance.

796 Karen Considine

Music in Seventeenth-Century Convents and the Genesis of Heinrich Ignaz Franz von Biber's Harmonia Artificiosa

The compositional origins of Heinrich Ignaz Franz von Biber's Harmonia Artificiosa, a fanciful final offering of seven trio sonatas published in 1696, remain unknown and unexplored. These pieces are highly unusual in every respect, so unusual that upon hearing them one is compelled to wonder why Biber wrote them. The answer does not lie in one specific time or place, but rather may be traced through events that occurred during the Seventeenth Century in convents across Europe. In the same year the Harmonia Artificiosa was published, Biber's daughter, Magdalena Rosa Henrica, was accepted into a convent just outside of Salzburg that was reputed to support and cultivate their nuns' musical and creative talents. By accounts, the young woman was a virtuoso violinist and possessed all of the musical gifts of her father. During this time, however, the Nonnberg convent was not accepting new candidates unless such an individual was presented to them who they deemed to be an invaluable addition to their community. It is possible that Biber performed these pieces along with his daughter, as a condition of her acceptance into the convent.

797 Angela Rovnyak

Putative Effects of Learning and Genetics on Host Range Shift in Manduca Sexta (Lepidoptera: Sphingidae)

Host shift is a major factor for sympatric speciation (i.e. in situ branching of evolutionary lineages) in phytophagous insects. The Tobacco Hornworm Manduca sexta typically oviposits (ie. lays eggs) upon plants from the family Solanaceae, but populations have been observed to preferentially choose Proboscidea parviflora, an unrelated novel host. The shift to a nutritionally inferior host reduces caterpillar growth and final adult size, but provides an enemy free space that protects caterpillars from predators and parasitoids. However, little research has been done on the mechanisms leading to this observed change in host preference. To that end, I will be conducting research on the combined role of genetics and learning on mating and oviposition preference in caterpillars raised on medium supplemented either the native host plant Datura wrightii or the novel Proboscidea host. Little attention has been given to the behavior of adults in these conditions; if assortative mating and preferential oviposition are occurring, this would provide evidence for a learned or genetic component of host range shift in M. sexta. This presentation will give a brief overview of the possible mechanisms driving this host range shift as well as introduce my upcoming research on this topic.

798 Renee Pitts

Mindfulness Meditation Program

Mindfulness meditation, as a component of Buddhism, has clinical relevance in the Counseling field and the techniques taught through this school of thought can be easily adapted to a clinical setting without the religious perspectives. The concept of being present, in the current moment,

without judgment, and to cultivate the ability to rest in experience as it occurs, has been shown through research to have potential benefits for both the client and for the counselor. Through a literary review on this topic, I point out these benefits, discuss cautions and considerations when incorporating mindfulness concepts as a therapeutic technique in a counselorвЂ™s practice, and introduce my research program proposal, to be carried out at Youngstown State University (YSU), in the Counseling department. The program development is discussed in detail, starting with recommendations on how to establish a meditation element in the Counseling department and then progresses to the creation of a mindfulness meditation class to serve as an independent variable in my final research program. The paper briefly discusses the final stages of the research project and other possibilities available to the college by having this meditation program at YSU.

800 Jessica Valsi

Towards a Sustainable Youngstown: Possibilities and Challenges of a University Farm

The City of Youngstown is in the process of adopting an innovative and progressive zoning code which includes plans to encourage urban gardening and green space. Efforts to maintain a produce-yielding garden on the grounds of Youngstown State University, although well intended, have ultimately failed. Universities across the country have found ways for their campuses to benefit from an on-campus farming project. In order to understand the barriers to a successful urban farming project on the campus of Youngstown State University, panelists will be invited to discuss past efforts and future possibilbites. Panelists will include students and university leaders. Invitations to attend the panel will be extended to representatives from successful university garden projects at other universities. This discussion will serve as a starting point towards a more sustainable college campus.

801 Elisabeth Miller

Case Study of a Non-Traditional Writing Center Client: Pedagogical and Methodical Implications for Writing Tutors

This is a case study of a non-traditional African American female client (the subject) at Youngstown State University's Writing Center. This study follows the subjectвЂ™s growth in writing and self-revision in relationship to the tutoring methods and strategies utilized in each tutoring session over a period of eight weeks. The tutor (investigator) practiced methods of direct and indirect tutoring to develop the subject's writing and revision skills. The goal of this study was for the subject to transition from dependent to independent writing and revising; in addition, this study also yields the effective and ineffective techniques for writing tutors to utilize when assessing the tutoring needs of non-traditional college students.

802 Olivia Arnold

NOTHING TO YAWN AT: A STUDY ASSESSING THE IMPORTANCE OF SLEEP HABITS FOR ACADEMIC STUDENT SUCCESS

Increasing awareness and empirical evidence reveal that sleep is beneficial for memory, comprehension, attention, and academic success. Yet the importance of sleep within these contexts has infrequently been addressed within programs intended at optimizing academic performance. Ultimately, this study emphasizes the relationship between sleep habits and

academic performance, most specifically, within the unique environment of college residence halls, as considered through self-reported GPA and other identifiable measures, while also contributing to current deficiencies in the literature. Three hundred and sixty-seven undergraduate students aged 18 to 67 years from an urban university in Northeastern Ohio completed an online survey regarding their sleep habits that included questions from the Pittsburgh Sleep Quality Index (PSQI) and questions regarding their academic level, lifestyle, and place of residence. In addition to self-reported measures of academic performance, a self-reported cumulative GPA was also gathered in response. Despite some study limitations, nonparametric analysis suggests that a relationship between sleep and academic success potentially exists in different groups of the study population. Furthermore, although realizing the importance of sleep and its restorative qualities, insufficient sleep and bad sleep habits are present at alarming levels among this college student population.

806 Kevin Hulick

Same-Sex Marriage and a Supreme Remedy

Currently in the United States, same-sex marriage is an area of contentious debate. There have been many attempts to both legalize and prohibit the practice. These attempts include both legislative and judicial mechanisms. This debate, however, has raged on long enough and the Supreme Court ought to decide whether same-sex marriage is a constitutionally protected right. An analysis of the relevant cases demonstrates that same-sex marriage is in fact a constitutionally protected right.

808 Abigail Sequin

Sara Goldfarb Has Left the Building The Musical Journey of Her Dream

“Sara Goldfarb Has Left the Building” The Musical Journey of Her Dream Abigail Seguin The purpose of the presentation is to discuss the concepts of boundary, rupture, and transcendence of character dreams throughout the musical score and narrative structure of Daren Aronofsky’s Requiem for a Dream. The plot and the music convey the journey of the charactersвЂ™ dreams, from their conception to their dissolution. The movie presents four characters who conceive these dreams, battle addictions, and witness their dreams being taken away from them. Centripetal and centrifugal forces functioning on an object at the same time mark the concept of boundary. The point of rupture occurs when the centrifugal forces overcome the centripetal force and the object ruptures from the inside out. Transcendence then occurs since what was once contained inside the object is released from its containment. I will focus on the character of Sara Goldfarb who dreams of having the perfect family. The repetitive ticking of a clock sets up her boundary after she begins a regimen of diet pills prescribed by her doctor. The opposing forces in action on Sara are her dream of the perfect family and her dependence on the diet pills. The ticking of the clock coupled with the constant popping of diet pills builds up until Sara’s point of rupture when she goes insane due to hallucinations. Her transcendence has to do less with her dream as with her transcending reality and living in the hallucination she created. The musical motif of вЂњLux AeternaвЂќ and its full statement symbolize the death of Sara’s dream, its haunting memory, and her transcendence of reality.

809 Tiffany Varney

Student Attitude toward Career Services: Implications for Marketing and Program Development

A comprehensive review of current literature suggests reasons students and counselors in training may have negative attitudes about career counseling. The literature proposes that exposing students to career services more often and explaining the process of career counseling may dispel stigmas attached to career counseling. The increase in exposure could lead to an increased positive regard toward career counseling while simultaneously increasing the number of students who utilize career counseling. Limitations in the current research are reviewed and areas for further research are suggested. A program is suggested for development to meet the goals exposed by the literature review. A step-by-step process for implementing the program is listed along with the target population and goals of the program. Limitations and feasibility of implementing the program are reviewed.

810 Robin McConahy

Manipulating the MHR1 Gene to Determine its Role in Mitochondrial DNA Recombination and Maintenance.

Mitochondria are organelles that are the cell's power source, converting food energy into ATP. Mitochondria have their own small genome which is required for their function. Defects in mtDNA sequences can cause serious medical conditions in humans. The unicellular yeast, Saccharomyces cerevisiae, is a genetic model to study mitochondria due to its simplicity and because it is a eukaryotic organism that can survive without functional mtDNA, using anaerobic fermentation of sugars into alcohol to make ATP. Yeast can exist in one of three different mtDNA states;пЂ пЃ+ (normal and respiring), пЃ- (non-respiring mutant mtDNA), and пЃ0 (absence of mtDNA). There are two nuclear genes, MHR1 (Mitochondrial Homologous Recombination) and CCE1 (Cruciform Cutting Endonuclease) that initiate and resolve homologous recombination structures in yeast mtDNA, there is some evidence that they are necessary for mtDNA maintenance. My research has been focused on the MHR1 gene and the role this gene may play in mtDNA maintenance. We have amplified and cloned the MHR1 gene and are making a knockout construct, as well as shutoff and expression vectors to observe the effects of loss of function on mtDNA maintenance, with and without the presence of CCE1, for which knockout and expression vectors have already been made.

811 Samuel Gindlesberger, Joelle Ballone, Eric Kennehan

Analysis of Monosaccharides using 1-D Nuclear Magnetic Resonance Spectroscopy

As part of the honors component of Chemistry 3720 (Organic Chemistry 2) we have been using YSU's 400 MHz nuclear magnetic resonance (NMR) spectrometers to study the structures of several important monosaccharide derivatives. From various proton and carbon spectra we are able to learn about the conformations (shapes) of these molecules in solution and how NMR spectroscopy complements techniques such as single crystal X-Ray diffraction in structural analysis. This type of information is essential in medicinal chemistry when trying to build new pharmaceutical molecules that mimic natural substances.

814 Jessie Keeler, Michelle O'Connor, Jennifer Williamson

Monosaccharide Structural Analysis by 2-D Nuclear Magnetic Resonance Spectroscopy

The construction of new pharmaceuticals in medicinal chemistry requires detailed structural information on natural ligands and their targets (often proteins or nucleic acids). One of the

most powerful techniques available for structural analysis in solution is nuclear magnetic resonance (NMR) spectroscopy, the basics of which are studied in the sophomore Organic Chemistry sequence. As part of the honors requirement for Chemistry 3720 (Organic 2), we have been studying the structures of several important monosaccharide derivatives by NMR and will present details of 2-dimensional spectra that allow us to understand the shapes of these compounds in solution.

817 Sara Jackson

Are We Really That Different? The similarities and differences of conflict communication in heterosexual and same-sex couples

In this paper, the correlation between conflict management styles and relationship satisfaction in heterosexual and same-sex relationships will be discussed. In previous studies, different conflict management styles have been identified, as well as their connection to satisfaction in a relationship. In other studies, it has been found that similarities and differences in conflict communication are a result of gender, not sexual orientation. It has been found that some, but not all, conflict management styles do affect relationship satisfaction. Future research should be done on this topic in order to help with the improvement of relationships, no matter the sexual preference.

818 Aaron Esbenshade

Differential protein expression of Clostridium beijerinckii in butanol fermentation from wood hydrolysate

Every year as the worlds population grows we demand ever more energy. Much of the energy required is in the form of gasoline to run our cars. In 2010 the United States alone consumed 9.8 x 1016 btu's (British Thermal Units) of which 3.6 x 1016 or 36 quadrillion btu's where in the form of petroleum. (Jones, 1985) As this is a finite resource and we consume it at an ever increasing rate, consideration must be given to our eventual depletion of this resource. While there are many possible avenues that can be pursued one promising alternative is butanol produced via fermentation from renewable plant matter. As seen with ethanol the current plan is to use biofuels as additives to our current petroleum products rather than substitutes for them. However the potential for a fuel is particularly high with butanol due to it's chemical properties, high energy content and strong history as an industrially fermented solvent. In order for this to be accomplished the efficiency of fermentation must be increased.

819 Sarah J. Lowry

Finding Words of Our Own for the "War on Women"

In A Room of One's Own, Virginia Woolf says of women's language that, "there was no common sentence ready for [women's] use" and that language must "be adapted to the body." This project examines the language of the so-called "War on Women" of 2011-2012 and searches to adapt the war-heavy discourse to the bodies that are the cites of this violence. I use oral and written discourse to look for key words or phrases used by public and private figures to describe their reactions to statements or pieces of legislation associated with the attacks on women's reproductive and sexual health, eventually dubbed the "War on Women." I hypothesize that the extreme, divisive, and violent language of the "War on Women" creates a discourse that the

"victims" of these "attacks" do not want or own. Such language used against and later by these women to counter attacks made upon them makes them seem linguistically passive or even powerless. Finding a "sentence ready for [women's] use" that has been "adapted to [their] bod[ies]" gives women power to create a new conversation, control the discussion and find their own words and ways to speak about themselves. I conclude by positing new "adapted" language and compare reactions to the recent controversial issues related to women's rights to control their bodies.

820 Jason Anderson, Lorna Ngo

Identification of β-glucosidase X Active Site through Site-Directed Mutagenesis

OI-glucosidase X (BglX) is an enzyme that breaks down polysaccharides into glucose monomers by hydrolyzing the OI(1’4) glycosidic bonds. This enzyme is a prime target for antibiotics since only bacteria produce the enzyme. Identification of key residues in the active site is important in elucidating the mechanism of the enzyme and for providing rationale for designing inhibitors. Using the predicted protein structure based on homology with other glycosidases, the two amino acid residues, lysine 201 and aspartate 287, were targeted for mutations. Three BglX mutants were constructed through PCR-based site-directed mutagenesis. The mutated proteins were overexpressed in BL21(DE3) E. coli cells, purified, and their activity was compared to the wild type BglX protein. Replacement of aspartate 287 with asparagine resulted in significantly reduced glucosidase activity as observed through zymography, indicating the importance of this residue in catalysis.

821 Crystal Denman

Reconciliation of the United States Navy's Fund Balance with Treasury: The Keystone for Statement of Budgetary Resources Audit Assertion

In this age of increased government scrutiny and soaring national debt, it’s not surprising that taxpayers are concerned about government stewardship. The Department of Defense (DOD) is the only remaining executive agency to never receive the highest rating for financial statements, an unqualified audit opinion. As part of the DOD’s efforts to receive an unqualified audit opinion, the Department of the Navy needs to develop an automated Fund Balance with Treasury (FBWT) reconciliation because it is the key to successfully asserting the Navy’s FBWT and ultimately their Statement of Budgetary Resources (SBR). My senior honors thesis will explain why this reconciliation has to be automated and why it is the key to successfully asserting the Navy’s SBR. As an intern and part-time employee of Defense Finance and Accounting Services-Cleveland, I have been working to create and validate this reconciliation.

823 James White, Noah Weiser, Jonathan Groves, Matt Virostek, Jacob Kreatsoulas, Ron Welter

Energy Conversion Learning Journey Gamma

This project will give an overview of how the power produced by the “real world” solar array on top of Moser Hall can be implemented and how it is currently being used. It will include 3 options of how the electrons produced by the solar array can be used: (1) Immediate use to power a load using the DC electric it creates, (2) For distribution over the grid (3), and storage in battery units. The project will include investigation into potential power losses do the type of

implementation and in the end it will give a comprehensive explanation of which implementation would allow for the greatest efficiency.

824 Hilary Carr, Dennis Hawkins

Pay It Forward at Youngstown State University: A Student-Led Philanthropy Project

Youngstown State University is participating in the Ohio Campus Compact Pay it Forward Initiative for the consecutive third year. With funding through the Pay it Forward: Strengthening Communities through Student-Led Philanthropy Grant, students taking part in Pay it Forward at Youngstown State University have awarded over $27,000 to local nonprofits. Targeting the needs areas of children and youth programs; neighborhood development and revitalization; and hunger, homelessness and health issues, each student taking part in the Pay it Forward Initiative has volunteered at least fifteen hours a semester in addition to learning and participating in the grant-making process. This presentation will highlight the student-led philanthropy process, the importance of distributing grants to local nonprofits and the benefits of student-led philanthropy in the nonprofit education classroom; it will also discuss the Student Nonprofit Leadership Organization's intention to continue the program in spring 2013 despite discontinuation of funding through the Ohio Campus Compact.

825 Kristen Hernandez, Donna N. Rendziniak, Nicholas A. Ragan, Brian J. Stahl, Hannah M. Rebraca

Extraction and Characterization of Intermetallic Fe-Al particles from Aluminum Alloys

An aluminum rich Al-Fe melt sample was sent for analysis by Fireline, Inc., a local Youngstown company. Fireline, a manufacturer of ceramic-metallic composites, was interested in the exact composition of the melt which was used during the fabrication of samples for a research project. Optical microscopy of a polished piece of the solidified indicated the presence of two compounds, a silvery matrix with small black needles and plates embedded. Using X-ray diffraction the silvery matrix was identified as a-aluminum. To determine the nature of the other phase the Al-Fe melt was cut into small pieces and the aluminum matrix was dissolved using chemical extraction processes - an iodine tartaric acid method and a method using boiling phenol. The latter method succeeded in selectively dissolving the Al matrix in a reasonable time frame. The extracted black needles and plates were analyzed using powder and single crystal X-ray diffraction and the materials was identified as monoclinic Al13Fe4, an Al-Fe alloy not reported in the Al-Fe phase diagram, and thus potentially metastable. This could have implications for the stability and strength of products containing this Al-Fe alloy.

826 Haley Pastircak

Horse Laminits

Throughout this paper, the main subject area will revolve around the horse disease laminitis. This paper covers the general anatomy of the horse hoof and the underlying (internal) hoof structure that one must first understand before discovering this disease. Next, the paper will look deeper into the hoof structure as it dissects the hoof down to a molecular level and discusses the metabolic changes that occur during laminitis. Furthermore, it discusses the causes and repercussions of this disease as it also explains the different types, such as acute and chronic laminitis founder. As it discusses the numerous causes, one will understand why there is so much still so much unknown about this disease. Because there are so many different causes,

the paper will discuss most of them and try to establish a link for the reader to connect it with general area and the different breeds of horses. Most importantly the paper begins to indulge the reader into an in depth look at the geographical possibilities concerning this disease. For example, it discusses many different seasons, plants and genetic origins as key drivers to the horses' geographic susceptibility to this disease.

828 Nicholas Brown, Tom Bauer, Nicolas Carbone, Klara Chan, John McCabe

Mighty Solar Mouse

We build on what we learned from our "real world laboratory" and our experience in designing and building a small autonomous robot for the IEEE Micromouse contest; this resulted in the "Mighty Solar Mouse". The "Mighty Solar Mouse" could be used to send packages, books, mail and much more to and from stations that are set up throughout the campus. These mechanical creatures could eventually overrun the world.

829 Betsy Bruchs

Fulfilling Chickering and Reisser's 7 Vectors through Student Employment

The EBI Student Affairs Student Employee Data was collected to assess Youngstown State University student employee satisfaction and learning outcomes. The survey instrument consisted of 26 categorical questions, 53 scaled questions, and 2 open-ended questions. The instrument was sent to a population of 1500 students and received 511 responses. Results showed that on-campus employment enhanced student employees' level of professionalism and ability to effectively interact with others. This presentation will correlate how students are fulfilling Chickering and Reisser's 7 Vectors of Student Development via their on-campus employment.

831 Caleb Tatbe

Using Arylsulfonyl Azides For Carbamate Synthesis

Azides can be used to synthesize a variety of biologically active compounds, however the hazards associated with their use remain a barrier to further progress. Arylsulfonyl azides serve as a safe source of azide anion in the synthesis of carbamates. This method was found to be successful in a one-pot synthesis in different solutions.

834 Christina O'Neill

Televised Violence: Emotional & Behavioral Effects On Adolescents

This report examines the emotional and behavioral effects violent teleivsion has on adolescents. Content analyses have been done to gain more knowledge of televised violence and the effects it has on adolescents. Televised violence has an impact on the adolescent's agression levels as well as the behavioral and emotional effects. Stricter control of violent and aggressive program content is advised.

837 Samantha Rovnak, Michael Baker, Bret Bole, Christopher DeChellis, William Hill, Adam Restifo

The Ring Solved By Analytical, Experimental and Computer Simulation Methods

Castigliano's strain-energy method was used to evaluate a steel ring that was loaded on the top, with the force going towards the center of the ring. Castigliano's method is an advanced and invaluable method for determining deflections and stresses of members with complex geometries, and/or those which are statically indeterminate. This method stems from the work-energy theorem. The ring is a statically indeterminate structure, as typical summation of forces and moment equations do not provide enough independent equations to solve for all of the unknown internal forces. Therefore, Castigliano's strain-energy method was employed to solve for these needed internal forces at a certain location to then find the stress on the ring at the same place. The results were compared to those found in an experimental setup, in which strain gages were used to directly measure the strain so that the stress could be solved for, and also by a Finite Element Analysis (FEA) model constructed in Algor.

842 Taylor Smith, Logan Phillips

A National Look into Economic Factors Related to Homicide Rates

In order to address the question on how certain economic factors influence homicide, this project presents an analysis testing criminal justice's strain and poverty theory. Specifically, income and unemployment are investigated as well as standard control items relative to the homicide rates in a convenience sample of twenty cities through out the country. Preliminary results indicate that these economic factors are important to consider when studying homicide at a structural level. Future work needs to focus on the link between these macro issues and the individual factors with which they operate.

846 Heidi Hall, Josh Fowler Vincent Deem

Storm Event Impacts on the Sedimentation Deposition in Coastal Lakes of San Salvador, Bahamas

An environmental research project on San Salvador, Bahamas, was designed to investigate storm evidence in low-energy lake settings. Storm deposits are easily recognized along the shoreline; however, evidence further inland is more obscured. The sampling sites chosen were based on their location with respect to the present-day shoreline and surrounding environments and were cored using a push coring device. Lab analyses performed at the Gerace Research Station enabled the comparison of lake histories, the recognition of environmental changes, and storm activity. Sediment analyses revealed that different environments were represented at the four sample locations. Factors that contributed to lake-sediment composition included: proximity to present day shoreline, vegetation, and orientation with respect to the islands geography. Studies have shown that normal sediment rates in inland lakes are a few millimeters a year. Thus, any sharp contacts, sand deposits and organisms can show events superimposed on background sedimentation. For example, Mangrove Lake showed a basal peat layer and an upper sequence sand deposit that implied a high-energy activity had taken place, speculated to be the result of Hurricane Frances. Although dating is a limiting factor in the results, a logical explanation for these finding can be speculated. It can be concluded that storm events are recognized in inland lake cores. Environmental interpretation using these methods is valuable in accessing the affects high-energy events in low-energy environments. Further investigation of these lakes is necessary to better characterize these events.

848 Amanda Nacarato

The Media's Influence on Body Image, Stereotypes, and the Dance Environment

This paper addresses the media and its relationship to body image, stereotypes, and the dance environment. The media portrays unrealistic images that will result in the viewer possessing a negative body image of themselves. Throughout many years of society our media has displayed impractical images of women. This has created body image dissatisfaction among women and adolescent females. The media portrays some cultures in a positive or negative manner that can alter the perception the audience possess of that specific culture. This can ultimately lead to inaccurate perceptions. The media affects viewers perceptions of their bodies and depicts cultures in inaccurate ways, and this can result in audience members gaining their beliefs of what they believe is normal in society. This can create intense pressure for groups such as dancers to conform to normalizations that are represented in the media. It has been found that there are constraining influences in the ballet and jazz environment, resulting in intense pressure for dancers to conform to specific body normalizations that are represented in the media. However, there are dance forms such as belly dance that do not conform to specific body normalizations. This paper is seeking to examine if the belly dance environment is affected by the media's portrayal of stereotypes and unrealistic body images like dance forms of jazz and ballet are affected. Research shows that belly dance is more accepting, and dancers feel that they take something positive out of their dance experience. It remains unclear if there is a connection between the media's portrayal of body images, and stereotypes affecting the belly dancers' environment.

849 Taylor Pallo, Katherine McCullough, Amanda Sweigard, Angela Cerrone

Effects of Storm Activity on Coastal San Salvador Lake Sedimentation

An environmental study of lake cores was undertaken on San Salvador, one of the eastern-most islands of the Bahamas, to gain information on storm deposition in coastal lakes. Questions this study aimed to address include: 1) Do coastal ponds or lakes on San Salvador contain a storm record? 2) How are storm deposits recognized? 3) Can storm deposits be linked to distinct hurricane events? Sediment cores were collected from 4 small coastal lakes and evaluated in the lab to address the research questions. Core descriptions, grain-size analyses, and an evaluation of the organisms present at key core intervals offer insight into the evolutionary history of each lake and the effects of storms on lake sedimentation. Storm deposits are recognized from the cores either as layers of clean sand washed in from the beach or reworked lake deposits containing higher percentages of sand, organics, and eroded algal mat materials. One site did not show clear-cut division between storm deposits and lake deposits. The type of storm deposit reflects lake proximity to the sandy shore and the amount of vegetation surrounding the lakes, respectively. Storm deposits are recognized at the shallowest interval in each core, suggesting that these deposits are the product of hurricane Frances in 2004. Older storm deposits are indecipherable on account of heavy bioturbation and likely reworking by hurricane Frances.

851 Vince Travaline, Amanda Cox, Arthur Worst, Robert Farmer

An Accelerated Screening Method for Oil-Metal Compatibility in Hydraulic Systems

The compatibility of hydraulic fluids with metals in high-pressure mobile hydraulic systems is extremely important to the integrity of a system's operation. This relationship is especially

important as a function of operating time: hydraulic fluid will degrade with machinery operating time and, consequently, degrade the metallic components and decrease the efficiency of a mechanical system. Thus, preliminary lab testing of oil quality versus operating time is valuable analysis in determining the viability of newly developed hydraulic fluids. A laboratory scale experiment has been designed and optimized in an attempt to mimic the operating conditions of a hydraulic system, and several tests have been performed to ensure the repeatability of results. Samples collected at regular intervals have been screened in tests of physical and chemical properties and used to affirm expected data trends and develop models to correlate with field tests. Models of first and second order kinetics have been fit to these data and literature data of hydraulic fluid properties versus operating time. The observed change in viscosity for each case is being used to connect field and experimental test periods and develop a relationship between field and experimental “activation energies” in each model. The final relationship will allow this accelerated test to determine the degradation schedule of hydraulic fluids in question in a quick and efficient manner. This project is a work in progress.

852 Ashlee Dawson

An Original Proof of the Pythagorean Theorem

The Pythagorean Theorem famously states that the square of the length of the hypotenuse of a right triangle is equal to the sum of the squares of the lengths of the two other sides. This theorem has been proven in countless ways by professional and amateur mathematicians, including a former president of the United States of America. In this talk I will give an original and possibly new proof of this over two thousand year old result.

853 Hiba M. Ismail

Super Bugs: Stop Feeding and Making Them Stronger!

If you think antibiotic resistance isn't a problem or doesn't affect you, think again. A well-known example of the dangers of antibiotic resistance is the spread of methicillin-resistant Staphylococcus aureus (MRSA). MRSA was once a concern only for people in the hospital, but a newer form of MRSA is causing infections in healthy people in the community. Minimizing antibiotic misuse can reduce the effects of MRSA. PatientsвЂ™ repeated and improper use of antibiotics is the primary cause of these drug-resistant “super bugs”. Sharing of antibiotics or not completing the proper dosage leads to the survival of resistant bacteria. This proposal takes a community health approach to recommend incorporating education of patients in physician practices as well as hospital organizations on the adverse effects of antibiotic misuse. Instilling a multidisciplinary approach to the public on antibiotic stewardship will ensure the continued efficacy of available antibiotics.

854 Stephanie Ruozzo

A Couple Fools Swapping Noises: Freud's Id, Ego, and Superego in Rodgers and Hammerstein's Oklahoma!

Much has been written in recent years concerning the staging of Laurey’s dream ballet in the Act I Finale as a battle between the Freudian Id and Superego. Though choreographer Agnes DeMille is responsible for implementing this conflict, Rodgers and Hammerstein further underscored this conflict with their subtly apropos music and lyrics. In my paper, I argue that the representations

of Freud's conception of the human psyche are present throughout the entire musical rather than in the dream ballet alone. I also argue that Aunt Eller's function in the psychological realm of Oklahoma! is that of the Ego. After studying the condensed score as arranged by the original orchestrator Russell Bennett and several commentaries on Freud's tripartite schema of the human psyche, I will provide musical evidence of salient features shared by the principal characters and their psychological counterparts. Linking musical traits associated with each character to Id, Ego, or Superego and exploring musical relationships between these traits, I argue for the extension of the battle between Id and Superego as all of Oklahoma!

855 Mark Radetic, Emilie Hall, Tara Sansom

Modeling the Growth of S. maltophilia O2 in the Presence of Selenite with an Initial Analysis of Protein Expression

S. maltophilia O2 is an aerobic, gram-negative bacillus that was isolated from a mercury contaminated site in Oak Ridge, TN. This strain grows in the presence of several toxic metals, including selenite, an oxyanion of the metalloid, selenium. Selenium is an essential trace element required for the growth of most organisms, but too much (10 mM) is toxic. S. maltophilia O2 detoxifies selenite by reducing and precipitating it as non-toxic elemental selenium. Growth of this strain was followed in the presence and absence of 10 mM selenite by measuring culture turbidity levels and through viable cell counts. Additionally, protein expression was studied via two-dimensional gel electrophoresis to identify proteins which may confer selenite resistance. The growth of the unexposed strain followed a classical growth curve with lag, log, and stationary phases. The bacterium shifted from a log phase to a stationary phase upon exposure to selenite. Three hours later it shifted back to a log phase and produced a red precipitate. Our mathematical model is based on a system of differential equations and predicts the growth and selenite metabolism of this strain over time. The results of the mathematical model compared favorably with experimental data throughout the growth cycle.

856 Robert DeVita, Bradley Slabe, Kevin McLane

Growth and Acetone, Butanol, Ethanol (ABE) Production of Clostridium beijerinckii: Mathematical Modeling and Data Analysis

Although fossil fuels are currently the most economically sensible source of energy, many other alternative energy sources are being explored as replacements for fossil fuels. Currently, millions of dollars are being spent on ethanol research. However, ethanol's energy content is only two-thirds of that of gasoline. Butanol, another alternative biofuel, has similar energy content when compared to gasoline and has been gaining increased attention. The genus Clostridium is known to carry out butanol fermentation from a variety of 5 and 6 carbon sugars. A mathematical model was developed using the known metabolic pathway, as well as basic Michaelis-Menten kinematics. Due to the complexity, the parameter dependence of the equations could not be determined in the full model. However, using a simplified model, parameter dependencies and the final state of multiple products can be determined analytically. Experiments were conducted using the bacterium Clostridium beijerinckii in a small-scale bioreactor. Previous studies have shown that pH has significant effect on butanol biosynthesis. The goal of this research was to find the necessary conditions for optimum yields of butanol production.

857 Joseph Kusluch

Building Socialism: Views and Interpretations on emerging industrial cities in the Soviet Union, 1927- 1938.

This study will look at industrial cities during the First Five Year Plan and its immediate aftermath in the Soviet Union, with a particular focus on Magnitogorsk and Nizhny Novgorod. These two cities were representative of the nation's industrialization drive, as well as symbols of the government's ability to build planned socialist cities. This study takes into account views from the bottom, primarily both Russians and Westerners involved in building the cities, and from the top, especially portrayals by Soviet and Western governments and their media. This study then compares these views and portrayals to the realities of the cities to determine the disparity between these imagined or constructed images and the harsh reality of life in these cities. When put together, this study will examine the production and consumption of the image of the Soviet industrial cities from a variety of perspectives and from several different audiences.

858 Michael Falcone, Jonathan I. Maletic

An Eye-tracking Study on the Role of Scan Time in Finding Source Code Defects

An eye-tracking study is presented that investigates how individuals find defects in source code. This work partially replicates a previous eye-tracking study by Uwano et al. [1]. In the Uwano study, eye movements are used to characterize the performance of individuals in reviewing source code. Their analysis showed that subjects who did not spend enough time initially scanning the code tend to take more time finding defects. The study here follows a similar setup with added eye-tracking measures and analyses on effectiveness and efficiency of finding defects with respect to eye gaze. The subject pool is larger and is comprised of a varied skill level. Results indicate that scanning significantly correlates with defect detection time as well as visual effort on relevant defect lines. Results of the study are compared and contrasted to the Uwano study. [1] UWANO, H., NAKAMURA, M., MONDEN, A., and MATSUMOTO, K. 2006. Analyzing individual performance of source code review using reviewers' eye movement. in Proc.of Symp. on Eye tracking research&applications, San Diego, pp.133-140

859 John Massacci

The Effects of Music on Mood Elevation, Recovery, and Healing

A very interesting group of studies explores the effects of musical intervention on mood, healing, and recovery. These studies show that music has the ability to elevate mood and speed the processes of healing and recovery, increasing an individuals overall well being. The most important trend throughout all of the studies reviewed is the positive effects that music has on people. The articles show, through a wide range of experimental processes, that music can improve mood, leading to improvements in performance and a greater efficiency to heal and recover. Music is a powerful means of therapy in a variety of different circumstances.

861 Elizabeth Widomski

NUTRITION PROFESSIONALS' PERCEPTIONS IN WORKING WITH SCHOOLS

Schools are a focus in addressing the obesity epidemic in the United States. Ohio Senate Bill 210 will promote improved health in school children. The purpose of this study was to evaluate the perceived confidence of nutrition professionals regarding school meal guidelines and potential interactions with school personnel. An exploratory time series (survey) study was conducted in spring 2011 at training sessions across Ohio. Follow-up surveys were emailed one week after training. Analyses revealed that before the training, participants were less confident interacting with administrators ($p=0.02$) and about current state/ federal regulations ($p=0.00$). Post surveys indicated that two-thirds were unsure if their school had a wellness committee. Nutrition professionals reported confidence in interacting with parents (94%) and teachers (91%) but had greater trepidation with administrators and other school personnel. Additional analyses will be conducted in order to identify specific problem areas in school personnel interactions. Additional programming is needed to familiarize nutrition professionals with the School Wellness Committee and to provide requested training in state/ federal regulations for school meal programs.

863 Daniel Bogue

Short-term effects of video-game controllers and sound on hostility measures

Prior studies have suggested a positive correlation between violent video game play and increased levels of aggression in subjects. This study looks at two factors of this in particular; the type of controller and the effects of sound in the video game. Participants (n=68) were randomly assigned into one of four conditions; using a regular controller or the PSMove controller, and additionally with or without sound. After a brief practice period, they were asked to play a violent video game (Resistance 3) for 20 minutes, then take a word completion task measuring aggression, a state hostility scale, and complete a video game usage form. No significant results were found.

864 Chris Sieber

Diverse students facing a non diverse teaching population and its impact on achievement.

Schools across the country today are more diverse than ever before. As one walks through the halls of American school buildings they look less like the ones from fifty years ago, but are a mosaic of different people. This study will examine the impact on minority student achievement after receiving instruction from a teaching staff that is a non-diverse in specifically focusing on the adolescent years of sixth through twelfth grade. Using demographic data as a starting point schools with diverse student populations served by a non-diverse teaching staff will be examined to learn of the educational experience of the minority student population and the impact on this by a non-diverse teaching staff. Using data gathered through state assessments, as well as personal interviews, educators will be able to determine areas where curriculum, pedagogy, and inclusive practices can be created to improve the educational experience for all students.

865 Ethan Slark

Combat: Are we bringing it home?

To some, combat is read about in history books or in novels or folklore, but for this generation combat is not myth or fiction or a thing of the past; it is a critical component of our culture.

America has been at war on more than one front for the past ten years. The question is not, “Does this affect our men and women in uniform?” but “What are the ramifications for the rest of society when young boys and young girls have matured to young men and young women in a warzone with a President as their father, a military base as their home, and a combat zone as their neighborhood?” This project will look at the return of combat veterans in the last ten years and cross examine it with trends in violent crime. The purpose of this project is to explore the affects of combat stress and combat training in respect to reintegration. Surveys will be supplied to veterans on the campus of Youngstown State University. Interviews will be conducted with personnel from the V.A. such as doctors of medicine and psychiatric professionals. The length of duty tour, location of tour, age of service member, and number of tours will be recorded as well. I hypothesize we will see an increase in violent crime in areas of military bases weeks after service members who have been exposed to combat stress return state side. The results of this project could be could be eye opening and could provide insight as to how we can better help my fellow service members make the difficult transition back into society after serving in a combat zone.

868 Darshan Baral, B. Rayamajhi, TM Robinson, AN McMillen

Study of Fish Passage through culverts in Northeast Ohio

A study has been carried out to analyze passage of 10 different fish species through culverts in Northeast Ohio. The goal is to determine the ratio of culverts that act as a barrier for fish passage and to identify design parameters which can be associated with passage success. The culvert data was provided by ODOT and data of discharge and stream morphology were obtained using online USGS repositories and GIS. Computer application FishXing was used to analyze passage of each fish species at 4 flow conditions (minimum average monthly flow, maximum average monthly flow, 2 year high flow, and 25% low flow). The results have shown that out of the 90 culverts, 23 culverts are partial barriers (some fish pass at some flow conditions) and 67 culverts are complete barriers (no fish pass at no flow condition). It is noteworthy that larger proportion of partial culverts was present in interstate routes as opposed to highway routes. Different standards adopted for culvert design in I-80 could be the possible reason behind this. The average slope of the partial barriers (0.6%) was found to be significantly (StudentвЂ™s t-test, $p < 0.05$) less than the average slope of the complete barriers (1.6%). The results obtained from the study are expected to provide better understanding of the fish connectivity problem in Northeast Ohio. The employed study method is also anticipated to be usable in the future for analysis of additional culverts.

869 Paige McWhorter, Patrick Wilkens

A Comparative Study on The Similarities of Twins' Fingerprints

A foundation of using fingerprints as a means of identification is the understanding that no two people have the same fingerprints, even identical twins that share the same genetics. In order to examine this principle of fingerprint identification the authors studied both class characteristics and individual characteristics of twins’ fingerprints to see if twins have more similarities than non-related people. Using fingerprints collected during the Twins Day Festival in Twinsburg, Ohio a two level examination was done. The first level involved classifying each fingerprint as an arch, loop or whorl; these are a class characteristic that general describe the pattern of the print. The second level was conducted with the aid of Identix fingerprint identification software.

Individual characteristics, such as deltas and minutiae, are used to match fingerprints. Each set of fingerprints was run through the software looking for matches and the top ten possible matches were recorded then categorized. Analysis of frequencies and a binominal regression were then run of the data obtained from both levels of examination. The authors found that twins do have more similarities in class characteristics; however the individual characteristics of twins' fingerprints are no more similar than the individual characteristics of non-related persons' fingerprints.

870 Michael Falcone, Christopher Carithers, Bonita Sharif, Huzefa Kagdi

In Which Order Should I Fix These Bugs?

Software systems inherently have bugs that creep up at some point. It is very possible to have several hundred bugs reported within a short time span in large open source systems. One of the open problems in software engineering is to determine whether a bug will be fixed (or not) and the order in which they will be fixed. The problem we are interested in is finding the order in which bugs will be fixed, given a set of bugs that have the highest probability to be fixed in the next release. We use bug reports and git commit logs for the Android open source platform in order to test our approach. This data is analyzed using a machine learning technique known as Support Vector Machines (SVM) as well as with an information retrieval technique known as Latent Semantic Indexing (LSI). These techniques take into account features from the Android data commit logs and bug reports. We evaluate the accuracy of predictions by using a zero-tolerance order comparison. Our current results are promising and we are actively working to increase the accuracy of our predictions. Our future work involves empirically evaluating our techniques on different open source software systems.

871 James Curnalia

Pulling Numbers Out of Thin Air: Using Amazon Web Services to Run R in Parallel

The cost and availability of processing power is one of the first major hurdles that many researchers must overcome when faced with large or complicated data sets. Students and faculty are often faced with the reality that cost control trumps the desire for cutting edge technology on today's campuses. Preprocessing and mining data are difficult tasks exacerbated by the time spent waiting for the computer to finish calculations. The on-demand cloud computing offered by Amazon Elastic Compute Cloud (EC2) provides a powerful and cost-effective solution to the problem. This study looks at the benefits of using the High-CPU Extra Large Instance (c1.xlarge: 7GB RAM, 8 Virtual Cores, 64-bit processing) for the classification of a moderate data set (50,000 instances of 161 variables), versus the performance on a single core machine. Both the single and multi-core analyses are run on EC2 instances utilizing a publicly available R image (agongRStudio2) to limit the impact of outside performance factors. The benefits of using the cloud to process and analyze larger data sets vastly outweighs the minimal monetary cost, and provides additional productivity benefits.

872 Casey Robinson

A Layout Adjustment Algorithm for UML Class Diagrams

Unified Modeling Language (UML) class diagrams depict structural design of software. They present a set of classes and relationships between classes. Current state-of-the-art tools

generate class diagram layouts solely based on aesthetics and not on how easy the diagram is to comprehend. In prior work, a family of empirical studies investigated the impact of diagram layout on comprehension. The layouts were based on architectural importance of classes defined by entity, control, and boundary stereotypes. The results from prior work show that layout plays a significant role in the comprehension of UML class diagrams and does not favor aesthetics as much. Given a diagram produced by current tools, the goal of this work is to adjust the layout of a class diagram to make it more comprehensible. The algorithm takes a dynamic gravitational-based approach with the goal of clustering similar classes. The similarity constraint is user configurable via a script. Parallel methods are used to improve the algorithmвЂ™s performance. The algorithm was tested on an open source GUI framework Qt and satisfactory results were produced in less than five seconds for diagrams with approximately 13 classes and 13 relationships.

873 Nathan Miller, Frehiwot Robba, Graciela Perera, Jeremy Cummins

Detecting Malicious Transmission using the NetFPGA Open Research Platform

Current changes to the Internet's infrastructure propose a clean slate design and consider security as an important design consideration. In particular, security of Internet's core routers is very important since they use a shared network infrastructure with high data rates that transmit much of the Internet's traffic. Under this project, we seek to implement a multi-criteria information gathering mechanism in the NetFPGA open source platform. This will allow for hardware accelerated detection of possible malicious transmissions. Using an information gathering state machine we will randomly store and examine packet header data such as the count of similar network addresses, and packet lengths. Using this design, analyze the collected data through the NetFPGA to find the potential points of interest within the dataset. The initial design and implementation proposed was developed using the Verilog hardware description language. Another phase to our project also involved creating a NetFPGA research lab at our university from scratch.

874 Damon Bryant

City Comparison

Show cities thru out ther state of Ohio, What will be shown is different varialbe to the larger cities.

875 Bryan Cunningham, Dr. Stanley Kim

Development of a Novel Method for the Identification of Human B cells That Produce Antibodies to Staphylococcus aureus.

Staphylococcus aureus is an important human pathogen causing life-threatening infections in previously healthy individuals. S. aureus is rapidly becoming antibiotic resistant, requiring the development of novel methods for the treatment of infections. In these studies, S. aureus capsule was purified via DEAE column chromatography and its purity demonstrated using binding to monoclonal antibodies in enzyme linked immunosorbent assays (ELISA). Biotin hydrazide was used to add biotin groups to the purified capsule. Biotinylated capsule will be used in future studies to identify human B cells producing antibodies against S. aureus capsule.

These cells may be used to produce human monoclonal antibodies that could be used in the treatment of S. aureus infections.

877 Michael Stanish, Audria Grubbs, Rey Mejo, JR Harvey

Hybrid Exterior Site Pole

Sustainable energy meets the energy demand of the present without compromising the energy demands of the future. Exterior lighting utilizes non-renewable energy that is often wasted; therefore, we have designed an exterior lighting system that is fully sustained with renewable energy sources. The sources we are using are a solar and wind energy. We use these renewable energy sources to design a fully sustained hybrid exterior lighting system. The requirement is to sustain an output of 0.1-1.5 footcandles from dusk until dawn. We are going to describe the efficiency of our system and determine if it is cost effective and environmentally conscious to implement for engineering applications.

882 Kristen Placer

Implicit Learning in Kindergarten Children

Research in the rapidly expanding topic of implicit learning, or learning without awareness, has the potential to have a wide variety of applications in psychology and education. However, the little research that is available on this topic with young children is either contradictory or task-specific. The current study aims to explore the implicit learning capabilities in thirty normal kindergarten children (5-6 years) with the cued-reaction time (CRT) task. The CRT task is a simple learning task in which a cue stimulus predicts a target stimulus (to which the participants respond) in a sequence of rapidly presented stimuli. The determination of whether children's learning is implicit is if they exhibit faster reaction times during the cued trials than during non-cued trials and are unaware, or unable to verbalize the nature of the cued relationship in follow-up probe questions. Children were exposed to one of three conditions: shapes, letters, or Japanese characters. Results for all conditions clearly indicated that the reaction time decreased as children learned the cue-target relationship, but then increased when the cue-target relationship was disrupted. Moreover, only three children could verbalize the relationship with the English letters and shapes, while only one detected the relationship with the Japanese characters. Otherwise, there were no differences between the stimulus conditions. Thus, these findings provide much needed clarification that children as young as kindergarten are capable of implicit learning. Future research will investigate whether implicit learning plays an important role in educational processes such as reading.

883 Joe Stanek, Ryan Lopez, Josh Hodges, Anthony Ferraro, James Lancaster, Katie Kosela

Google's Page Rank Algorithm and an application to Sports Rankings

In 1998 Sergey Brin and Larry Page, the founders of Google, changed the landscape of Internet search by introducing their PageRank algorithm for improving how web-searches are performed. The PageRank algorithm innovatively applies numerical linear algebraic techniques and exploits the link structure of the internet to effectively rank web pages based on order of importance and relevance. We explore the mathematics behind their algorithm and provide a simple example illustrating the process. We applied Google's PageRank algorithm to rank NFL teams

based on their 2011 regular season performance, and compared this model to other ranking systems and to the actual postseason results.

887 Travis Q. Battiest, Sreevani Kalapala

Removal of Sulfide ions (HS^-, H_2S, S^{2-}) from water by using solar regenerable absorbent

Hydrogen sulfide is major contaminant in drinking water. It is colorless, very poisonous, flammable gas, with the characteristic foul odor of expired eggs perceptible at concentrations as low as 0.00047 parts per million. Hydrogen sulfide dissolves in water to make a solution that is weakly acidic. Water containing hydrogen sulfide usually does not pose a health risk, but does give nuisance “rotten egg” smell and taste. The sulfide ions present in the water are removed by means of adsorption by using an adsorbent. Some of the adsorbents used include graphite Vulcan XC-72, activated carbon, etc. We can determine the concentration of sulfide ion by measuring the electropotential of the water. The adsorbent which contains these sulfide ions is then regenerated back by using one of several different methods. We are investigating the use of sunlight to drive the adsorbent regeneration process. Results achieved to date will be reported.

889 John McCabe, Yashir Nasseri, Levente Benedekfi, Phillip Shuback

Solar Energy Creation, Absorption, and Utilization

We present an abridged journey from galactic formation to electromotive utilization; designed to introduce high-level concepts of atomic physics that result in the photonic emissions known colloquially as sun light. The focus of this journey is to convey the idea that “energy is everything” and that despite our preference for electron excitation, we can harness the forces that compose the universe. Our research focus was in three primary areas: photon conversion to electron motion, electromotive storage and distribution, and utilization through a familiar IEEE competition known as MicroMouse. This brief introduction will prepare the audience for the generally complex discussion that follows in the three presentations on solar energy.

890 Tyler Vitullo, Kyle Faykus, Kurt Shambaugh, Kevin Marstellar, Christopher Smaldino, Nathan Jones

Energy Conversion Learning Journey (Beta)

A multitude of small scale physical models of solar panels and individual cells were meticulously constructed and investigated throughout lab and classroom research. Theoretically proven and experimental results were compared for solar arrays that varied in size from a single solar cell to the 4,100 square feet solar panel installation currently located on the roof of Moser Hall. These theoretical and computer models were verified by a series of tests on scaled down physical models created as an attempt to show the entire solar process. This experience will drastically reduce the potential for damaging the larger Moser Hall array when fellow students use it as a вЂњreal-worldвЂќ laboratory as envisioned by Dean Abraham Martin upon installation in 2011, while also teaching all of the aspects in the solar process from the sun itself to the solar panel to the AC power conversion to our energy grid. Our journey begins at the entrance to our “real-world” laboratory i.e., the solar cell array on the roof of Moser Hall.

892 Tyler Vitullo, Kyle Faykus, Christopher Smaldino, Nathan Jones, Kenneth Burton, Patrick Bollinger

Solar Panel Array Construction and Investigation

A multitude of small scale physical models of solar panels and individual cells were meticulously constructed and investigated throughout lab and classroom research. Theoretically proven and experimental results were compared for solar arrays that varied in size from a single solar cell to the 4,100 square feet solar panel installation currently located on the roof of Moser Hall. These theoretical and computer models were verified by a series of tests on scaled down physical models created as an attempt to show the entire solar process. This experience will drastically reduce the potential for damaging the larger Moser Hall array when fellow students use it as a "real-world" laboratory as envisioned by Dean Abraham Martin upon installation in 2011, while also teaching all of the aspects in the solar process from the sun itself to the solar panel to the AC power conversion to our energy grid. Our journey begins at the entrance to our "real-world" laboratory i.e., the solar cell array on the roof of Moser Hall.

893 Shantal Edwards

The Mouth: A Journey to Hell

This semester we were given the task to chase a symbol of choice through research using many forms of referenced material. My symbol of choice was the mouth, which when opened revealed the tongue. The tongue has been used to represent fire, and when the entrance of the mouth and the fire of the tongue are combined, they lead to concepts of the underworld and the grave. Different views of chaos in the underworld also led me to diverse aspects of the Great Mother or the Mother Goddess, also referenced as mother Earth. The great mother is sometimes known as a guardian of the dead and queen of the underworld.

897 Linda N. Farnham, Gloria P. Johnston, Dr. Carl Johnston

Development and Application of a Sequential Extraction Procedure for Characterization and Analysis of Elemental Pollutants in Contaminated River Sediments

The Mahoning River has been polluted over many years by intense industrial activity, including steep production which released large amounts of oil and grease, ammonia-nitrogen, cyanide, phenolics, and and metals into the river. Pollutants found at high levels in river sediments include heavy metals, polyaromatic hydrocarbons and polychlorinated biphenyls. The purpose of this investigation was to characterize the heavy metal pollutants in river bank sediments. Triplicate sediment samples were collected in a survey setting from summer, fall, and winter seasons of 2011 using stainless steel cores to a depth of 80 cm. Cores were capped immediately, placed in Ziploc bags, transported, and oven dried. Sequential extraction of the sediment samples followed by ICP-AES revealed high concentrations of Fe (~300,000 ppm) of which 20% corresponded to iron oxides. Other metals analyzed included Al, As, Be, Cd, Cr, Co, Cu, Mn, Ni, Pb, Se, V, Zn. X-ray fluorescence data indicates that 60% of the metals present correspond to iron.

900 Ricky L. Kaiser, Lorna Gallagher and Chester R Cooper, Jr

Galleria mellonella as a virulence model for the dimorphic fungus, Penicillium marneffei

Galleria mellonella (greater wax moth) is a model organism for studying human microbial pathogens due to the similarity in the larvae basic innate immune response. Penicillium marneffei is a temperature sensitive dimorphic fungus found in Southeast Asia and is pathogenic among individuals infected with the human immunodeficiency virus. P. marneffei wild-type strains (F4, F30, and F36) were used to compare virulence between isolates. Penicillium chrysogenum and Penicillium citrinum were also used to compare virulence between Penicillium species. Haemolymph and tissue were extracted and microscopically examined to observe modes of infection. At 25 B°C, F30 was significantly more virulent than both F4 and F36 ($P < 0.0001$) and at 37 B°C F36 was the least virulent ($P < 0.0001$). Between Penicillium species, P. citrinum was most virulent at 25 B°C and P. marneffei was least virulent at 37 B°C ($P < 0.0001$). Our work here demonstrates that the G. mellonella model can be effectively used to demonstrate virulence in Penicillium species.

901 Bronson Lamoncha, James Schuster, Ashley Martof, Eric Schubert, Matt Azam, Amanda Cox, Michael Kaldy

Drag Characteristics on Automobiles

This project relates the drag force on various geometric objects and compares them to its effect on the fuel economy of automobiles. Using the wind tunnel, we examined drag on cylinders with different surface textures. We then compared them with other shapes, including those that also resemble a vehicle using the smoke visualization machine. The geometry of an automobile was created in SolidWorks. The drawing was then preprocessed and solved in ANSYS Fluent, conceptual fluid dynamics software using drag equations. Once the drag coefficients of the two-dimensional and three-dimensional objects were calculated, we then related them to the effects on fuel efficiency of modern day automobiles. These results will then be displayed using visual aids and an oral presentation during the QUEST exhibition.

902 Walter A. Bishop III

The Restorative Effects of Nature on Cognitive Functions: Further Exploration into Attention Restoration Theory (ART)

The restorative effect that nature environments have on fatigued directed attention was tested by replicating and extending a study by Berman, Jonides, and Kaplan (2008). Specifically, the purpose of the present study was to test whether the amount of information contained in the environment affects the degree of restoration attained. Each participant first performed a backwards digit-span task, and then took the Attention Network Task (ANT), both of which were used to fatigue directed attention. Participants then viewed slides of pictures of either a nature scene or an urban scene. Furthermore, the pictures differed in terms of the amount of information contained (e.g., streets crowded with people and cars vs. empty streets). After picture viewing, participants again performed the backwards digit-span task and the ANT. No significant difference was found between nature and urban environments overall. No significant difference was found between the amount of information contained in environments.

907 Alexandria Szakacs

Analysis of Common YSU Herbarium Collections

The YSU Herbarium tries to represent the flora of Ohio and Pennsylvania. If the collections are unbiased and accurate, the most widespread species should have equal representation in all counties. By looking at five of the most widespread species and graphing the number collected versus distance from YSU, a bias can be seen. Counties closer to YSU are often well represented while farther counties are underrepresented. This bias is probably caused by distance and/or ease of collection for students.

910 Ryan McGiffin, Robert Richardson

Methods engineering processes through classic work measurement and video analysis

A team of three Industrial and Systems Engineering students worked with a local fastener manufacturer in Girard, Ohio, Brainard Rivet. The study which was done as the subject of this presentation was performed as part of the methods engineering class. Several processes and procedures were studied, documented and analyzed for possible improvements. Techniques that were implemented included classic work measurement methods as well as digital video that was captured and analyzed using computer- based video analysis. Improvements toward productivity and safety were proposed and confirmed by the use of pre-determined time analysis tools. This research activity provided the team with experience using important methods engineering techniques and showcased the importance of industrial engineering to a local manufacturing partner.

914 Michael McMaster

P-type ZnO Thin Film Doping using P, As, and N2 as Dopants

ZnO thin films were grown on a sapphire substrate by RF Magnetron sputtering and doped using phosphorus, arsenic, or nitrogen with the intention of realizing p-type ZnO thin films. The ZnO, phosphorus and arsenic were deposited from pure targets of ZnO, Zn3P2 and Zn3As2B¬, respectively. Doping with nitrogen was achieved by depositing the ZnO films in an atmosphere of pure nitrogen gas. The thin films were subsequently annealed in N2 or O2 gas at 900oC for 5 minutes. Hall Effect measurements were used to determine the hole concentration, mobility, and resistivity of the samples. Photoluminescence data was taken and showed peaks at 3.31 eV related to acceptor levels in ZnO. X-ray diffraction measurements confirmed that the samples were single crystal in nature. Although the p-type nature of the films could not be confirmed with certainty, the high resistances of the films indicate that we are getting close to realizing p-type conductivity in the films.

915 Christina Costello

Child Sexual Abuse: Dangers, Risks, and Treatment of Juvenile Sex Offenders

Child sexual abuse is a pervasive problem in American society. Presently, one in five American children is a victim of sexual abuse (National Association to Prevent Sex Abuse of Children, 2012). Efforts to prevent or intervene in child sexual abuse must not only address the danger of adult sex offenders, but also the threat that juvenile sex offenders pose. Research indicates that juveniles account for more than one-third (35.6%) of those known to police to have committed sex offenders against minors (Finkelhor, Omrod, & Chaffin, 2009). Characteristics of juvenile sex

offenders, differences between adult and juvenile sex offenders, and implications for schools/youth programs will be presented. The need for multi-agency collaboration and multisystemic treatment (MST) programs will be shared to combat today's risk that juvenile sex offenders pose (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham,1998; Jones, 2007).

916 Joseph Verzilli

Who's the wearing the pants? Observing depicted gender roles and their effect on viewers.

The battle between man and woman has been the topic for many popular television programs since the beginning of broadcast. Gender roles and expectations are in constant motion and forever changing, making them nearly impossible to grasp. This research addresses depictions of fathers and husbands in television sitcoms, and depicted relationship dynamics and power struggles discovered through content analysis. Socioeconomic class, race, and gender are employed as key variables. Results confirm a shift of perceived dominance towards the female role in lower-class domestic depictions, however, in support of traditional roles, the power is often relinquished to the leading male counterpart. The Cultivation Theory is also utilized to assess the effectiveness and influence of stereotypical gender roles on the viewer's gender expectations. As a result, conformity to traditional roles is frequently observed in those with higher exposure to television. The constant evolution of gender roles allows for continual research, in which a proposal is made to examine the depiction of nontraditional roles as positive reinforcement to traditional expectations.

917 John Perko

Mesenchymal Stromal Cells and Platelet-Rich Plasma on a Collagen Matrix to Improve Fascial Repair

Incisional hernias are areas of weakness in the tissue caused by a surgical wound that doesn't heal completely. This study examines the contributions of mesenchymal stromal cells and platelet-rich plasma on wound repair by observing wound healing of the abdominal muscle in a rat model. A cell adhesion assay was performed to determine which mesh material MSCs bind to most effectively MSCs/PRP/mesh material were applied to a repaired surgical incision, after which, the rat recovered for 4 to 8 weeks. The abdominal muscle was then sectioned, paraffin embedded, and placed on slides to be stained with Mason's trichrome. The thickness of collagen deposition was measured using Motic ImagesPlus 2.0. Collagen organization, abundance, and myocyte degeneration were also evaluated by a panel of 4 blind observers. Changes in the thickness of collagen deposition were not demonstrated, but blood vessel formation and collagen abundance in the muscle layer was significantly increased with the addition of MSC and PRP during wound healing. Increased collagen at the wound site may improve the overall tissue strength following hernia repair.

918 Rachel Harbarger

Image of Nursing

Background: Patients may perceive different aspects of a nurse's outward appearance as more professional than others. Patient perception of professionalism may affect satisfaction with care and trust in the nurse, influencing the development of a therapeutic relationship. The appearance of nursing has changed over the years, and level of education, age, and gender may

all affect what a patient perceives as professional in a nurse's appearance and interactions. Objectives: The study examines the image of nursing as perceived by sophomore, junior, and senior nursing students as Youngstown State university by asking subjects what they perceive as most professional in traits such as uniform, make up, hairstyle, tattoos, age, and level of education. Method: A survey was compiled based on different outward traits nurses all have. It was then distributed to ninety-two sophomores, sixty-four juniors, and seventy-five seniors in the nursing program at YSU. Subjects were asked to complete the survey by circling answers and filling in answers where appropriate. Results: in progress Discussion: in progress

922 Sarah Chill

Reality TV: A Train Wreck of Perception

Recently, a statement was released that claims consumers watch reality television they can see themselves participating in it. Current research shows that consumers watch TV mainly to pass time and for entertainment. However, the only demographic studied is college students who are not as impressionable as, for example, junior high and high school students who are still on their way to maturing. Studies also show a gender difference in what is watched and how those shows affect thought processes. Finally, studies show that perception of these shows are largely based on uses and gratifications obtained and personality. My research concludes that research in reality TV is limited by studies on personality and why it is watched. There is very little in regards to how consumers take what they watch and in turn modify their behavior.

923 Tanya Minteer, Johanna Krontiris-Litowitz, Hazel Marie, John Perko, Jeremy Heffner, Jonathan Holmes, Jonathan Ferrari, Heath Dorion

Detection of Collagen (COL) I in Rat Abdominal Wounds using Immunohistochemistry

Regenerative therapy, including the use of mesenchymal stromal cells (MSCs), offers a new avenue to reduce the problem of hernias seen in post-operative patients. Midline incisions were made through the abdominal wall of three groups of Lewis rats. Group 1 rats were designated as control and were sutured only. On the various experimental groups CollaTape or Allomax mesh material was used with or without the addition of platelet-rich plasma and/or MSCs. At 4 and 8 weeks postoperative, abdominal fascia was excised (n=7 per group). Immunohistochemistry (IHC) was performed on excised tissue sections to identify collagen type I in the healing wound. Several modifications have been implemented into the original IHC method including the use of anti-COL I (Millipore, Temecula, CA) to attain satisfactory staining. While further refinements to our IHC method are still in progress to stain COL I in the rat abdominal tissues of our test groups.

924 Ricky Kaiser, Samuel I. Mutinda, Ruigang Wang

Hydrothermal Synthesis and Characterization of Transition Metal Oxides

Transition metals have varying oxidation states which lend to their catalytic abilities as oxides. The structure and chemical information of hydrothermally synthesized transition metal hydroxides (FeOOH, Co(OH)2, Ni(OH)2) and oxides (Fe2O3, Co3O4, NiO) were analyzed to study their thermal stability, reducibility, and catalytic activity. Low temperature (50~150 B°C) hydrothermal methods were employed to control the kinetic crystal growth and morphology/size of synthesized transition metal hydroxides and oxides. The morphology/size of

the nanoparticles was examined using transmission electron microscopy (TEM). Crystal structure of the nanoparticles was examined using powder X-ray diffraction (XRD). The total surface area of the nanoparticles was measured by the BET method. Thermogravimetric analysis (TGA) and temperature programmed reduction (TPR) were also used to determine the thermal decomposition temperature, reduction temperature, and H2 consumption of the nanopowders synthesized by the hydrothermal method. Future studies will examine the catalytic abilities of theoxide nanopowders and carry out a morphology-activity correlation study.

925 Andrew Smith, M. McMaster, N. Velpukonda, D. Sternagle

Effects of Deposition Parameters on the Properties of Single Crystal ZnO Films

The results are presented from the investigation of the effects of changed deposition parameters on the properties of sputter-deposited ZnO films. The films were deposited on sapphire substrates using radio frequency magnetron sputtering from a high purity ZnO solid target. Parameters investigated were the deposition gas pressure varied from 5 mTorr to 40 mTorr; substrate temperature during deposition, which was varied from 25 B°C to 600 B°C; gas flow, rate which varied from 5 to 30 standard cubic centimeter per minute (sccm). After post-deposition annealing in N2 at 900 B°C for 5 min, the films were characterized using photoluminescence spectroscopy, X-ray diffraction (XRD) and Atomic force microscopy measurements. The optimum conditions included of heating the sapphire substrates in O2 prior to deposition, and depositing the film at a substrate temperature of 300 B°C, with gas pressure of 10 mTorr and gas flow rate of 20 sccm. Luminescence spectra at the near band edge had peaks with narrow widths as small as 8.59 meV and are attributed to radiative recombination of bound excitons. XRD 2Oë-scans had peaks at 34.4B° with the best full-width-at-half-maximum value of 0.10B°.

926 Rucel Pletado

Reinvesting in Youngstown, Block by Block

The deindustrialization of America, especially along America's "Rust Belt" brought a significant disinvestment to the inner city neighborhoods. As population declined and businesses moved away, what has been left are the bare bones of the cities: miniscule population, high poverty rates, high crime rates, vacant houses. Specifically, Youngstown, Ohio still has not fully recovered from the decline of the steel mills. However, Youngstown has realized that they need to re-evaluate their approach as a city, and came up with the Youngstown 2010 Plan. The Youngstown 2010 Plan is the catalyst that inspired the Youngstown Neighborhood Development Corporation (YNDC). YNDC is a multifaceted neighborhood development organization launched in partnership with the City of Youngstown and The Raymond John Wean Foundation to strategically reinvest in the neighborhoods throughout the City of Youngstown. Their comprehensive approach, has had a positive impact in the city, especially through its Model Blocks Program, trying to repair the city neighborhoods, block by block!

929 Cecelia Maderitz

A Comparison of Simple and Complex Auditory-Visual Conditional Discrimination Training

Stimulus equivalence is a teaching paradigm with empirical evidence for the establishment of a variety of skills (i.e., letter and number recognition, sight word reading, face-name recognition, etc.) in typically developing and non-typically developing children and adults with different levels of functioning. Simple and complex conditional discrimination training have both been demonstrated to be effective. However, the effectiveness of the two procedures has not been directly compared. The present study will investigate the relative effectiveness of these two procedures to establish sight word reading and rudimentary reading comprehension to typically developing children and children with autism. An alternating treatments design will be implemented, whereby stimulus sets will be assigned to either a simple-sample or complex-sample condition. The percentage of correct responses will be scored for each training condition, and the training time will be compared to assess the efficiency and effectiveness of the two conditions. Generalization and maintenance probes will also be conducted two weeks and one month following the end of training.

930 Greg Hillard, Julie Sole, Paul Sujka, David Siembida, Christian Riley, Marian Ankomah

Youngstown State University Hydroponics

Hydroponic growing is defined as growing plants in a water-based media rather than in soil. In this method, plants are grown in an system that circulates water and nutrients though roots for direct uptake. Not only can these systems be used to produce healthy vegetation, but they are also good tools for instructing the public on soil-free growing. Thus, a free standing vertical hydroponics garden was built to educate YSU students on the importance of soil-free growing. Because the garden will need to travel around campus, it was required to fit on a mobile cart and be self-contained. A traditional central tower design was chosen for its ease of use and stability. The tower was built on a 2-foot by 4-foot wooden base with a wooden frame that houses growing lights for the system. A 550gal/hr submersible pump was used to pump water and nutrients from the reservoir up a tube in the main pipe. Acting as a free jet, water exited the tube and hit the curved PVC cap. This resulted in water draining down the pipe, and wetting the Rockwool and plant roots. The excess then splashed back into the tank, aerating and mixing the water for the next circulation. The system will be tested for efficiency and ease of use in the following eight weeks. The red and green lettuce growing in the tower will be compared to control lettuce that will be planted in soil. Through weekly maintenance and monitoring, the physical elements of the tower will be evaluated to determine the design's efficacy.

931 Brandon Latronica

Ph-rugality in Physics: Demonstrating classroom physics concepts in the face of limited ph-unding.

Budgets are shrinking while the cost of purchasing ready-set demonstrations are rising. With a little bit of ingenuity, the task at hand is producing a number of relevant, robust demonstrations at costs reasonable to the budget constrained classroom.

932 Alyssa Lockhart

The Motion of a Golf Ball in Flight

The flight of a golf ball is affected by many factors. Forces such as gravity, drag force, and lift force all impact the golf ball's motion once it is in the air. We develop a system of four

differential equations in order to analyze the motion that incorporates these forces as well as the particular aspects of the system. Variables for the system include the horizontal and vertical components of the displacement of the ball from the point of contact, the speed, and the angle between the horizontal and the tangent vector. The parameters include the drag and lift coefficients, the mass of the ball, and the density of the air. We solve the system numerically using the software Maple and investigate how changes in the initial conditions and parameters affect the dynamics of the system. In particular, we analyze the paths obtained by different clubs and determine the optimal initial angle of flight to obtain the maximum range for fixed values of the parameters and other initial conditions. In addition, we investigate which clubs to use in order to maneuver around certain obstacles.

934 Dustin Cover

The Relationship Between Crime and Population Density

What relationship does population density have with the rate of crime that a particular-sized land area experiences? One may assume that more people living in the confines of a smaller, highly-crowded area would be offered more opportunities to commit various crimes, particularly violent crimes, than those in an area with a less-dense population. This presentation focuses on this matter by exploring the various possibilities of crime rates throughout the state of Ohio, whether the crime occurs in a small town with only a few thousand people or in a sprawling city with hundreds of thousands living and working amongst one another. The method of data collection was simple in that all of the work of collecting the raw data was compiled by others, yet meticulous for trying to find a good mix, or balance, of small, medium, and large towns and cities located throughout the state of Ohio. The numbers for land area, population, and population density were then compared with the rates of serious crimes such as murder, rape, robbery, assault, and burglary. The results obtained were generally expected: The lower the population density, the lower the crime rate for most crimes, and the higher the population density, the higher the crime rate for those same crimes. However, there were more than a few anomalies in the mix, revealing that there are more variables than population density alone involved in the effects of crime rate. In conclusion, the results show that more than likely, one can expect more crime in an area with a higher population density, but other factors must also be looked upon before coming up with a final decision.

935 Samuel Mutinda, Ruigang Wang

Synergistic effect of Pr4+ and Ce4+ in Pr-doped ceria nanoparticles

The widely employed cerium based rare-earth oxide three-way catalyst systems drastically reduce many of the critical pollutants (e.g., CO, NOx, and unburned hydrocarbons) in automobile exhaust. We report that shape/size-controlled high surface area CeO2 and Pr-doped CeO2 nanoparticles were synthesized using hydrothermal technique in the temperature range 50-150 degree Celsius. Characterization techniques that were employed in this study include Powder X-ray diffraction (XRD), Transmission Electron Microscopy (TEM), and Hydrogen Temperature Programmed Reduction (H2-TPR). Our preliminary results indicate that a synergistic effect between Ce4+ and Pr4+ in the Pr-doped CeO2 nanoparticles facilitates oxygen mobility within the solid solution lattice structure hence improving the catalytic performance of doped ceria at lower temperature as compared to pure CeO2. Key Words: Nanoparticles, Synergism, Hydrothermal Method, Catalytic Performance.

936 Terry Pryor

Social networks effects on interpersonal relationships and intrapersonal understanding

The phenomena of Facebook and other social networks have had a substantial effect on the development and maintaining of today's interpersonal relationships. This research paper discusses the specific effects social networks have on interpersonal relationships and intrapersonal understanding. This study identifies relationship maintenance as the primary motive for people's use of social networks like Facebook. Research has suggested that the high usage of social networks while in a romantic relationship can lead to stronger feelings of jealousy and relationship dissatisfaction. Two hypotheses have been formulated based off this research H1: Social networks like Facebook and MySpace have more negative effects on interpersonal relationships than positive effects. H2: People's specific uses and gratifications of social networks have a relationship with their self-presentation within the community. It is clear that social networks have a substantial effect on interpersonal relationships and self-presentation.

937 Ashten Gibson

Government Regulation of In Vitro Fertilization Embryo Transfers

Recently in the media, several controversies have risen regarding in vitro fertilization and the regulation of the number of embryos that should legally be transferred. Debates have been circulating concerning the "Octomom" scandal that occurred, and different in vitro fertilization clinics have been analyzed as to whether or not they are following the American Society for Reproductive Medicine's guidelines. This study will analyze the different pros and cons of government regulation of the number of embryos transferred in one in vitro fertilization process, and will ultimately come to the conclusion that the government should regulate the embryo amount transferred in IVF.

938 Alyson Ellis, Jennifer Pintar

The Effect of Abdominal Strength and Endurance Exercises: A Randomized Clinical Trial

The purpose of this study was to compare the potential effects of a muscular endurance protocol, a resisted strengthening protocol and a control group on abdominal strength, endurance and body composition in a sample of healthy young subjects. Methods: a sample of 95 volunteer, college subjects were examined. Abdominal strength and endurance measures were taken using an isokinetic dynamometer, front plank, angle sit, and sit-ups. All tests were performed on the same day, in randomized counterbalanced order. Subjects were randomly assigned to one of three groups: strength, endurance, or control. They then followed exercise protocol based on their respective group over a twelve week period. All baseline tests were repeated at the conclusion of the study. Data were analyzed using a doubly-multivariate analysis of variance with a Bonferroni post hoc analysis. Results: Multivariate analysis revealed no between group differences and no time*group interactions. However, sit-ups were shown to significantly increase and eccentric isokinetic dynamometer decrease when all groups were analyzed together. Further post hoc analysis revealed that both post test plank mean times and sit-ups were higher in the strength group, when compared to the post-test control group was also found. Conclusion: Results suggest that either abdominal strength and endurance training

have little effect on baseline tests after a twelve-week training period or the tests administered to assess strength and endurance may not be the most responsive instruments available.

939 Caren Gaskins

Intra-racial class conflict among urban African American populations; a qualitative analysis.

Social workers working urban African American populatinos have identified an issue as a source of conflict preventing this community from coming together to meet common goals. Class conflict has been identified as a cause of issues in this group. What intervention strategy can be used in African American communities to facilitate positive interaction between members of differing economic classes? We seek to create an intervention strategy that may be employed when working in this population where issues between economic classes are identified. Interviewing will be the main source of gathered information. Ten to fifteen individuals who work with African American populations or who are members of urban African American communities where class conflict exists will be interviewed. Interviews will take place in person or over telephone. Utilizing thematic analysis will be the basis of our research. Our anticipated findings include African American perspectives on the influence of class in forming community based approaches to economic development. More specifically the findings may illuminate whether African Americans see this factor as important and if so how does class impact the definition of problems and the focus of community work. Also, we anticipate insight into community development strategies with respect to perspectives on the influence of in-class community development, the views varying class groups might have in regard to community problem/issues, and approaches varying class groups might use to address community problem/ issues. Ultimately, this might lead to the development of community interventions to address the perspectives and needs of each group.

941 Ross Morrone, AJ Allen

How Data Mining in Google Analytics Applies to Building the YSU Website

Decisions trees are used to display how algorithms break down data into a tree-like graph that makes the data analysis easier to read. In one instance it can be used to break down event outcomes or ultimate goals. The Youngstown State University website uses Google Analytics to track every page maintained by the Office of Marketing and Communications. That includes the YSU homepage as well as all college and most department pages. Using this analytics data we are able use this Google platform to view visitors in very unique ways. We can track geographic location, search terms used and even device types. The most interesting aspect of this platform may be the new addition of visitors' flow that breaks down how a user entered our site and moved through it skimming page after page. Using this decision tree format we can calculate and make probability assumptions based on various user types. We then apply these assumptions and findings to our website navigation and flow.

949 Sarah Waldinger, Dylan Thomas, Vincent Pilolli, Alvin Lu, Sarah Scarnecchia, Samantha Tharp, Kevin Bell

Remediation of the Banks of the Mahoning River in Northeast Ohio

Channel and bank sediments of the Mahoning River (northeast Ohio) were contaminated during the 20th century by industrial facilities that discharged waste effluent directly into the river.

Previous studies studies indicate that bioremediation of the organic contaminants (not the metals), using bacteria and fungi, can be employed to remediate both the channel and bank sediments. Previous studies also indicate that contaminants in the banks can migrate to the channel because the water table in the banks slopes towards the channel at low river-gage heights between precipitation events. This study, using Energy-Dispersive X-ray Spectroscopy (EDS) and X-ray Fluorescence Spectroscopy (XRF), evaluated the presence and relative concentrations of potentially toxic metals in the bank sediments. Sludge samples lying below one to 1.5 meters of fine-grained sediment and plant roots in the banks were studied at four sites along a 50-kilometer stretch of the river. The sludge exhibited strong chemical odors when extracted. They were dried (removing liquids and odors from volatile organics), ground to a powder using a ball-mill, and analyzed by both methods. Most metallic constituents were indicative of uncontaminated soils and sediments of the region. Consequently, this study indicates that the choice of a bank remediation technique should focus on the organic contaminants, rather than on metals at background concentrations.

951 Elliousa Baier, Ashley Bartholomew, Heather Collier, Stephanie L. Collier, Amy Cornell, Michael L. Hammond, Lauren R. Johnson, Melissa McClain, Noleen Moore

Using Before, During, and After Strategies to Improve Adolescents' Content Area Reading

It is important for content area teaches to provide ways for students to meet the reading demands of textbooks and other content resources. Strategies that help students deal with complex content area texts can result in increased comprehension, deeper understanding, and retention of information. This poster session will detail research based strategies that teachers can use with adolescents and young adults before, during, and after reading.

953 Logan Phillips, Taylor Smith

30/5 City Comparison

The following quest project explains in statistical detail, the comparisons between thirty cities within five categories. Our five categories take account of city, population size, median household income, homicide rate, and unemployment rate and poverty percentage. The reasoning behind the project was to research the relations between the categories, and verify if the relations deemed significant. A sampling process is shown to relate the independent variables (IV) effects on the dependent variables (DV). The IV includes each cities population size with the DV being the remaining four categories. We anticipated our ending results to explain the correlation between the five categories and ways to manipulate the data for future gains.

962 Charles Spurr

PRE-UTICA DRILLING ACTIVITY BASELINE GROUND WATER MONITORING PROGRAM

Sustainable management of water resources is important for communities that depend on groundwater for their public drinking water supply. The recent expansion of unconventional natural gas exploration has led to concerns about the potential impacts to water resources from drilling and production activities. A rural village located within an active drilling area of the Utica Shale wet gas zone in eastern Ohio, USA, provides a case study of one community’s public groundwater source and its vulnerability to potential drilling-related contamination. In preparation for the study of the village's water supply, we began by collecting water well data

from the Ohio Department of Natural Resource's website. The data collected from the well logs was placed in an organized fashion in a Microsoft Excel document. The data includes well depth, surface elevation, geographic coordinates, depth to bedrock, and static water level, along with other data necessary for well identification. The data was then organized and used in ArcGIS 10 to create a composite ground water surface map. This detailed map can be used to determine ground water flow direction and help select future water sampling locations. ArcGIS also allowed the placement of the road networks for geographic reference purposes and creation of bedrock surface and glacial isopach maps to aid in geological interpretations.

965 Zane Kalik

Regulation of the L-Type Calcium Current by Sex Steroids: A Mechanism for Increased Arrhythmia Vulnerability in the Female Heart

966 Robert Ragan, Mark Kosec, Phil Ciprian, Ryan James

SMART BADGE

The personal communication between professor and student is an important part of a college education. The use of personal computers and access to the internet at an institution has revolutionized the speed of messages being sent from one party to another. The internet has infinite references and material relating to almost every concept covered in oneвЂ™s education. Email allows classmates to stay in touch, and professors to reach their students anywhere, anytime. However, this personal communication through learning has a heavy reliance on an internet connection. Our group plans to create a wireless programmable display device, the SMART BADGE, which will enhance the communication between class peers as well as replace an outdated numbering system to identify classrooms on campus. The SMART BADGE will replace the paper badges installed currently outside of each classroom. With an electronic version in place, simple messages could be displayed that would aid in the identification of rooms, classes, and even homework assignments.

967 Raymond L. Butler

How Does the Legal Sale of Handguns Influence Violent Crime

My proposed statistical research project will examine, “How Does the Legal Sale of Handguns Influence Violent Crime.” The study will observe the relationship between legal sales of handguns in twenty states from five United States regions – eastern, north central, southern, western contiguous regions, Alaska and Hawaii placed in a non-contiguous region, and the violent crimes committed in those states in 2007. The study will consider state population, compare unemployment rates, income, population density and the average age of the population.

968 Danilo Comichista, Gregory Such

An Examination of Political Knowledge and Awareness Among Youngstown State University Students

This study examines the issue of political awareness and knowledge among students at Youngstown State University (YSU). We selected a representative sample of YSU students across gender, race, college, political ideology and class rank. In order to measure political awareness, a

survey instrument was developed to test the student's level of knowledge on a variety of national and global issues. Additionally, the individual's source of information about national and global issues was examined. Sources of information include all forms of media; newspaper, radio, and television. These sources are classified on a scale ranging from very liberal to very conservative.