QUEST 2011 Abstracts

Adhikari Param Mechanical Engineering PM Session 1: 1:30- 3:00 James Gallery

Micro-bio/chemical applications in a μTAS(Micro Total Analysis Systems) require rapid and uniform mixing of a number of fluid streams that carries bio/chemical species in the solution. An electro osmotic mixer from COMSOL model library is taken as a main model from which other alterations are designed for optimization. The circular, square and elliptical mixers were modeled to see the variation in the mixing. We analyzed the mixing process by varying the mixing shape, concentration, mixing channel width and electrode pairs. Concentration variance at the outlet over time was studied to determine the extent of mixing. The mixing is effectively found to be improved in certain designs.

Aldridge James Chemical Engineering AM Session 2: 10:30-12:00 Jones Room

Polydimethylsiloxane (PDMS) membranes are currently used in microfluidic systems as actuators behaving similar to how current/pressure sensors operate in equal percentage valves. PDMS is also bio-compatible as opposed to silicon for packaging and/or living tissue applications. Having two sides to a membrane, an upper cavity for the bulk flow of oxygen (O2) and a lower cavity for bulk flow of carbon dioxide (CO2) are present. The parameters of this experiment are designed to calculate the flux of O2 in micromoles/sq. meter/sec through PDMS from its bulk flow of O2 and observe how diluting the bulk flow of O2 with nitrogen (N2) affects the flux of O2 through the membrane. Conversely, the effects of diluting the bulk flow of CO2 with nitrogen are observed also. This experiment is conducted at room temperature and pressure (RTP) using standard O2/ CO2 detection units and gas chromatography to confirm flux concentrations. Afterwards, a 3-dimensional graph for each film thickness is constructed to depict the effects of diluting the upper and lower gaseous streams.

Aldridge James Chemical Engineering AM Session 2: 10:30-12:00 Coffelt Room

The atomic force microscope (AFM), invented by Gerd Binnig and co-workers in 1986, and became commercially available in 1989, is a very high resolution instrument capable of "viewing" materials at the atomic or molecular level. This high resolution capability enables scientists and engineers to image, measure, and manipulate matter at the nanoscale and it has since advanced new discoveries in nanotechnology and biotechnology. The AFM instrument at YSU is a model 5500 made by Agilent Technologies, with various capabilities which will be discussed in this presentation. To demonstrate the function of this instrument, a polished surface of silicon carbide semiconductor was scanned to determine the roughness, which was found to have a root-mean-square value of 6 nm. The AFM will also be used to determine the etching rate of silicon carbide using sulfur hexafluoride. Other capabilities of the AFM in nanotechnology research, such as nanoimprinting and nanolithography will be presented.

Andres Emily Food & Nutrition Coordinated PM Session 1: 1:30- 3:00 Ohio Room

Adults across America have various strategies for managing their weight. Among those who exercise to manage their weight, perceptions of the function of exercise may vary according to the individuals' self-assessment of appearance, weight status, or health status (Chang & Christakis, 2003; Brock et al., 2009; Wharton, Adams, Hampl, 2008). This study will assess the perceptions of the functions of exercise in weight management among students who frequent the Youngstown State University Wellness and Recreation Center. Students, male and female, over age 18 years, who consent to participate in the study will complete a 31-item questionnaire, which explores beliefs, knowledge, and behaviors regarding exercise. It is anticipated that students in health-related majors will have significantly ($p < 0.05$) greater exercise knowledge scores than non-health related majors, male participants will be significantly more likely to report enjoy weight training than females, and females will be significantly more likely than males to exercise for weight loss.

Anthony Alfreda Merch Fashion & Interior AM Session 1: 8:30-10:00 Room 2068

Despite social stigmatization and negative attitudes that are internalized by plus sized people (especially women), more plus sized clothing is needed in popular, non-specialty retailers. To evaluate the validity of whether society has a negative perception of plus sized people and if negative attitudes toward them are reflected in retail stores, a study of a sample of students at an Eastern University and secret shopping at local retailers was performed. The study found a negative correlation between BMI of the participants and what size they found most attractive. It also determined more plus sizes are preferred in stores. Literature states there are many factors - body type and shape, weight locus of control, self-referencing, manufacturer sizing, availability of affordable and fashionable clothing that influence the satisfactory shopping of plus size persons. Most of these factors are not properly applied to this growing market segment, which the study also found to perpetuate into the target associating

Antonucci Ryan History AM Session 1: 8:30-10:00 James Gallery

Salvatore Lucania was one of the most influential figures in American organized crime. By the mid-1930s, Charles "Lucky" Luciano, as he called himself, rose through the ranks of the underworld to become its undisputed leader. Then in 1936, Luciano was tried and incarcerated for his alleged connection to a prostitution racket. For most men, imprisonment would have ended their careers; but, Luciano's role in the criminal world remained constant with time. Even as a confined man Luciano was considered important enough for the American government to ask him for help with the Allied war effort in Italy. Due to his involvement, Luciano was released early from prison and exiled to Italy; he would never again set foot on American soil. Even so, he was still recognized as the leader of the American underworld and no one questioned his authority to call a nationwide meeting in Havana, Cuba. He moved seamlessly into the international criminal underworld, and became an almost mythical figure in his later life as a man who lived extremely well considering his lack of acknowledged income. Lucky Luciano's position in the underworld was not harmed by his conviction or absence from daily operations; he retained at least as much influence over American organized crime after he was confined to a

Antonucci Alex Industrial & Systems Engr PM Session 1: 1:30- 3:00 Ohio Room

Industrial & Systems Engineering students performed exercises at Altronic, Inc., a local manufacturer of diesel ignition systems primarily for use in the petroleum industry. As part of credit in the methods engineering class and for presentation at QUEST, the authors applied various techniques to both the quantification and analysis of manual work performance. In addition to performing this research concerning existing industrial engineering practices, an effort was made by the team to suggest opportunities for improvement to the particular subject area. Graphing and charting techniques were used to develop a framework for general process improvement studies.

Appel Miranda Food & Nutrition Coordinated PM Session 1: 1:30- 3:00 Ohio Room

The eating habits of dietetics professionals and students often come under scrutiny as it is often believed that these groups are overly restrictive in their food choices. This prospective study aims to find a relationship between nutrition habits and choices, and the progression of students through dietetics programs at Youngstown State University. Dietetics students, ranked junior or senior, 18 years or older are eligible to participate in this study. A link to anonymous, self-administered questionnaires using Survey Monkey will be distributed to the students asking questions related to sociodemographics, anthropometrics, and eating habits. Consent to participate is implicit with completion of the survey. Data will be pooled for analyses and it is anticipated that > 75% of dietetics students will report making changes to their diets in response to knowledge gained in their course work, and > 50% will report observing the eating habits of others.

Armstrong Stacy Counseling PM Session 1: 1:30- 3:00 Ohio Room

Bullying is an issue within schools nationwide. "Bullying affects a large number of children and lays the groundwork for long-term risk for psychological, physical, and psychosomatic outcomes" (Vanderbilt and Augustyn, 2010). Students are especially influenced by bullying due to their already vulnerable developmental state. Bullying also presents short and long term effects on students who witness or participate in bullying behaviors. In addition, the effect that bullying has on students are long-lasting and can become permanent changes in the self-perception of their lives. This presentation will address the multiple effects that bullying has in the areas of academics, personal, and social development as well as introduces strategies and techniques to help reduce bullying behaviors within schools.

Aryal Sanket Mechanical Engineering PM Session 1: 1:30- 3:00 James Gallery

Lab-on-chip devices promise for many novel applications concerning the transport of the liquid samples and other solutions in the order of micro-scale dimensions. One of the efficient methods for transporting fluid in the samples is through electrokinetic effect, where an electric field will be applied to charged ions such as DNA, a negatively charged ion. These ions act as carriers of the entire solution through the microchannels from inlet via probe region for its detection to outlet. COMSOL, commercially available multiphysics software, with its specific MEMS and Chemical Engineering modules were employed and simulated for the analysis of fluid velocity and ionic concentration throughout the channel with various shapes. The ionic fluid concentrations and velocities are plotted against the potential difference across the two inlets in which one inlet has DNA samples and the other has a buffer solution. To excerpt an effective distribution of concentration and confining the sample at detection zone, simulation was done in various time steps. Ionic fluid velocity and ion concentration show some promising results in order to design an effective that may be used for several other applications including DNA translocation, hybridization, etc. This research study is still a work in progress (WIP) leading towards my thesis.

Awadalla Laura Biology Pre Dentistry PM Session 2: 3:30-5:00 Ohio Room

The goals of this study were to further evaluate the interaction between Rho kinase and myosin phosphatase in regulating relaxation and to test whether these enzymes are influenced by gonadal hormones in vascular smooth muscle. The aortas of castrated or sham castrated adult male rats were isolated, cut into 3-4 mm rings, attached to a force transducer, and placed in water-jacketed bath chambers (to maintain temperature at 37oC). The tissues were bathed in a modified Krebs buffer solution at pH 7.4. The chambers were also bubbled with a gas mixture of 95% O2 and 5% CO2 to ensure adequate oxygenation and to maintain pH. All of the tissues were contracted with phenylephrine (PE; 10-4 M) and then treated with either DMSO (control) or 2.5 nM, 25 nM, or 250 nM Calyculin A, a myosin phosphatase inhibitor. Tissues were then relaxed by the addition of Y-27632 (10-5 M), a Rho kinase inhibitor. Data were collected with the iWorx data acquisition and analysis system. Total relaxation and the rate of relaxation were compared between tissues for each treatment group. Results demonstrated that the total relaxation and rate of relaxation were significantly inhibited in tissues treated with 250 nM Calyculin A. These results support the theory that inhibition of Rho kinase acts through the activation of myosin phosphatase to stimulate relaxation in vascular smooth muscle. Our results further suggest that the activity of Rho kinase or myosin phosphatase in aortic smooth muscle is not modulated by

Azam Matthew Industrial & Systems Engr PM Session 1: 1:30- 3:00 Ohio Room

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Baker Cassandra Food & Nutrition Coordinated PM Session 1: 1:30- 3:00 Ohio Room

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Ball Kevin Industrial & Systems Engr AM Session 2: 10:30-12:00 Ohio Room

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analysis of static bending stresses in which the calculated stress was compared to the ultimate tensile strength of the steel alloy from which the support columns were constructed. Based on available wind load data, the team confirmed that the typhoon strength winds most likely generated bending stresses above the load carrying capacity of the structural steel. The results of these calculations are presented in a table. Along with the stress findings, the poster points to a variety of other technical challenges brought up by this promising technology.

Ballester Ashley Chemistry Pre Medical PM Session 2: 3:30-5:00 Ohio Room
Carbohydrate-derived azides react efficiently with dialkynes to produce symmetrical triazole-linked platforms that may then be deprotected to produce the parent polyols which they themselves are re-acylated with diverse substituents to produce octa-acylated products as potential polyvalent ligands. Our synthetic progress in this area will be presented.

Barcey Chris Electrical Engineering PM Session 2: 3:30-5:00 Coffelt Room
This presentation documents the purpose and progress of the design and implementation of a proportional brake controller system. This presentation is done in accordance with the Senior Capstone design class necessary for graduation. Included in the presentation will be an explanation of the theory behind the prototype design along with an explanation of the system components used in an attempt to realize the design.

Barker Nancy Comm St Organization Comm Trck AM Session 2: 10:30-12:00 Humphrey Room
While working as a peer mentor with nontraditional students, I have learned that finding what motivates these students is essential to understanding what leads to student success and degree completion. In my experiences, barriers to this success have varied depending on variables such as social and educational support, financial circumstances as well as issues dealing with classroom interaction. This paper is attempting is to find what past studies have discovered. Nontraditional students face obstacles such as child care issues, financial matters concerning mortgages and household management. Most traditional students will not face these types of barriers, which create a unique problem for universities in attempting to provide support and resources geared toward these issues. Motivation also differs for nontraditional students. The decision about furthering their education lies solely in their hands. It becomes a very conscious decision to better their lives in some manner. Determining the motivations and barriers that are distinctive to nontraditional students will enable universities to provide support and classroom instruction that may bring about more student success as well as degree completion. I hypothesize that nontraditional students' needs differ from traditional students', and it is one of the key points that may determine a nontraditional student's success. In addition, I conjecture that the barriers to a nontraditional student's success will differ, in

Batey Nichole Chemistry PM Session 2: 3:30-5:00 Ohio Room
Reactive oxygen species (ROS) are compounds that are produced by the reduction of molecular oxygen (O_2); these species can generate free radicals. A metal-catalyzed oxidation (MCO) system uses a metal ion to assist in oxidizing one molecule within a larger biomolecule. In an MCO system, a metal ion will come into contact with a protein, forming a metal-protein complex, which is then subject to oxidation by hydrogen peroxide (H_2O_2); subsequently, the free hydroxyl ($OH\bullet$) radical is produced, which causes damage to biomolecules. Free radical damage to biomolecules has been connected to a variety of diseases, such as cancer and cardiovascular disease. 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. A suite of 4 mutant enzymes are going to be employed to observe the pattern of site-directed oxidation and its competitiveness for binding to an interior pocket or to the exterior of the enzyme; three single mutants (H15S, N77H, and N103H) and one double mutant (H15S & N77H) will accomplish this relation between oxidation and protein structure. The generation, cloning, and sequencing of two of the mutants, N77H

Beauchamp Kristine Merch Fashion & Interior PM Session 1: 1:30- 3:00 Ohio Room
The purpose of this study is to compare the effect of product type on consumer preferences toward online versus in-store shopping, with a focus on fashion products.

Beck James Mechanical Engineering Tech PM Session 2: 3:30-5:00 James Gallery
In my line of inquiry I am exploring the under workings of the Iconic self. With collaboration between departments I am examining the conceptual under workings of the Super Hero Persona. I am then presenting these concepts to my partner Jim Beck for dynamic problem solving, and we were able to

create one shared vision for this project, The Power Ring. Through crafting my own unique super hero identity I am creating an alternate personality capable of realizing my final goal, transformation into the Iconic self. Then in practice I am creating a backlog of events, images, artifacts, and a continuing narrative driven towards authenticating this new aspect of self. This project then helps add to that validity by filling in the backlog of personal artifacts with this unique set of items. By combining artistic renderings with digital output machinery and injection molding we have taken the concept of the power ring and output it through different processes. The final result created two versions of the ring one-version a small set of four rings cast in bronze with detailed patinas applied to the surface. And the second A large production run of injection molded rings capable of being given away to viewers to commemorate performances, and other interactions with the iconic personality.

Beech Alec History AM Session 1: 8:30-10:00 James Gallery

Al Capone: An American Gangster By Alec Beech Al Capone is one of the most well-know gangsters in American history. One cannot think of organized crime without Capone coming to mind. He engaged in the majority of his criminal activities in Chicago in the 1920s. These crimes included smuggling and bootlegging alcohol during Prohibition, as well as racketeering and prostitution. Capone was enthralled with violence. He used brutality, rather than reasoning, to achieve power in the underworld. He was strongly influenced by his mentor and partner, Johnny Torrio. Despite his involvement in organized crime, Capone was a highly visible public figure. He even made large donations to charities with the money he made illegally. Al Capone became a household name throughout the United States in the twenties and thirties. Though he was eventually arrested and jailed for tax evasion, Capone's legacy lived on in Chicago and throughout the underworld.

Beil Evan Chemistry AM Session 2: 10:30-12:00 Ohio Room

A bimolecular reaction where the reactants compete for catalytic adsorption sites is optimized by properly blending the reactants to give the highest conversion. The three factors that were studied were the adsorption rates of the two reactants onto the catalytic surface, the desorption rate of the reactants, and the chemical reaction rate itself. Each of these factors determine the unique blending ratio of the two reactants that gives the maximum conversion of the key reactant and the production of

Bertleff David Math Statistics Track PM Session 2: 3:30-5:00 Breshnahan

This study attempts to examine the earnings of a professional golfer by gathering and improving on the methodology used in prior research. Using individual tournament data from the 2009 season, multiple regression can be utilized to explain the variation in earnings for a given tournament. Incorporating a player's final rank as an independent variable provides better results since the prize structure of professional golf relies ultimately on final rank. Also, adjusted statistics are developed in attempt to remove bias for individual golfer and course effects. Interesting results are discovered and a potential prize schedule for golfers who end in a tie is developed.

Binko Amy Chemistry AM Session 2: 10:30-12:00 Ohio Room

Mitochondrial DNA (mtDNA) is DNA that is found in the mitochondria of the cell. The yeast Saccharomyces cerevisiae is a facultative anaerobe and tolerates disabling mutations in its mtDNA so long as is has access to a fermentable carbon source such as glucose. Yeast mtDNA mutations often take the form of massive deletions in its 85 kb genome and are called Rho-. Their remaining mtDNA is amplified into many head to tail repeats which make them amenable to sequence analysis. They are respiratory deficient and therefore form small colonies. MtDNA is more prone to mutations caused by some mutagens such as ethidium bromide (EtBr) and antiviral drugs such as AZT and aroC, than nuclear DNA is, most likely due to the fact that mtDNA has less repair mechanisms. MtDNA replicates at random where nuclear DNA can only replicate in S phase of mitosis so mtDNA may not have the damage control mechanisms of cell-cycle-dependent checkpoints. Mutations occur naturally and also can be induced using Ethidium Bromide. Ethidium bromide causes mutations by intercalating in-between the base pairs of mtDNA and causing them to pull apart and get deleted. We are using EtBr mutagenesis to mutate yeast mtDNA so that it can be later characterized and used in studies of mtDNA sequence dependent

Bishop Aaron Electrical Engineering PM Session 1: 1:30- 3:00 Coffelt Room

Micromouse is a robotics competition in which a team builds a relatively small autonomous robot with movements that resemble a mouse. This robot can not only navigate through a maze, but also calculates the most optimal route to the middle of the maze in a timely and efficient manner. By using infrared sensors on our robot we can track the location of a wall and designate the mouse to take the correct route. Using feedback from encoders and sensors we can program a 'checks and balance' routine so that

our robot will stay approximately in the middle of the walls, not sidetracking and cutting corners which would decrease overall performance. We are using the Orangutan X2 Robotic controller made by Pololu and programmed with C language using a freeware software program called AVR Studio. The competition is being held at the PAC, Professional Activities Conference, hosted by IEEE in Erie, PA.

Blinsky Carla Nursing BSN PM Session 1: 1:30- 3:00 Room 2068
Nursing students from the Bitonte College of Health and Human Services will describe life changing cultural study abroad immersion experiences from traveling to Mexico to provide healthcare in a rural community where it is virtually non-existent. They traveled with faculty and healthcare professionals and volunteers from Ohio Medical Clinic Missionaries, and became an integral part of the healthcare team. They worked with Mexican community leaders to set up and operate a clinic from a church in San Quintin, Mexico. They developed nonverbal communication abilities and had to work through interpreters and use critical thinking as they adapted to the culture and environment. Students earned clinical course credit as they administered care to Mexican patients and were able to compare and contrast values, beliefs, health practices and ways of life to their own. Students identified the components of a comprehensive cultural assessment. Students administered care integrating patterns of human behavior that demonstrates respect and value of each Mexican patient. These experiences reflect the mission of the Youngstown State University and Bitonte College of Health and Human Services "to foster an understanding of diversity, sustainability and global perspectives". Students will share their experiences through a slide presentation with pictures and stories of study abroad in Mexico.

Bole Bret Mechanical Engineering AM Session 2: 10:30-12:00 Ohio Room
Low powered lasers and LED light sources along with several types of filters and lenses were setup in a lab environment to allow mixing of the three primary colors (Red, Green, Blue) to make other secondary colors. Power meters and spectrometers were used to compare the actual radiative power from each light source with the intensity of the luminosity of the colors as perceived by the human eye. The project was chosen by our team in order to develop a better understanding of the science behind color mixing used in digital displays such as computer monitors and televisions, and to ultimately find a relationship between radiative power and human perception of light sources. An overview of the findings from our experiments will be presented at QUEST, which will include graphs and pictures showing the relative sensitivities of the human eye to different colors, as well as a mathematical model that best fits the

Bollinger Patrick Industrial & Systems Engr AM Session 2: 10:30-12:00 Ohio Room
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Bowen Zack Criminal Justice AM Session 1: 8:30-10:00 Ohio Room
We examined how a range of variables can affect the incarceration rate of a county within Ohio. Variables such as church affiliation, race, and the amount of post secondary education was examined in

each county. The main concern of the research was whether a county's societal and environmental factors have an affect on the incarceration rate. Our method for gathering evidence is secondary analysis from city-data.com. Our sample size consists of 30 randomly selected counties within Ohio. Results showed the higher post secondary education attained within a county displayed a lower incarceration rate. Counties with the majority of it's citizens living at or below the poverty line resulted in a higher incarceration rate. Implications support social disorganization theories, poverty theories and further alternative solutions surround large scope measures to effectively reduce crimes rates within a given social structure or county. To support the findings more thoroughly researchers can investigate

Bowling Emily Biology PM Session 2: 3:30-5:00 Ohio Room

Carbohydrate-derived azides react efficiently with dialkynes to produce symmetrical triazole-linked platforms that may then be deprotected to produce the parent polyols which they themselves are re-acylated with diverse substituents to produce octa-acylated products as potential polyvalent ligands. Our synthetic progress in this area will be presented.

Brand Scott Chemical Engineering AM Session 2: 10:30-12:00 Ohio Room

Perovskite-related compositions in the K(AxCu1-x)F3 system were investigated, where A is the metal Mn+ or Ni+. The series K(AxCu1-x)F3, where x = 0.1, 0.2…0.9, were synthesized and characterized along with their ternary end-members by students in an undergraduate general chemistry laboratory as part of the Project REEL implementation at Youngstown State University during the fall, 2010 semester. This series has not been previously reported to our knowledge. The structure and composition were characterized hands-on by the students via X-ray powder diffraction and X-ray fluorescence, respectively, and this data will be presented.

Brothers Sarah Chemical Engineering AM Session 2: 10:30-12:00 Ohio Room

The ability of the yeast saccharomyces cerevisiae to ferment the sugars dextrose, maltose and cellobiose is explored. Ethanol production is investigated for maximum ethanol yield and sugar sustainability. Dextrose, a monosaccharide sugar is used in conjunction with the disaccharides maltose and cellobiose which are derived from starch and cellulose, respectively to produce ethanol through fermentation. The capacity of saccharomyces cerevisiae to overcome the alpha (1→4) glycosidic bond of maltose and the beta (1→4) glycosidic bond of cellobiose is determined and compared. Ethanol production is optimized for each sugar through varying yeast, sugar, and water ratios. Saccharomyces cerevisiae is grown anaerobically at 27°C and gas chromatography is used to measure ethanol concentration. A maximum ethanol mass percentage of 9.7% is achieved for dextrose at a mass ratio of 1.0 yeast : 8.8 sugar : 21.6 water. A maximum ethanol mass percentage of 8.3% is achieved for maltose at a mass ratio of 1.0 yeast : 8.8 sugar : 25.7 water. A maximum ethanol mass percentage of 3.8% is achieved for cellobiose at a mass ratio of 1.0 yeast : 6.6 sugar : 18.4 water. It is found that saccharomyces cerevisiae is capable of fermenting both disaccharides despite differences in bond conformations. Dextrose produces the highest ethanol yield, followed by maltose. These results support recent investigation into ethanol production from biomasses, including non-food grade carbon

Buckler Daniel Environmental Studies AM Session 2: 10:30-12:00 Room 2068

Extreme deforestation in pre-British Palestine later forced the hand of the colonial forestry service, which delineated a series of forest reserves throughout the country after 1926. In order to promote regeneration of forests and, in particular, to prevent the erosion that was washing away the little remaining productive soil of Palestine, the British attempted to limit Palestinian access to those lands. This paper seeks to discover the political ramification of the forest reservation system. Though not leading to vast displays of public outrage as in colonial Indian forests, forest management in Palestine nonetheless led to increased hostility against the Mandate authorities. Primarily utilizing forest service archives and contemporary newspaper articles, this paper traces the way in which discontent with the forest reserves contributed to the arson and sabotage committed against woodlands and the British government, particularly during the Arab Revolt (1936-39). Forest destruction became an expression of political and social unhappiness, just as it later did during the First Intifada (1987-93).

Budny Joseph Biology PT Track AM Session 2: 10:30-12:00 Ohio Room

Limb muscles are often studied for their properties related to locomotion, but studies of architectural properties in limb muscles of animals specialized for other behaviors, such as digging, are less common. This study quantified muscle architectural properties in the forelimbs of badgers (Taxidea taxus) and groundhogs (Marmota monax), two digging species from phylogenetically different clades (Carnivora vs Rodentia), and estimated maximum force production and power output of their forelimb muscles.

Architectural properties measured included: muscle mass, belly length, volume, physiological cross-sectional area, fascicle length and pennation angle. Both species showed massive elbow extensors and digital flexors that together accounted for approximately 60% of intrinsic forelimb muscle mass. The elbow extensors displayed a low degree of pennation with longer fascicles, an architecture consistent with appreciable shortening capability and high power. The digital flexors were more pennate with shorter fascicles, in addition to compartmentalization of muscle heads for both force production and range of contraction. Comparisons of muscle properties with the Virginia opossum (Didelphis virginiana), a marsupial with non-specialized locomotor repertoire, allowed for testing of statistical hypotheses relating muscle architecture with digging function. Overall, findings suggest higher muscle mass and degrees of pennation in the digital flexors are required for high force production during scratch-digging, and high volume muscles with long fascicles are important for powerful extension of the elbow for rapid

Burton Kenneth Electrical Engineering AM Session 2: 10:30-12:00 Ohio Room

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Butrick Craig Engineering Electrical PM Session 2: 3:30-5:00 Coffelt Room

The purpose of this design is to allow the remote operation of a full size vehicle through existing technologies. Applications of this design are, but not limited to, military use during combat operations where a human driver could become a liability or be exposed to an extremely high level of danger. Other applications include scientific operations where vehicle operation would be too dangerous for humans. The entire system includes hardware and software. Due to the specified nature of each of these, the project was divided amongst two teams to allow for a more specialized development. The hardware is designed as a human analog. Designing the system to mimic the way a human interacts with one vehicle will allow it to be used in other vehicles with little or no modification. Hardware will consist of pedal operators and a steering interface. Software will be run on a small laptop. It will be a small server designed to take commands from a remote station over the Internet. The software will pass the commands to a small controller board to interface with the hardware. A video feed will be sent back to

Butrick Craig Elect Engr Comp Digital Opt PM Session 2: 3:30-5:00 Coffelt Room

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Butrick Craig Elect Engr Comp Digital Opt PM Session 2: 3:30-5:00 Coffelt Room

The most prevalent method of placing feeding tubes for intensive care is using a Nasogastric tube. This method requires x-rays and pH testing to ensure that the tube is properly placed and not positioned in the stomach. A method to place the feeding tubes quickly with knowledge of the position of the end of the tube without using x-rays would save time, costs, and ensure patient safety. Current advances use a permanent magnet to position the end of the feeding tube. Research was conducted on using an HTS coil. The superconducting coil modeling yielded results that seemed that they would be sufficient for use., 300G at 4 inches. The coil was brought to Youngstown State University for empirical testing. Using liquid

nitrogen to cool the coil, a large DC current was introduced into the coil. At 60 amps a field strength of 250G was measured at a distance of 4 inches. In addition, there was a voltage spike in the coil after a few minutes. While testing was being conducted there was frosting on all components near the liquid nitrogen bath. It can be concluded from the results that a high temperature superconducting coil can be a replacement to the permanent magnet, but only with some major changes. Powering the circuit with a pulsed DC can allow for much higher field strength, lower weight, and add position sensing to the system. The use of liquid nitrogen and requirement of a power supply add a large cost to a system. Without the use of a pulsed DC power supply, the costs are too high for implementation.

Cadman Alyson Exercise Science AM Session 1: 8:30-10:00 Room 2068

Purpose: The purpose of the study was to investigate the test-retest reliability and concurrent validity of abdominal strength and endurance tests in a sample of children. Subjects: A sample of convenience including 219 children, kindergarten through 8th grade was examined. Methods: The five tests performed were the SU and curl-up (CU), timed side-support (SS), front plank (FP), and the V-sit (VS). Participants performed the tests in a randomized, counterbalanced format. One week later, 22 students repeated the tests a second time. Reliability was examined using an ICC model (3, 1). Concurrent validity was examined using a Pearson product-moment correlation coefficient (PMCC) comparing the CU, SS, FP and VS to the SU as the benchmark test. RESULTS: Reliability was found to be poor for the CU with an ICC of 0.39, fair for VS and SS with ICCs of 0.49 and 0.51 respectively, and good for FP and SU with ICCs of 0.66 and 0.76 respectively. Validity was found to be modest with PMCC values being small for FP at r = 0.18, medium for VS and SS at r = 0.35 and r = 0.40 respectively, and large for CU at r = 0.72. CONCLUSION: ICCs would suggest that none of the tests were highly reliable but the FP and SU were good. Interestingly, CU was the least reliable test yet had the highest correlation coefficient. The high correlation with the SU may be the result of the dynamic nature of the movements while the others are sustained positional

Carbone Sierra Biology PM Session 2: 3:30-5:00 Ohio Room

Mitochondria contain their own DNA (mtDNA), which is a remnant of their prokaryotic endosymbiont ancestor. Mitochondria are organelles inside eukaryotic cells that do aerobic respiration and oxidative phosphorylation to generate ATP. Mutations in mtDNA can cause degenerative neuromuscular diseases in humans. S. cerevisiae, like humans, is a eukaryote but it is a facultative anaerobe and can tolerate mtDNA mutations. My research goal is to generate mtDNA mutations using ethidium bromide and to characterize those mutants. Suitable mutants will be used in studies of mtDNA replication and

Carion Amy Food & Nutrition Coordinated PM Session 1: 1:30- 3:00 Ohio Room

Adults across America have various strategies for managing their weight. Among those who exercise to manage their weight, perceptions of the function of exercise may vary according to the individuals' self-assessment of appearance, weight status, or health status (Chang & Christakis, 2003; Brock et al., 2009; Wharton, Adams, Hampl, 2008). This study will assess the perceptions of the functions of exercise in weight management among students who frequent the Youngstown State University Wellness and Recreation Center. Students, male and female, over age 18 years, who consent to participate in the study will complete a 31-item questionnaire, which explores beliefs, knowledge, and behaviors regarding exercise. It is anticipated that students in health-related majors will have significantly ($p < 0.05$) greater exercise knowledge scores than non-health related majors, male participants will be significantly more likely to report enjoy weight training than females, and females will be significantly more likely than males to exercise for weight loss.

Chachko William Elect Engr Comp Digital Opt PM Session 1: 1:30- 3:00 Coffelt Room

Our project is based on the concept of a compressed air power plant proposed for the Norton Mine in Norton, Ohio. Through out history the difficulty of energy is storage. Many concepts have been developed in an attempt to solve this issue, but many have been inefficient. Currently First Energy is proposing building a compressed air system to store air during low energy demand times for the use during peak hours. Our project is a small demonstration of the technology involved. This concept uses compressed air in hopes to be more efficient than current energy concepts, such as water, and battery. This concept is much greener than alternative of having no storage systems on our power grid.

Chalfant Brittany Chemical Engineering AM Session 2: 10:30-12:00 Ohio Room

Composite nanoparticles with well-defined structures and surface morphologies characterized by a hierarchical dual-size roughness have received increasing attention due to potentialities such as the fabrication of superhydrophobic surfaces. Previous attempts at fabricating a superhydrophobic surface by surrounding polystyrene particles with smaller silica particles, giving a raspberry-like structure, and

applying these particles to a surface have yielded surfaces that lose their superhydrophobic properties with physical wear tests such as rubbing. This study involves the fabrication of a superhydrophobic surface by using larger silica particles as opposed to polystyrene particles in an effort to explore the potentials of such surfaces. Raspberry-like composite nanoparticles (RCN's) with polystyrene particles as cores have been successfully created via a sol-gel method. Altering this procedure, silica particles were then used to replace the polystyrene cores. Various methods of SAM coating and different combinations of binders and solvents to adhere these particles to a surface were tested, ultimately leading to the fabrication of a superhydrophobic surface using silica particles as cores.

Cicero Noah Political Science PM Session 1: 1:30- 3:00 Humphrey Room
The presentation involves the consequences high debt has on government. It shows debt crises in history. It starts with the debt crisis of Solon and moves onto Rome. Then to the Russian and French

Ciprian Philip Electrical Engineering PM Session 1: 1:30- 3:00 Coffelt Room
Home automation is a significant development in today's world. With the continuously growing demand for "green" energy and ongoing economic struggles, home automation provides an efficient way to manage energy use in a clean and economic manner. With the assistance of computers, we can easily develop a system to control energy-consuming aspects of the everyday home. These aspects can be simple such as lighting and air conditioning or be very complex in features such as communication and remote monitoring and management of a family's home. These and other innovations could create a strong economical and environmental impact on societies constant demand for energy. The more control there is over energy use, the more beneficial energy is!

Clifton Lindsay English PM Session 2: 3:30-5:00 Humphrey Room
Fascicle 12: With Dickinson's focus on science and faith, it is amazing to us that she never once used "transform" in any of her poems. We have found that fascicle twelve seems to be about transformation; be it through religious faith, from childhood to old age, from sunrise to sunset, from living to dying. Fascicle twelve uses "transformation" in many different ways, but it unites all of the poems together. We also played with the aspects of body and soul, as well as musical tendencies. Fascicle 24: Thinking about fascicle twenty-four as a whole, the theme of the Civil War runs smoothly throughout all of the poems in one way or another. These poems in this particular fascicle work together to exhibit the nature of war from different vantage points, specifically concentrating on the meaning of life, the meaning of religion, the forces of nature, and the concepts of gender.

Clover James Electrical Engineering Tech AM Session 2: 10:30-12:00 Ohio Room
Analyze digital waveform (Square Wave) utilized by digital computer and digital communication systems. The mathematical model (Fourier Series) of the waveform will be developed. The amplitudes of the frequency spectrum of the waveform will be calculated. Oscilloscope and Spectrum Analyzer will be utilized in laboratory experiments to measure waveform amplitude in both time domain and frequency domain. Circuit simulations will be performed in time and frequency domain using Multisim 11 simulation program. Comparisons for mathematical calculations (Excel), laboratory measurements and circuit simulation results will be presented.

Conger Alecia Respiratory Care AM Session 1: 8:30-10:00 Coffelt Room
During volume control ventilation (VC) the volume and flow waveforms are not dependent on the patient's respiratory system mechanics. During pressure support ventilation (PS) the inspiratory pressure waveform is independent of the patient's respiratory system mechanics. The purpose of this paper is to describe VC with dual and set-point targeting and PS. We hypothesize VT deliver will not differ between VC dual and set-point targeting and PS in an active lung model. METHODS: The Ingmar Medical ASL 5000 lung model was used to simulate low lung compliance in an active model during dual and set-point targeting with VC and PS. Lung model was adjusted to actively breathe at a VT of 430. Ventilators were set to deliver a VT of 430 mL, rate 15, PEEP 10 cm H2O, TI 0.6 seconds, Flow Trigger 3 L/min during VC and IP 16 cmH2O, E sensitivity 30% during PS. End expiratory tidal volume were collected on 10 consecutive breaths during active breathing with set-point and dual targeting. Data were entered into SigmaPlot and analyzed using ANOVA. Statistical significance was established at $p < 0.05$. RESULTS: Tidal volume delivery varied with targeting schemes; 438.4 mL (+SD 2.4) VC- set-point, 524.1 mL (+SD 2.0) VC-dual and 845.0 mL (+SD 1.2) PC, $p < 0.001$. Auto-triggering occurred with set-point targeting during VC ventilation. CONCLUSIONS: Targeting scheme and control variable affect VT delivery during passive

Crawford Brian Chemical Engineering AM Session 2: 10:30-12:00 Ohio Room

A bimolecular reaction where the reactants compete for catalytic adsorption sites is optimized by properly blending the reactants to give the highest conversion. The three factors that were studied were the adsorption rates of the two reactants onto the catalytic surface, the desorption rate of the reactants, and the chemical reaction rate itself. Each of these factors determine the unique blending ratio of the two reactants that gives the maximum conversion of the key reactant and the production of

Cunningha Bryan Chemistry PM Session 2: 3:30-5:00 Ohio Room

The effectiveness of the synthetic carbohydrate mimetic MVII069 on the inhibition of capsule production in Staphylococcus aureus type 5 (49521) was evaluated. S. aureus capsule was purified via DEAE column chromatography and used to test monoclonal antibodies using enzyme linked immunosorbent assays (ELISA). Subcloned cells producing antibodies that bound to capsular carbohydrate were identified using the purified carbohydrates as the antigen in the ELISAS. Bacteria were then incubated with the mimetic and tested for capsule production using binding to the previously selected monoclonal antibodies as an indicator. It was determined that the tested mimetic was not able to prevent capsule production. It is hoped that further testing of more effective mimetics will be possible. Furthermore, the monoclonal antibodies produced in the study may be useful in the treatment of S. aureus infections.

Curll Lisa Math Applied Math Track AM Session 2: 10:30-12:00 Breshnahan

Mill Creek Park offers a unique opportunity in Youngstown to escape the sounds of the city and indulge in a wilderness experience. There are 14 named trails within the park, which range from handicap-accessible to much more difficult terrain. One of the problems, however, is that the trails are not well classified with respect to difficulty ratings. This can make it difficult for individuals to plan day hikes. Our group aimed to reevaluate these trails. Mass points were obtained from the Mahoning County GIS website for almost all of Mill Creek Park. Inverse Distance Weighting (IDW) interpolation was used to derive unknown points and create a raster. We used ArcGIS's Spatial Analysis extension to calculate the slope of the raster, made up of 25 x 25 foot cells, and ranked these slopes on a scale of 1 to 9, with 9 representing the steepest slopes. Trails in Mill Creek Park were mapped with a combination of personal data collection in the field using GPS units and digitization from orthophotos. The trails, overlaid on the slope raster, allowed us to calculate the total sum of slopes experienced by each trail. These sums were normalized by trail length (sometimes quite different from what Mill Creek Park's simple trail guide suggests) to calculate overall trail difficulty. The difficulty values calculated by our methods are then compared to those suggested by Mill Creek Park. We were also able to locate several unnamed by clearly travelled trails that may be of interest to future hikers. We will discuss the strengths and weaknesses of our model and distribute updated trail difficulty maps to anyone with an interest.

Dangerfield Randi Chemistry AM Session 2: 10:30-12:00 Ohio Room

The chemical synthesis of organic azides, particularly those with low molecular weights, is often problematic due to their instabilty and the requirement for potentially dangerous reagents. We have discovered that several organic-soluble arylsulfonyl azides react with the organic base DBU to generate a convenient azidation reagent that circumvents some of the usual issues with this chemistry. This poster will summarize our research results.

Davis Machelle Nursing BSN PM Session 1: 1:30- 3:00 Room 2068

Nursing students from the Bitonte College of Health and Human Services will describe life changing cultural study abroad immersion experiences from traveling to Mexico to provide healthcare in a rural community where it is virtually non-existent. They traveled with faculty and healthcare professionals and volunteers from Ohio Medical Clinic Missionaries, and became an integral part of the healthcare team. They worked with Mexican community leaders to set up and operate a clinic from a church in San Quintin, Mexico. They developed nonverbal communication abilities and had to work through interpreters and use critical thinking as they adapted to the culture and environment. Students earned clinical course credit as they administered care to Mexican patients and were able to compare and contrast values, beliefs, health practices and ways of life to their own. Students identified the components of a comprehensive cultural assessment. Students administered care integrating patterns of human behavior that demonstrates respect and value of each Mexican patient. These experiences reflect the mission of the Youngstown State University and Bitonte College of Health and Human Services "to foster an understanding of diversity, sustainability and global perspectives". Students will share their experiences through a slide presentation with pictures and stories of study abroad in Mexico.

Davis Michael Industrial & Systems Engr PM Session 1: 1:30- 3:00 Ohio Room

The authors of this QUEST presentation worked with supervisory personal at a local fastener manufacturer, Brainard Rivet. The study which is the subject of this presentation was performed as part of the methods engineering class in the Industrial & Systems Engineering program. 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 this range of analysis techniques supported process improvements and the establishment of time standards as well as laying the foundation for improvements in ergonomics, safety and the definition of plant wide objectives.

Davner James Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery

The challenges faced by the engineers at NASA were unique and novel when they designed the first Moonbuggy for the Apollo 15 mission to the moon. To commemorate their design achievements, NASA held its 18th annual Great NASA Moonbuggy Competition in Huntsville, Alabama at the U.S. Space and Rocket Center on April 1-2, 2011. The competition challenged teams of senior, undergraduate engineers to design, fabricate and compete with their vehicle in a race. The race simulated terrain that the original Moonbuugy had to traverse; which included sand pits, rocky inclines, and meteor craters. Some of the design requirements were: a two person powered vehicle, the ability to compress the vehicle to fit into a 1.22m X 1.22m X1.22m (4'X4'X4')box, a driving and break system, a turning radius of 4.57m (15') and height off ground of 4.57m (15'). Overall, the competition allowed the team to apply their engineering knowledge through a hands-on project that tested the groups understanding and ability of engineering

DeChellis Daniel Chemistry Pre Pharmacy PM Session 2: 3:30-5:00 Ohio Room

β-glucosidases break down polysaccharides such as cellulose into free glucose molecules by hydrolyzing the glycosidic β(1→4) bonds. Bacteria use this free glucose as an energy source. Inhibition of microbial β-glucosidases can lead to starvation, providing a novel treatment for bacterial infections. E. coli β-glucosidase, BglX, was overexpressed in E. coli cells and purified using the salting out technique and ion exchange and gel filtration chromatographies. Sodium dodecyl sulfate - polyacrylamide gel electrophoresis was utilized to verify the presence of the protein as a band near 81 kDa and its purity. Using a spectrophotometric enzymatic assay, the catalytic parameter Km of BglX for p-nitrophenyl-β D-glucopyranoside as a substrate was determined to be 51 μM. A pH 5 environment proved necessary for optimum activity, and the presence of divalent metal did not significantly affect enzymatic activity. δ-gluconolactone was shown to inhibit BglX activity. The Protein Data Bank was used to predict protein structure. Partially-purifying and characterizing the β -glucosidase enzyme BglX from E. coli proved to be successful in this research despite the limited data known about BglX.

Delgros Kylie Industrial & Systems Engr PM Session 1: 1:30- 3:00 Ohio Room

A team of methods engineering students performed productivity analysis at a local manufacturer of refractory vessels for use in metal castings industries. Motion and time study analyses were performed. Techniques included video capture of the process, analysis of 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. Analysis of the subject operation and surrounding operations were characterized through the use of various methods engineering tools including man-machine process charts, flow charts, and plant diagrams.

Delgros Lorin Industrial & Systems Engr PM Session 1: 1:30- 3:00 Ohio Room

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Detwiler Benjamin Electrical Engineering PM Session 2: 3:30-5:00 Coffelt Room

Monitoring bridge health has become an increasingly important topic of investigation. Properly understanding the current health of a bridge will help to plan proper and timely restorations to avoid loss of human life, unnecessary reconstruction, and disruptions to traffic patterns. Changes in vibration characteristics of a bridge are expected to occur due to degradation of bridge materials and prior stress during its life. A low power, wireless mesh network of sensors is being designed to observe vibrations at multiple locations along a bridge under different traffic patterns. Wireless communication will be implemented and encrypted using Sun Microsystems' SunSPOT technology and vibrations detected via piezo sensors. The network will collectively deliver vibration information back to a central base station through a wireless peer to peer network. Sensor data will be sampled at approximately 100 Hz, and data are to be collected for the multiple weeks. This data will then be analyzed and mapped over the span to evaluate the structural integrity and predict future longevity of the bridge. This presentation will discuss the analog circuitry designed to condition the signal from the piezo-electric vibration sensor and the Java code developed at the base station and each node of the sensor network. Progress in other aspects of the project such as digital filtering techniques, the Fourier analysis being performed on the seismic date acquired in the time domain, and possible experimentation done on a Mahoning Country bridge

Deutschlan Michael Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery

Permanent magnet motors have performance advantages over other electric motors, such as induction motors. Many induction motors are unable to begin operation with their maximum torque, under the presence of a load. Conversely, permanent magnet motors are able to reach their full torque within their first revolution regardless of the applied load. They are smaller, lighter, often times more powerful, and usually more efficient than induction units and other singly-fed electric machines. Current applications of permanent magnet motors include use in cordless tools, electric power steering systems, drive-motors for hybrid and electric vehicles, and also a variety of other electric devices. Recent advances in materials technology have resulted in the creation of high-strength neodymium magnets. This has led to the development of compact, high-power motors which do not require the space for field coils and excitation means. New solutions are being realized, such as permanent magnet use in synchronous generators. Other applications could include use in solid waste disposal, food blenders, or anywhere an initial load is present and a high starting torque is needed. So far, applications of permanent magnet motors have been restricted due to limitations in terms of motor control and the cost of high-strength magnets. However, recent improvements in magnetic and thermal properties have led to permanent magnet motors becoming a viable alternative to other electric motors. Although there are many applications for a permanent magnet motor, the goal of this project is to design a motor that can be used to chop up foods such as vegetables, fruits, and nuts.

Donofrio Andrew English PM Session 2: 3:30-5:00 Humphrey Room

One of the goals of our graduate student research project for the Methods of Composition Research course (ENGL 6901) at Youngstown State has been to apply ethnographic research methods to answer the following question: "What is college-level writing?" We, as a student research group, have agreed to focus on answering this question by applying it to the various disciplines throughout our college campus.

To identify and discuss our own experiences and roles as investigators, we have agreed as a class to note our biases and include, but not limit, all the various types of writing at the college level. Although there are a multitude of programs at YSU, we feel there should be some expectations in common in terms of how college level writing is defined by each department: "How we do research, like how we teach, reflects our underlying assumptions about human nature and learning" (Calkins, xiii). This presentation will review the methods in which our class has gathered the required data to answer the question at hand. In addition, the data gathered thus far will be discussed and analyzed in an attempt to determine what Youngstown State University currently considers 'college-level' writing to be. As our research is currently ongoing, we hope to both review the current material collected and gather additional data during this presentation that may be used for potential feedback in this project.

Dripps Brittany Environmental Studies AM Session 2: 10:30-12:00 Breshnahan

Walleye (Sander vitreus) are a group of fish that are native to Lake Erie and the Ohio River, and are thus stocked fish in the Shenango River in Pennsylvania. For this reason it is not well known as to whether or not walleye can successfully spawn in the Shenango River; the purpose of this study is to find out if walleye can successfully spawn despite being stocked. To do this, egg mats made with furnace filters were set in the riffle/run area and left for one week; after which the mats were retrieved and reset depending on water temperature. The samplers were set in three locations: Greenville, Kidd's Mill, and Hamburg. During sampler setting, temperature, pH, depth, conductivity, specific conductivity, dissolved oxygen, surface velocity, and mid-depth velocity. Collected eggs were incubated until hatching, at which point larvae were stored in ethanol. To confirm if the larvae were walleye, each were examined under a compound light microscope and a dissection microscope and photos were taken. Three of the four larvae were confirmed to be walleye, all of which came from the Hamburg site. This means that Hamburg was the most successful site for walleye spawning.

Drissen Myron Respiratory Care AM Session 1: 8:30-10:00 Coffelt Room

Background: A dearth of information is available with respect to the didactic use and effectiveness of computer-based simulations. The purpose of this study is to evaluate a computer based pedagogical model for teaching 3rd year respiratory care students the concepts and clinical application of inverse ratio pressure control intermittent mandatory ventilation (IR PC-IMV). We hypothesize that the use of a computer based teaching model will enhance student engagement and improve post-instructional scores. Methods: Students consenting to participation completed a short demographic questionnaire. Students received standardized IR PC-IMV instruction by interactive computer simulation or traditional lecture. Pre-post-test assessment of course content transpired immediately prior to and following the didactic component respectively. Data were entered into SPSS 15.0 (SPSS Inc., Chicago, IL) for analysis. Changes in pre-post test scores were assessed by t-tests. Statistical significance was established at $p < 0.05$. Descriptive statistics were used to report the sample demographic characteristics. Results: Eleven students participated in the study, 82% were females. A mean pre-post score improvement of 15 % (+SD 0.07) and was realized. The differences between pre-post test improvements were statistically significant ($p< 0.02$). Conclusions: Student engagement derived from didactic instruction with

Dunn Jordynne Nursing BSN PM Session 1: 1:30- 3:00 Room 2068

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Esbenshade Kenton Civil & Construct Eng Tech A AM Session 2: 10:30-12:00 Ohio Room

With the renewal of the Nation Pollutant Discharge Elimination System (NPDES) permit at the Mercer Borough Waste Water Treatment Plant, Borough of Mercer, Mercer County, Pennsylvania, effluent limitation concentration levels for ammonia nitrogen and residual chlorine were reduced. This research focused on the required treatment process changes to address the average monthly ammonia nitrogen concentrations by updating the filter media used in the trickling filter process. In June, 2010, one of the two existing trickling filter's rock media was replaced with a manufactured cross flow media and was brought back online and fully functional by September 2010. Data from the monthly discharge monitoring reports (DMRs) were used to analyze the impact of this new filter material on the effluent concentrations of ammonia nitrogen in the waste stream at the point of discharge.

Farnham Linda Chemistry AM Session 2: 10:30-12:00 Ohio Room

The concentrations of several trace elements have been determined in contaminated Mahoning River sediments using a sequential extraction procedure combined with Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP-AES) measurements. The sequential extraction procedure utilized is based on the BCR three step sequential extraction procedure of the European Commission, but has been modified to use a lithium metaborate fusion step to determine the residual metals in the extracted sediments. Total metal content in the sediment samples has also been performed using the fusion procedure. ICP-AES analyses have been performed to determine metal concentrations in the samples for Al, As, Be, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, V, and Zn. The levels of other elements, such as As and Se, are too low to be measured by ICP-AES and will be measured instead by Graphite Furnace Atomic Absorption Spectrometry (GFAAS). Iron concentrations of approximately 300,000 ppm were obtained in the sequential extractions which are comparable to the iron concentrations in the sediment of the riverbank of approximately 259,000 ppm reported by the Army Corps in 1999. In addition to ICP-AES analyses, X-Ray Fluorescence (XRF) analyses have been performed on dry sediment samples. Preliminary XRF results indicate that iron oxides account for the major portion of the measured

Faykus Kyle Electrical Engineering AM Session 2: 10:30-12:00 Ohio Room

Our LED display board, 8"x 6", is designed using numerous 5x7 LED matrices. We are designing the programming for each of the characters. Next, we will input it into a microprocessor that transfers it to our matrices. An integrated wireless device allows us to control the display from any web-accessible computer. The outcome of our device is to make communication between students, faculty and others

Fenstermak Christopher Mechanical Engineering PM Session 1: 1:30- 3:00 James Gallery

Machine Design Group Design Project Abstract. The project goal is to design a pressurized shell of a thick-walled cylindrical hydraulic actuator. These actuators are used in a broad variety of applications in heavy machinery fields. In the project the thickness of the cylinder must be determined for a range of factors of safety from 2 to 5 in order to be able to lift a static load of 14,000lbs from an inside wall pressure of 2000psi. Varieties of common materials used for designing hydraulic actuator shells in practical applications were analyzed for the optimal design choice. Using two different assumptions, one being thin-walled and the other being thick-walled cylinder design, stresses within the wall of the pressure vessel due to wall thickness were calculated. Although thin-walled cylinders were not specified to be analyzed in the problem, it was useful to do so for comparison with the final thick-walled choice. Analytical results were verified using COMSOL, a commercially available FEA software and were both

Fitch John Electrical Engineering PM Session 2: 3:30-5:00 Coffelt Room

This presentation documents the purpose and progress of the design and implementation of a proportional brake controller system. This presentation is done in accordance with the Senior Capstone design class necessary for graduation. Included in the presentation will be an explanation of the theory behind the prototype design along with an explanation of the system components used in an attempt to realize the design.

Flach Erik Political Science PM Session 1: 1:30- 3:00 Humphrey Room

My Senior Research Paper focuses on the overall effectiveness of the Social Security Act of 1935. My research also covers the current form of the legislation, Old-Age, Survivors, and Disability Insurance program, as well as some of the larger programs that are included. Of the included programs, some of the better known ones are; Federal Old-Age, Survivors, and Disability insurance, Unemployment benefits, Temporary Assistance for Needy Families, and Supplemental Security Income. As the number of citizens eligible for Social Security benefits continues to grow due to the Baby Boomer generation, more speculation arises as to whether or not Social Security will remain a feasible social welfare program in years to come. With the current economic climate many Americans have begun to lose 401k retirement plans and the fear of relying on Social Security income, while it continues to cost more to pay for while less and less pay into the program, leaves much doubt that retirement will even be an option to future generations. Through my research I examined the current format of this program and its sub-programs. I also collected the necessary data to develop an estimation of future projections for the cost of Social Security. In addition to the research regarding Social Security, I examined alternatives to Social

Fleming Maria Nursing BSN PM Session 1: 1:30- 3:00 Room 2068

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and volunteers from Ohio Medical Clinic Missionaries, and became an integral part of the healthcare team. They worked with Mexican community leaders to set up and operate a clinic from a church in San Quintin, Mexico. They developed nonverbal communication abilities and had to work through interpreters and use critical thinking as they adapted to the culture and environment. Students earned clinical course credit as they administered care to Mexican patients and were able to compare and contrast values, beliefs, health practices and ways of life to their own. Students identified the components of a comprehensive cultural assessment. Students administered care integrating patterns of human behavior that demonstrates respect and value of each Mexican patient. These experiences reflect the mission of the Youngstown State University and Bitonte College of Health and Human Services "to foster an understanding of diversity, sustainability and global perspectives". Students will share their experiences through a slide presentation with pictures and stories of study abroad in Mexico.

Florio Vincenzo Biology PM Session 2: 3:30-5:00 Ohio Room

The Ascomycete fungus, Neurospora crassa, has been used for over 90 years as an ideal model organism in a variety of fields ranging from genetics to molecular biology. N. crassa is able to use multiple different carbon sources under varying conditions. It metabolizes preferred carbon sources such as dextrose, but has the ability to metabolize non-preferred carbon sources such as acetic acid also. Little research has been done concerning protein expression using non-preferred carbon sources, but there has been growing interest in non-preferred or otherwise thought toxic nutrient sources, since NASA's discovery of bacteria able to use arsenic as a sole source of nutrition, which was thought to be toxic to all forms of life. In this study, we analyze the protein profiles of wild-type N. crassa grown on two different carbon sources: 2% dextrose (preferred carbon source), and 10% sodium acetate (non-preferred carbon source). Wild-type N. crassa was grown on Vogels minimal media and shifted to one of two carbon sources utilized in our study. Afterwards, protein was extracted from N. crassa tissue and two-dimensional gel electrophoresis (2-DGE) was performed. Currently examination of the two-dimensional (2-D) gels images is underway using PDQuest™ 2-D analysis software. Once specific and unique protein spots are identified, they will be excised and sequenced by capillary-liquid chromatography-nanospray tandem mass spectrometry at the Ohio State University Mass Spectrometry and Proteomics Facility.

Fotiuk Brandon Industrial & Systems Engr PM Session 1: 1:30- 3:00 Ohio Room

A series of investigative exercises were performed by process improvement engineers from the Methods Engineers class in the industrial and Systems engineering program. Northern States Metals is a leader in alternative energy solutions via their contribution to the solar panel construction and implementation industry. Using both classic and modern computer-based video techniques manual work content was quantified and opportunities for process improvement were identified. The students were able to see how work design improvements affect not only the subject work area but also the related work areas feeding into and following the subject work area. The students gained experience dealing with the supervisory and labor work forces and established a foundation for personal communication skills growth development. Thus, this QUEST presentation is the culmination of exercises both technical and professional exploration, discovery, and growth.

Frasso Michael Chemistry PM Session 2: 3:30-5:00 Ohio Room

An improved method for the synthesis of bis(2,2,2-trifluoroethyl)-□-keto phosphonates from bis(2,2,2-trifluoroethyl) 1-alkynylphosphonates is described. 1-Alkynylphosphonates can be treated with secondary amines to prepare enamine vinyl phosphonates, which upon hydrolysis produces the desired bis(2,2,2-trifluoroethyl)-□-keto phosphonates.

Furnkase Lauren Respiratory Care AM Session 1: 8:30-10:00 Ohio Room

BACKGROUND: The Clinical Oxygen Dose Recorder (CODR), a non-invasive monitor, continuously measures respiratory rate (RR), heart rate and oxyhemoglobin saturation. The effect of signal loss on recorded RR was investigated. We hypothesized that signal loss would contribute to inaccurate RR calculations. METHODS: Adults with a physician referral for pulmonary rehabilitation, and oxygen (O2) prescription were recruited. A dual lumen cannula was used for those receiving O2 by continuous flow and single lumen cannula for O2 delivered by pulse-dose. Data were recorded over15 visits. Mean values for RR and signal loss were reported. Clipped (without zero values) and unclipped data for each O2 system were compared with Students T-test. Statistical significance was established at $p < 0.05$. RESULTS: Data were collected from 4 patients at a sampling rate of 20 milliseconds. Two received O2 by pulse dose, and two by continuous flow. Of the 65,528 data points collected, 37,300 were from the pulse-dose group. The percent signal loss for the continuous flow group was 6.2%, twice the rate of the pulse dose group. Mean values for the unclipped data were lower for the pulse dose 33.2, SD + 16.0, and

the continuous flow 25.1, + SD 14.1 compared to clipped pulse dose 34.2, + SD 15.1 and continuous flow 26.8, + SD 12.9. Comparison of clipped and unclipped data for each type of O2 delivery system was statistically significant, $p < 0.001$. CONCLUSIONS: Care should be taken to review RR data to determine signal loss with CODR use. The inclusion of signal loss values may provide erroneously lower RR.

Gabriel Sean Mechanical Engineering AM Session 2: 10:30-12:00 Ohio Room

This project explores some of the technological issues concerning windmill design for large scale electricity production. Technical problems include providing adequate strength for the support column, resisting corrosion and stress corrosion cracking of the blades and other components, achieving a reliable gear box design, and minimizing adverse environmental impacts. In one case, a dozen windmills on a Japanese windmill farm failed structurally due to typhoon strength winds. To understand one of the modes by which some of these windmills suffered catastrophic failure, the project team performed an analysis of static bending stresses in which the calculated stress was compared to the ultimate tensile strength of the steel alloy from which the support columns were constructed. Based on available wind load data, the team confirmed that the typhoon strength winds most likely generated bending stresses above the load carrying capacity of the structural steel. The results of these calculations are presented in a table. Along with the stress findings, the poster points to a variety of other technical challenges brought up by this promising technology.

Gatelaro Richard Chemistry AM Session 2: 10:30-12:00 Ohio Room

Sludge containing vinyl chloride (VCM) had been indiscriminately dumped in landfills that had no liners of other engineering controls. Leachate from the sludge infiltrated into water-supply aquifers. VCM is a known human carcinogen that targets the liver. Superfund sites that contain VCM as a contaminant of concern (COC) are located in counties/states that have elevated incidences of liver cancer. This study compares counties/states where liver cancer incidence is high and seeks to link this disease with possible long-term (chronic) ingestion of drinking water containing vinyl chloride, even at concentrations lower than levels that are considered safe (MCLs).

Gbur Janet Mechanical Engineering PM Session 1: 1:30- 3:00 James Gallery

Few studies in literature have investigated the performance of bone following the removal of hardware (ROH) in proximal femoral fracture fixations and in particular the amount of strength recovered in the bone following insertion of bone cement into the holes created by ROH. To assess the mechanical response, orthopaedic implants are inserted and removed from cadaveric femurs. Biomechanical testing of those femurs would identify areas of high stress then subsequent finite element analysis (FEA) would allow for computer model development, validation and further investigations. However, cadaveric bones suffer from high inter and intra-specimen variability in terms of both geometry and mechanical properties. As such, this investigation utilized composite femurs with standardized geometry and material properties that approximate healthy human bone. METHODS: Fifteen composite femurs were tested in axial compression. Three femurs served as controls (no augmentation) and the remaining twelve were divided into two treatment groups: cannulated screws (three ROH holes, three ROH holes cement-filled), and a dynamic hip screw system (three ROH holes, three ROH holes cement-filled). In addition, five unidirectional strain gages were applied to the lateral proximal surface of each femur and one rectangular, planar rosette was applied to the same surface of one of each treatment type. Overall stiffness, stress, and strain were determined as well as localized strains. FEA models were developed and correlated to experimental results. CLINICAL RELEVANCE: A validated FEA model would allow for investigations into ROH implications for those with varying degrees of osteoporosis.

Gorman Kelly Allied Health AM Session 1: 8:30-10:00 Room 2068

The purpose of this research was to define the opinions of college students in their sophomore, junior, and senior years of study in Youngstown State University's respiratory program regarding euthanasia. The study assessed if the experiences they had working with patients changed their attitude toward euthanasia and if these views changed after hearing a presentation. The process of obtaining results consisted of a pre-survey of nine questions, a small speech discussing different aspects of euthanasia, and the administration of a post survey of the same nine questions measuring their response to the content of the speech. Following the surveys was an analysis of the questions and survey results to determine if their opinions had changed on the ethics of euthanasia. The opinions varied for each student depending on their amount of clinical experience. A review of the results revealed that most students already, at twenty-six percent, held favorable views toward euthanasia in this setting. Hearing the presentation did not change the views of many students, but it did encourage more thought on the topic. For some students having unfavorable views toward this subject, the presentation succeeded in

making them reconsider their previous opinions. Many people are suffering and dying from terminal illnesses every day. This study strove to make the students more open-minded to the positive aspects of euthanasia and reconsider its legalization for the terminally ill. Altering the attitudes of tomorrow's healthcare providers may enlighten society as a whole and revisit the idea of dying with dignity.

Gorvet Marc Biology Pre Medical PM Session 2: 3:30-5:00 Breshnahan

Myosin heavy chain (MHC) isoforms are the primary determinants of muscle fiber contractile properties and performance. Therefore, the distribution of slow and fast isoforms reflect functional specializations of muscle. Little is understood about these properties in tail musculature. Opossums are an interesting lineage in this context as all species have long and prehensile tails, yet fiber types of the tail have only been studied in one species, and was limited to histochemical classification of fibers as either slow or fast. Histochemical classification of fiber types is based on myosin ATPase reaction and does not directly identify isoforms of myosin which determine contractile properties of muscle fibers. To expand on previous studies, MHC isoform fiber type and their regional distribution (proximal/middle/distal) were determined in the tail of the Virginia opossum (Didelphis virginiana). Fiber type was determined by a combination of gel electrophoresis (SDS-PAGE) and immunohistochemistry (IHC). The results indicate the expression of three isoforms (MHC-1, 2A, 2X) in the proximal and middle regions, while only the MHC-1 and MHC-2X isoforms were identified in the distal tail region. IHC analyses determined a predominance of the fast fiber types in all tail regions specified as MHC-2A/2X hybrids (proximal and middle) or MHC-2X fibers (distal) by the SC71 antibody. A large percentage of fast, oxidative hybrid fibers and fast MHC-2X fiber in tip of their prehensile tail may indicate an evolutionary transition in MHC isoform distribution (slower-to-faster fiber type) in the caudal musculature of an opossum with a terrestrial locomotor habit

Goubeaux Craig Industrial & Systems Engr PM Session 1: 1:30- 3:00 Ohio Room

A team of Industrial and Systems Engineering students from the Methods Engineering class were given the opportunity to review and make analyses of manual operations at the local Toys "R" Us distribution center. Stop watch time studies were performed and the information obtained from those were compared to similar processes video-taped at another industrial partner's location. This provided the opportunity for comparison of both classic time study and more modern video based techniques. Also for comparison of effectiveness tools such as predetermined time study systems, work sampling systems, and charting and graphing techniques were employed.

Gould Katelyn Art Studio Paint Printmkng Opt PM Session 2: 3:30-5:00 Jones Room

As we walk through life we encounter many different emotions and we learn how those emotions are represented in various ways. From the shift in someone's voice when they are recalling their own personal memories, to a change in their facial muscles when inadvertently giving an emotional response. Throughout the past five or so years of my life I have become more and more obsessed with portraying these raw emotional reactions by means of painting, sculpture and poetry. As I evolve as an artist I increasingly feel the need to subtly (or at times not so subtly) represent my own emotions and reactions to personal experiences through my work. By pushing my own emotions through visual imagery and audio I hope to evoke a feeling of connectivity between my experiences as a human with those of the viewer/listener. By evoking these feelings of connectivity I hope to increase the viewer's awareness of their own ability to connect with others and the responsibility that comes along with these

Grewal Ravleen Chemistry Pre Medical PM Session 2: 3:30-5:00 Breshnahan

The project evaluates and answers the most enticing question for movie lovers "Where to sit at the movies". In this project, we first look for a distance on a horizontal surface where the viewing angle is the maximum. Next, we consider an inclined surface which is how most movie theaters are setup. We solve the problem with the help of geometry, calculus and the Maple software.

Grubbs Audria Electrical Engineering PM Session 1: 1:30- 3:00 Coffelt Room

Our team consisting of Michael Stanish, J.R. Harvey and Audria Grubbs will be attempting to design and build an underwater speaker that will resonate a clear sound heard underwater. To do so we will be acquiring the materials needed. A basic speaker will be used with the face of the speaker covered with a waterproof flexible material. We will then cut into the side a clear plastic tub placing the speaker face into this hole and sealing with a waterproof caulking. To send a clear sound through water we will be multiplying the frequency at which the signal is sent. After building the speaker, tests will be run to ensure safety and the precision of our design. To demonstrate the functionality of our design we will transmit audio frequencies that could be heard if one were to hypothetically submerge themselves in the water. We will need a table to set the demonstration on, a projector and a screen to display the

Guidosh Matthew Electrical Engineering PM Session 2: 3:30-5:00 Coffelt Room

The purpose of this design is to allow the remote operation of a full size vehicle through existing technologies. Applications of this design are, but not limited to, military use during combat operations where a human driver could become a liability or be exposed to an extremely high level of danger. Other applications include scientific operations where vehicle operation would be too dangerous for humans. The entire system includes hardware and software. Due to the specified nature of each of these, the project was divided amongst two teams to allow for a more specialized development. The hardware is designed as a human analog. Designing the system to mimic the way a human interacts with one vehicle will allow it to be used in other vehicles with little or no modification. Hardware will consist of pedal operators and a steering interface. Software will be run on a small laptop. It will be a small server designed to take commands from a remote station over the Internet. The software will pass the commands to a small controller board to interface with the hardware. A video feed will be sent back to

Gulgas Sara Music History & Literature PM Session 2: 3:30-5:00 Jones Room

The 1960's ushered in a new subgenre of rock 'n' roll. Baroque pop provided the neoclassic sound of string quartets, woodwind arrangements, and harpsichord ostinatos that was needed in a psychedelic age. The subgenre's "Back to Bach" aesthetic was a reaction to the mass media and was influenced by the early music revival that blossomed in the 1950's. Bands such as The Zombies, The Left Banke, and The Beatles introduced the subgenre in order to pursue a musical synthesis of rock and classical music that would cater to the counter culture's anti-mainstream ideology. The counter culture, which was concerned with war, technology, anti-modernism, and anti-conformity, found musical and cultural solace in neoclassicism, and their music offered a combination of various musical styles, including classical, to an accepting, pluralistic society. Eighteenth-century music was a solution to the counter culture's issue of identity because it was not associated with the mainstream ideals of capitalism and the corporate machine. Eventually, baroque pop became commercialized in a society that claimed to be disinterested in materialism. A subgenre that was marked by its sophisticated orchestrations will forever be remembered as commercialistic bubblegum pop. In my paper, I will compare musicologist Richard Taruskin's research on ideological neoclassicism of the 1920's with the neoclassicism that occurred in the 1960's. I will also discuss the counterculture's reaction to modernism and the eventual

Harvey J.R. Electrical Engineering PM Session 1: 1:30- 3:00 Coffelt Room

Our team consisting of Michael Stanish, J.R. Harvey and Audria Grubbs will be attempting to design and build an underwater speaker that will resonate a clear sound heard underwater. To do so we will be acquiring the materials needed. A basic speaker will be used with the face of the speaker covered with a waterproof flexible material. We will then cut into the side a clear plastic tub placing the speaker face into this hole and sealing with a waterproof caulking. To send a clear sound through water we will be multiplying the frequency at which the signal is sent. After building the speaker, tests will be run to ensure safety and the precision of our design. To demonstrate the functionality of our design we will transmit audio frequencies that could be heard if one were to hypothetically submerge themselves in the water. We will need a table to set the demonstration on, a projector and a screen to display the

Harvey Mark Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery

This project tests the feasibility of a remote control crop dusting plane for commercial production and explores a wide range of engineering disciplines. To handle the complex nature of the project, it was divided into four distinct design areas: wing, fuselage, tail, and dispersal system. Three main design constraints were identified for each design area. First, for the wing, they were the lift characteristics, stress analysis, and ease of construction. Second, for the fuselage, they were stress analysis, the aerodynamic characteristics, and the ease of manufacture. Third, for the tail, they were the balance of vertical, horizontal and moment forces, the component sizing, and the ease of manufacture. Last, for the dispersal system, they were the stability in flight, the coordination of flight and spray time, and the spray characteristics. In order to meet the design constraints, advanced stress analysis, fluid dynamic analysis software, and experimentation were used. Finite element analyses using Fluent software were instrumental in the selection of the wing geometry, the engine, and the final orientation of the wing. Additional finite element analyses using Algor software were an integral part of designing the support structure for the wing, the fuselage, and the tail. Also, the experimentation guided the dispersal system design. Finally, the results were supported by manual calculations and research. The flight and spray characteristics of the finished remote control crop duster were tested on a specifically devised course. The test results were recorded, analyzed and conclusions were drawn.

Hassey Holly Criminal Justice AM Session 1: 8:30-10:00 Ohio Room

We examined how a range of variables can affect the incarceration rate of a county within Ohio. Variables such as church affiliation, race, and the amount of post secondary education was examined in each county. The main concern of the research was whether a county's societal and environmental factors have an affect on the incarceration rate. Our method for gathering evidence is secondary analysis from city-data.com. Our sample size consists of 30 randomly selected counties within Ohio. Results showed the higher post secondary education attained within a county displayed a lower incarceration rate. Counties with the majority of it's citizens living at or below the poverty line resulted in a higher incarceration rate. Implications support social disorganization theories, poverty theories and further alternative solutions surround large scope measures to effectively reduce crimes rates within a given social structure or county. To support the findings more thoroughly researchers can investigate

Hayek Galen Chemistry AM Session 2: 10:30-12:00 Ohio Room

The chemical synthesis of organic azides, particularly those with low molecular weights, is often problematic due to their instabilty and the requirement for potentially dangerous reagents. We have discovered that several organic-soluble arylsulfonyl azides react with the organic base DBU to generate a convenient azidation reagent that circumvents some of the usual issues with this chemistry. This poster will summarize our research results.

Hendricks Dana Art Education PM Session 2: 3:30-5:00 James Gallery

The objective of this project is for an Art student to work collaboratively with an Engineering Technology student. The project encompasses an artist's vision of a bird's need to have their nest high up in the trees for protection from predators. The nest however, presents a false sense of security to the bird because it is very open; therefore it is vulnerable to the harsh elements of nature and predators that are capable of climbing. The Engineering Technologist's role is to provide a safe design of a supporting structure and entry ability to the nest and proving to be long lasting against the destructive elements of weather; while retaining the artist's design concepts, utilizing state of the art CAD design and production

Herman Emily Counseling AM Session 1: 8:30-10:00 Ohio Room

With the growing number of those who are incarcerated each year in the United States the number of children with incarcerated parents is also increasing. School counselors need to be aware of the issues that concern families and their children who are affected by the incarceration of one or two parents. Many times these childrens' lives are affected by actions of others and they also have to suffer the consequences. These children can be recognized as the hidden victims of their parents' crimes and have been ordinarily undeserved and understudied (Miller, 2006). These hidden victims will experience issues such as grief, anger, shame, and guilt in their home and school lives that in many cases leads to emotional and behavioral problems. To address such situations, school counseling programs need to be developed to provide outlets for the students to deal with their issues as well as continue to strive for academic success. Children and families of incarcerated parents face many unique challenges and difficulties. School can be particularly harsh environment and school counselors can play an important role in helping the transitions that come along smoother. Implementation of programs, such as one that includes group and individual counseling, for children of incarcerated parents will benefit the child, the family, the school, and the community. In conclusion, developing programs that use group and individual counseling in the schools can enhance the therapeutic growth by allowing the children to find support and resources to handle their emotional and behavioral challenges.

Hernandez Michael Chemical Engineering AM Session 2: 10:30-12:00 Ohio Room

A bimolecular reaction where the reactants compete for catalytic adsorption sites is optimized by properly blending the reactants to give the highest conversion. The three factors that were studied were the adsorption rates of the two reactants onto the catalytic surface, the desorption rate of the reactants, and the chemical reaction rate itself. Each of these factors determine the unique blending ratio of the two reactants that gives the maximum conversion of the key reactant and the production of

Hernandez Kristen Chemical Engineering AM Session 2: 10:30-12:00 Ohio Room

Perovskite-related compositions in the K(AxCu1-x)F3 system were investigated, where A is the metal Mn+ or Ni+. The series K(AxCu1-x)F3, where x = 0.1, 0.2…0.9, were synthesized and characterized along with their ternary end-members by students in an undergraduate general chemistry laboratory as part of the Project REEL implementation at Youngstown State University during the fall, 2010 semester. This series has not been previously reported to our knowledge. The structure and composition were characterized hands-on by the students via X-ray powder diffraction and X-ray fluorescence, respectively, and this data

will be presented.

Hester Taketa Info Tech Multimedia Web Op AM Session 1: 8:30-10:00 Ohio Room
Within my paper I took an inside glimpse into the online retail industry to see how consumers are reacting to the trend as well as how it is changing the way consumers decide to shop for clothing. As seen in my research paper, I surveyed seventy-five students to get their take on the world of e-commerce. What I discovered was not entirely unusual, but some areas were surprising yet hopeful for the online sphere. For instance, although only a small percentage of participants preferred to shop for clothing online, a rather high percentage stated interest in shopping online for clothing in the near future. Therefore when it comes to purchasing apparel over the internet, although it is still a new concept, the outcome looks good for the years to come. Even days such as Cyber Monday are experiencing an increase which over time could cause online retailing sites to be preferential to consumers of all kinds.

Hill William Physics AM Session 2: 10:30-12:00 Ohio Room
Encryption is the process of converting information into code and decryption is the process of converting the code back into the information. We studied RSA Encryption/Decryption, a widely used public-key cryptosystem that takes advantage of the difficulty in factoring large numbers as a product of prime numbers. We present the mathematics that this specific cryptosystem utilizes as well as provide a basic example of how the RSA process works.

Hill William Physics AM Session 2: 10:30-12:00 Ohio Room
Low powered lasers and LED light sources along with several types of filters and lenses were setup in a lab environment to allow mixing of the three primary colors (Red, Green, Blue) to make other secondary colors. Power meters and spectrometers were used to compare the actual radiative power from each light source with the intensity of the luminosity of the colors as perceived by the human eye. The project was chosen by our team in order to develop a better understanding of the science behind color mixing used in digital displays such as computer monitors and televisions, and to ultimately find a relationship between radiative power and human perception of light sources. An overview of the findings from our experiments will be presented at QUEST, which will include graphs and pictures showing the relative sensitivities of the human eye to different colors, as well as a mathematical model that best fits the

Hinerman Adam Electrical Engineering PM Session 2: 3:30-5:00 Coffelt Room
This presentation documents the purpose and progress of the design and implementation of a proportional brake controller system. This presentation is done in accordance with the Senior Capstone design class necessary for graduation. Included in the presentation will be an explanation of the theory behind the prototype design along with an explanation of the system components used in an attempt to realize the design.

Hiscox Kyle Mechanical Engineering Tech AM Session 2: 10:30-12:00 Ohio Room
Analyze digital waveform (Square Wave) utilized by digital computer and digital communication systems. The mathematical model (Fourier Series) of the waveform will be developed. The amplitudes of the frequency spectrum of the waveform will be calculated. Oscilloscope and Spectrum Analyzer will be utilized in laboratory experiments to measure waveform amplitude in both time domain and frequency domain. Circuit simulations will be performed in time and frequency domain using Multisim 11 simulation program. Comparisons for mathematical calculations (Excel), laboratory measurements and circuit simulation results will be presented.

Hodges Joshua Mathematics AM Session 2: 10:30-12:00 Ohio Room
Encryption is the process of converting information into code and decryption is the process of converting the code back into the information. We studied RSA Encryption/Decryption, a widely used public-key cryptosystem that takes advantage of the difficulty in factoring large numbers as a product of prime numbers. We present the mathematics that this specific cryptosystem utilizes as well as provide a basic example of how the RSA process works.

Hoffman Justin Respiratory Care AM Session 1: 8:30-10:00 Coffelt Room
During volume control ventilation (VC) the volume and flow waveforms are not dependent on the patient's respiratory system mechanics. During pressure control ventilation (PC) the inspiratory pressure waveform is independent of the patient's respiratory system mechanics. The purpose of this paper is to describe VC-CMV with set point targeting and dual targeting and Pressure support (PS) in a passive lung model. We hypothesized that set-point and dual-set point targeting and control variable will cause VT delivery to vary. METHODS: The Ingmar Medical ASL 5000 lung model was used to simulate

low lung compliance in an active model with no spontaneous breathing effort. Ventilators were set to deliver a set VT of 430 mL, rate 15, PEEP 10 cm H2O, TI 0.6 seconds in VC and a set IP of 16 cm H2O in PC. End expiratory tidal volume, mean airway pressure and inspiratory time were collected on 10 consecutive breaths for each targeting scheme and control variable. Data were entered into SigmaPlot and analyzed using ANOVA. Statistical significance was established at $p < 0.05$. RESULTS: Tidal volume delivery varied with targeting schemes; 447 mL (+SD 2.6) VC - dual, 401.5 mL (+SD 1.8) VC-set-point and 438.9 mL (+SD 0.89) PC, $p < 0.001$.CONCLUSIONS: Targeting scheme and control variable affect VT delivery

Homlitas Christa Applied Behavior Analysis AM Session 1: 8:30-10:00 Jones Room

The effectiveness of a behavioral skills training (BST) package to teach the implementation of phases 1-3a of the picture exchange communication system (PECS) was evaluated with four adults who have minimum or no history teaching PECS. A multiple baseline across participants was used to evaluate the effectiveness of the training package, which consisted of written and verbal instructions, modeling, rehearsal and feedback. Results showed significant improvements relative to baseline in a short amount of training time and that skills generalized to the classroom environment upon completion of

Horvath Dustin Physics AM Session 2: 10:30-12:00 Coffelt Room

Microlens arrays offer numerous applications in many areas, such as optical communication, optical computing, and for collecting light power needed in photovoltaics and laser beam shaping. Microlens made out of polymer Gradient Refractive INdex (GRIN) materials can eliminate spherical aberration, which is conventionally reduced by designing the lens with aspheric surfaces. At the micro and nano scale, aspheric surfaces are hard to fabricate. The goal of this project was to fabricate arrays of microlens on GRIN polymer materials by photolithography and plasma dry-etching, creating lenses with axially-terminating edges. Lenses produced in this manner ideally correct for spherical aberration. We were able to successfully fabricate microlens arrays in multilayer polymer, through dry etching with Ar/O2 gas. The lenses were characterized by imaging using atomic force microscopy and scanning electron microscopy. The diameters of these microlenses ranged from 20 - 80 microns, a height of 3-5 microns and an estimated focal length of about 50 microns. In this presentation, methods for further improving our fabrication process as well as optically characterizing the microlens arrays will be

Hosseininej Justin Elect Engr Pre Medical Opt PM Session 2: 3:30-5:00 Coffelt Room

For the Spring 2011 ECEN 4899 Senior Design Project (electrical engineering capstone) and Honors Thesis, I am collaborating with Dr. Michael T. Butcher, Department of Biological Sciences, on a study that examines the biomechanics of muscle contraction and bone loading in the limbs of river cooter turtles (Pseudemys concinna). The main objective is to study the influence of muscle contractile function (data collected via implanted EMG electrodes and sonomicrometry crystals) on femur stress and strain (data collected via implanted Rosette strain gauges). Timing and intensity of muscle contractions will be measured by custom fine-wire electrodes, while sonomicrometry crystals are piezoelectric transducers that transmit and receive sonar impulses to measure instantaneous muscle length changes (i.e. muscle strain). These data will be correlated with patterns of axial and shear strain measured by the rosette strain gauge directly attached to the femur. As an electrical engineering student, I assist Dr. Butcher in electrical equipment (amplifiers, A/D converters) assembly, electrical implant construction and customization, data collection, and mathematical analysis of collected data. This design project is a continuation of research conducted in ECEN 4811 (Senior Laboratory, Fall 2010).

Hoy Rebekah English AM Session 1: 8:30-10:00 Humphrey Room

Publishers of commercial audio language-learning programs have made impressive claims regarding the speed and extent to which consumers will acquire a second language, some going as far as to promise native-like proficiency. In an effort to interrogate these and other such claims, this study examined the performance of six subjects who participated in the Pimsleur Russian audio language-program. One native Russian speaker (NS) was recruited to record the first half of two different conversations. Conversation A exclusively contained words included in the Pimsleur program, while Conversation B utilized words in a less formal register that students might encounter in an authentic Russian-speaking environment. Subjects' responses to the Russian prompts were recorded, and the NS rated each subject's performance based on several criteria. Observation of the data revealed weak performances both Conversation A (Pimsleur-supplied) and Conversation B (authentic), lending support to our hypothesis that commercial language programs overstate their efficacy. Although this study was limited in scope to six cases, the performance of subjects in relatively simple conversational situations was decidedly poorer than claimed by publishers of the Pimsleur program, which warrants cautious reliance

Hoy Rebekah English PM Session 2: 3:30-5:00 Humphrey Room

Research in vocabulary size and depth in a foreign language has gained popularity since the 1980's, and efforts at developing reliable measures of FL vocabulary continue today; placement tests such as Meara and Jones' Eurocentres vocabulary tests (1998, 1990) remain subject to revision and improvement. In an attempt to investigate a possible relationship between vocabulary size and language ability, this study developed two measures: a cloze-passage test (recognized as a good predictor of overall proficiency) and an adaptation of Meara and Buxton's (1987) Yes/No vocabulary checklist test, which purports to estimate learners' vocabulary size. Scores on the two tests were correlated, yielding a weak positive correlation of .36; however this finding was not statistically significant. Further testing with a larger sample is necessary for improving the behavior of the tests.

Hunter Charles Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery

Permanent magnet motors have performance advantages over other electric motors, such as induction motors. Many induction motors are unable to begin operation with their maximum torque, under the presence of a load. Conversely, permanent magnet motors are able to reach their full torque within their first revolution regardless of the applied load. They are smaller, lighter, often times more powerful, and usually more efficient than induction units and other singly-fed electric machines. Current applications of permanent magnet motors include use in cordless tools, electric power steering systems, drive-motors for hybrid and electric vehicles, and also a variety of other electric devices. Recent advances in materials technology have resulted in the creation of high-strength neodymium magnets. This has led to the development of compact, high-power motors which do not require the space for field coils and excitation means. New solutions are being realized, such as permanent magnet use in synchronous generators. Other applications could include use in solid waste disposal, food blenders, or anywhere an initial load is present and a high starting torque is needed. So far, applications of permanent magnet motors have been restricted due to limitations in terms of motor control and the cost of high-strength magnets. However, recent improvements in magnetic and thermal properties have led to permanent magnet motors becoming a viable alternative to other electric motors. Although there are many applications for a permanent magnet motor, the goal of this project is to design a motor that can be used to chop up foods such as vegetables, fruits, and nuts.

Hyden Katie Mechanical Engineering PM Session 2: 3:30-5:00 James Gallery

The power output of an automobile engine can be greatly increased by implementing a supercharger driven by a well-designed pulley system. The driving force acting on the pulley is dependent on the rotational speed of the drive system to which the pulley is attached. Stresses within the pulley change as the rotational speeds of the pulley vary. It is desired to determine the stress distributions within a given pulley design for multiple pulley materials. A complete analysis for stresses of the pulley will be performed on the given power input, selected angle of contact between the belt and the pulley, and the pulley disk dimensions. The purpose of this study includes comparative measurements of stresses between these pulleys under various loading conditions. Based on theoretical and computational studies for stress, design specifications will be recommended and compared with experimental data.

Iskander Jeannette Psychology AM Session 1: 8:30-10:00 Jones Room

Although a rationale for Social Stories TM exists in practice, there is little research to support the effectiveness of this intervention when it is implemented alone. The purpose of the present study was to conduct a component analysis of a treatment package consisting of a Social Story TM and verbal feedback. Two elementary school children with high functioning autism were identified by the experimenter and classroom teacher as potentially benefiting from this intervention. A multiple-baseline design across two target behaviors was used. First, a Social Story TM was read to the student followed by answering comprehension questions. If the target behavior did not decrease to an acceptable level, verbal feedback was implemented in the classroom. Preliminary results indicate that the Social Story TM may help to decrease problem behavior, but verbal feedback may be required as an

James Ryan Electrical Engineering PM Session 1: 1:30- 3:00 Coffelt Room

A solar panel consists of three solar boards connected in series. Each board has 20 solar cells connected in series. The cells produces .5V individually and 30V overall. The solar panel will charge a battery that can power electric devices. The outcome of our solar panel is to learn about alternate energy sources and compare to practices in use today.

John Mwita Industrial & Systems Engr PM Session 1: 1:30- 3:00 Ohio Room
Methods engineering students from the Industrial and Systems Engineering program worked with a local third tier automotive supplier, Treemen Industries. The students investigated the use of various methods engineering techniques to evaluate engineered work stations. Opportunities for process improvements were analyzed applying industrial engineering skills acquired from the program curriculum. The industrial partner, which produces metalized injection molded parts, was able to benefit from the involvement of the investigators toward meeting a number of lean initiatives in response to the automotive customer's need for continuous improvement in lead time reduction, on

Johnson Brooke Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery
One of the most pressing issues with the operation of wind turbines is that the majority of the Earth's surface area does not provide sufficient wind velocity to economically operate a wind turbine on a regular basis. This, coupled with the failures of gearboxes caused by wind jerk, or rapid changes in acceleration, has made wind turbines impractical for the majority of the planet. In attempting to solve these problems, the use of TRIZ (Theory of Inventive Problem Solving) by Genrich Altshuller was implemented. TRIZ is a method of inventive thinking that leads the user to a convergent solution. This is a large improvement over the standard methods of problem solving, such as brainstorming, outside influence, and trial and error; because these methods are divergent and take a substantial period of time to find a solution. TRIZ produced the idea to use a hydraulic transmission to replace the standard transmission used in wind turbines, which consists of a series of gearboxes designed to produce operational rotational speeds at the generator. The generator is optimally run at a constant speed. The TRIZ process used mechanical contradictions to identify possible solutions to these contradictions. One such solution was the use of hydraulic components to design a hydraulic transmission that used load sense control to take the variable input from the wind and produce a constant output. Conceivably, this

Johnston Kathryn English PM Session 2: 3:30-5:00 Humphrey Room
This paper will explore the conflicting representations of childhood presented in Philip Pullman's The Golden Compass. I will argue that although the main character, Lyra Belacqua, is represented in two distinct ways, she is ultimately a representation of the Romantic child.

Jones Nathan Electrical Engineering AM Session 2: 10:30-12:00 Ohio Room
Our LED display board, 8"x 6", is designed using numerous 5x7 LED matrices. We are designing the programming for each of the characters. Next, we will input it into a microprocessor that transfers it to our matrices. An integrated wireless device allows us to control the display from any web-accessible computer. The outcome of our device is to make communication between students, faculty and others

Jones Nathan Elect Engr Comp Digital Opt AM Session 2: 10:30-12:00 Ohio Room
Our LED display board, 8"x 6", is designed using numerous 5x7 LED matrices. We are designing the programming for each of the characters. Next, we will input it into a microprocessor that transfers it to our matrices. An integrated wireless device allows us to control the display from any web-accessible computer. The outcome of our device is to make communication between students, faculty and others easier. Project Title: LED Display Board

Jones Margaret Music History & Literature PM Session 2: 3:30-5:00 Jones Room
The body of works to emanate from the sixteenth century is dominated by several popular chansons. These songs, such as Lassus's Susanne un jour and Sandrin's Doulce Memoire appear many more times in print and in manuscripts than other songs of this period. Their popularity represents not only a consumer culture for material in print, but also a degree of popularity which can be attributed unwritten, or oral, transmission, which would have allowed for a few select songs to achieve a much higher degree of success than even other works considered by many to have been popular. Various internal and external musical factors may have contributed to the songs' successes, such as the popularity of the existing subject matter in a song, or musical devices that triggered responses from a sixteenth century audience. This presentation will examine potential scenarios by which certain songs would have achieved a high degree of popularity, and will present a model that applies Paul Zumthor's study of oral poetics to understanding the transmission of music by means other than what is written down. This model assists in the identification of elements of musical orality extant in cultures that also

Kaldy Mike Mechanical Engineering AM Session 2: 10:30-12:00 Ohio Room

Encryption is the process of converting information into code and decryption is the process of converting the code back into the information. We studied RSA Encryption/Decryption, a widely used public-key cryptosystem that takes advantage of the difficulty in factoring large numbers as a product of prime numbers. We present the mathematics that this specific cryptosystem utilizes as well as provide a basic example of how the RSA process works.

Kalik Zane Biology PM Session 2: 3:30-5:00 Ohio Room

We have investigated the role of the L-type calcium current (ICa-L) in arrhythmogenic early afterdepolarization (EAD) formation in rabbit right ventricular (RV) myocytes. The patch clamp technique was used to ascertain the apex-base distribution and biophysical properties of ICa-L in adult males and females in a drug induced model of Long QT Syndrome Type 2 (LQTS2). ICa-L density measured at 0mV was found to be 84.6% higher in female (7.2±0.83 pA/pF, n=8) compared to male base myocytes (3.9±0.38, n=12, $p<0.001$). Regional differences in ICa-L in the female RV were analyzed and demonstrated a 56.5% higher ICa-L density at the base (7.2±0.83 pA/pF, n=8) compared to the apex (4.56±0.45 pA/pF, n=9, $p<0.02$). There were no sex differences in Ica-L density among apex myocytes and no differences in the voltage dependence of Ica-L. Utilizing this data, we performed numerical simulations with a modified version of the Luo Rudy mathematical model of cardiac action potentials (Aps). With 50% suppression of the rapidly inactivating delayed rectifier potassium current to model LQTS2, female base myocyte simulations exhibited longer Aps and increased EAD vulnerability than male base myocytes. The biophysical data and mathematical simulations together demonstrate that sex and regional differences in RV Ica-L correlate with the arrhythmia phenotype previously found in the adult rabbit left ventricular epicardiam and support the hypothesis that higher levels of Ica-L contribute to EAD genesis.

Kapcewich Phillip Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery

As the price of crude oil continues to rise, so does the demand for renewable energy. The use of wind energy sounds like an ideal solution; however practical application has yet to be perfected. The large windmills in use today contain very large and expensive parts. Common failures in these windmills are the gearboxes used to increase the shaft speed of the electric generator. It is very expensive to maintain them since they are very high from the ground and very heavy. The idea is to replace the gearbox with a variable displacement hydraulic pump that transfers fluid to the ground where the power is generated. Removal of the large gearboxes makes the system more capable of withstanding the varying wind speeds and gusts that take place. Now that most of the system would be placed on the ground, it makes for easier and therefore cheaper maintenance. This reduces the maintenance costs and allows the power to be regulated before it gets to the generator via the hydraulic system. The variable displacement pump provides a constant output at various input speeds. This feeds a hydraulic motor, which outputs a constant shaft speed. This turns the electric generator at a constant speed, which outputs the specified electric power. The concept of this system could bring major changes to the windmill market. Maintenance costs of the windmill are reduced while electric power is increased. The hydraulic system provides the best of both worlds; it runs the generator at a near constant speed while providing a long

Kautzman- Melanie Counseling AM Session 1: 8:30-10:00 Ohio Room

Alcohol use and its consequences is a paramount concern to officials on college campuses. The purpose of this program was to facilitate an alcohol awareness educational program on a local college campus. Since most research supports harm reduction programming as opposed to more unrealistic abstinence based programs, the education program focused on impacting cognitions around alcohol consumption. The program entitled "Hall Crawl" mimicked a bar crawl type of event by having series of activities (e.g., root beer pong; wearing impairment goggles and applying condoms to bananas or shuffling playing cards) were designed to impact awareness regarding slowed reflexes, impaired judgment, unintended consequences resulting from use, healthy coping alternatives as well as information on the college's alcohol policy. The activities were facilitated in the lounges of four dorms on campus and snacks and prizes were part of the programming for additional participant incentives. Undergraduate college students with support from the Counseling Department facilitated these activities. Since this was the first program of its kind on the campus, data was collected regarding the number of participants who completed each activity as well as lessons learned (e.g., the dangers of social drinking, awareness of the role of impairment in simple tasks, and the risks of alcohol poisoning) throughout the program implementation. The Counseling Department is hoping to make this an annual event. This presentation will outline specific lessons learned for future implementation of similar programs.

Kennedy Michael Engineering Mechanical AM Session 2: 10:30-12:00 James Gallery

The challenges faced by the engineers at NASA were unique and novel when they designed the first Moonbuggy for the Apollo 15 mission to the moon. To commemorate their design achievements, NASA held its 18th annual Great NASA Moonbuggy Competition in Huntsville, Alabama at the U.S. Space and Rocket Center on April 1-2, 2011. The competition challenged teams of senior, undergraduate engineers to design, fabricate and compete with their vehicle in a race. The race simulated terrain that the original Moonbuugy had to traverse; which included sand pits, rocky inclines, and meteor craters. Some of the design requirements were: a two person powered vehicle, the ability to compress the vehicle to fit into a 1.22m X 1.22m X1.22m (4'X4'X4')box, a driving and break system, a turning radius of 4.57m (15') and height off ground of 4.57m (15'). Overall, the competition allowed the team to apply their engineering knowledge through a hands-on project that tested the groups understanding and ability of engineering

Knepper Joseph Electrical Engineering PM Session 1: 1:30- 3:00 Coffelt Room

A solar panel consists of three solar boards connected in series. Each board has 20 solar cells connected in series. The cells produces .5V individually and 30V overall. The solar panel will charge a battery that can power electric devices. The outcome of our solar panel is to learn about alternate energy sources and compare to practices in use today.

Kolbus Andrew Industrial & Systems Engr PM Session 2: 3:30-5:00 James Gallery

A simulation study was conducted to determine how to improve productivety in a combined Basic Oxygen Furnace-Continuous Casting operations. The simulation model was developed to study the complex inter-relationship among a large number of system variables, determine bottleneck operations, and ultimately determine the optimum loperating conditions. Based on the results of the simulation study, we made a number of proposals aimed at enhansing performance of the system.

Koneval Joni History AM Session 2: 10:30-12:00 Room 2068

During the nineteenth century, many women traveled to the United States for reasons of duty, pragmatism, or leisure and detailed their motives and observations in travel accounts. These writings became the primary sources for a collection of incomplete secondary literature beginning in 1965 that specifically focuses on British women travelers in the form of travel summaries, literary analyses of travel writings, or of travel writings as geography-based contributions. Despite the commonality of British women traveling to the United States, there is virtually no secondary literature specifically devoted to those travel accounts as a group. Consequently, it is academically important to analyze nineteenth century British women travelers to the United States on a group level. Through the study of travelers like Frances Trollope and Harriet Martineau such an analysis must first discuss their outward reasons for traveling from Great Britain to America and for writing and publishing travel accounts. It must also discuss the reactions these travelers had to their experiences in the United States and the underlying ramifications these reactions caused and were affected by - particularly in regards to the

Kosec Marc Elect Engr Comp Digital Opt PM Session 1: 1:30- 3:00 Coffelt Room

As the world continues to binge on its precious fossil fuels, we are experiencing the effects here at home; quite literally. The electricity and natural gas we need to light and heat or cool our homes continues to become more of a financial burden on our minds. Unfortunately we are at the mercy of the providers when it comes to price whether it be kWH or MCF. However, it is how we manage the use of these resources that can give the consumer back the control that it deserves. Many commercial buildings already implement a strong hold on how these building use their resources. Why should the home be any different? Of the nearly 130 million homes in the United States, it is the homeowners job to distinguish his or hers home from others. What better way than to have complete control? Our proposed method is an EMS (energy management system) that will give the homeowner complete control from anywhere in the world. Left a light on at home? No problem, hop on your smartphone and shut it off. Even see how much electricity saved! Have the ability to change the temperature of your home from anywhere. The possibilities are limitless. By having the control of your energy consumption in your pocket, it is possible to monitor and limit your usage to when it is needed most! The savings are immense. This project will allow us to present how and why this is a reality. We will also provide an

Kosela Katie Info Tech Multimedia Web Op AM Session 2: 10:30-12:00 Ohio Room

Encryption is the process of converting information into code and decryption is the process of converting the code back into the information. We studied RSA Encryption/Decryption, a widely used public-key cryptosystem that takes advantage of the difficulty in factoring large numbers as a product of prime numbers. We present the mathematics that this specific cryptosystem utilizes as well as provide a basic

example of how the RSA process works.

Kovach Michael Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery
Plastic tunnels, which serve as miniature greenhouses, are used to facilitate the early growth of crops during months when temperatures are low enough to cause frost. A mechanical tunnel layer attached to the back of a tractor can be utilized to save time creating the plastic tunnels. The front half of the machine bends wires into arches and inserts them into the ground at equal distances. The rear half of the machine simultaneously covers the arches with a continuous layer of clear plastic. The design process for the machine included creating 3-D models to modify dimensions as well as obtain the required motion. Elements that were designed included the frame, cam technology for bending and inserting the tunnel's support hoops, and a roller assembly to allow the plastic to be rolled from the machine. Analyses of stresses and deflections were done analytically and computationally using Algor, a Finite Element Analysis software package. The design presented improved upon mechanical limitations of such machines on the market. Variability of distance between hoops was addressed by allowing user-defined gear ratios. A clutch assembly was added to prevent movement of the hoop laying mechanism while transporting the machine. The machine can also be adjusted for use with plastic rolls of either 1.524 meters (5 feet) or 1.829 meters (6 feet). These changes in the machine design created

Kovachik Brent Industrial & Systems Engr PM Session 1: 1:30- 3:00 Ohio Room
Methods, Standards, and Work Design at Summer Gardens Manufacturing Members of the methods engineering class in the industrial and systems engineering program at Youngstown State University worked with supervision and labor at a local food manufacturing company, Summer Gardens manufacturing. The students examined an area of concern for the manufacturer in order to document present efficiencies and make proposals for future improvements. Using a variety of time study graphing and charting, and problem solving techniques the students were able to present management and workers with a number of viable options in a relatively short amount of time. The company, being familiar with the benefits of and employing a number of industrial engineers was very receptive to the activities and the proposals made. This QUEST presentation is the result of applying both technical and communication skills within an industry sponsored project.

Kowal Matt Mechanical Engineering PM Session 2: 3:30-5:00 James Gallery
The power output of an automobile engine can be greatly increased by implementing a supercharger driven by a well-designed pulley system. The driving force acting on the pulley is dependent on the rotational speed of the drive system to which the pulley is attached. Stresses within the pulley change as the rotational speeds of the pulley vary. It is desired to determine the stress distributions within a given pulley design for multiple pulley materials. A complete analysis for stresses of the pulley will be performed on the given power input, selected angle of contact between the belt and the pulley, and the pulley disk dimensions. The purpose of this study includes comparative measurements of stresses between these pulleys under various loading conditions. Based on theoretical and computational studies for stress, design specifications will be recommended and compared with experimental data.

Krause Howard Anthropology AM Session 2: 10:30-12:00 Breshnahan
This project used GIS and Remote Sensing to plot the used and empty graves of Calvary Cemetery in Youngstown. The cemetery is running short of room for new graves and their records were incomplete. We were able to use aerial photographs of the area to determine which plots were empty and which were in use. We then used ArcGIS to trace each the empty plots and the in use plots in separate shapefiles. With this information, we were able to extract a total number of vacant vs. in use plots within the mapped sections of the cemetery. A total of five sections of the cemetery were mapped.

Kreiger Meredith Nursing BSN PM Session 1: 1:30- 3:00 Room 2068
Nursing students from the Bitonte College of Health and Human Services will describe life changing cultural study abroad immersion experiences from traveling to Mexico to provide healthcare in a rural community where it is virtually non-existent. They traveled with faculty and healthcare professionals and volunteers from Ohio Medical Clinic Missionaries, and became an integral part of the healthcare team. They worked with Mexican community leaders to set up and operate a clinic from a church in San Quintin, Mexico. They developed nonverbal communication abilities and had to work through interpreters and use critical thinking as they adapted to the culture and environment. Students earned clinical course credit as they administered care to Mexican patients and were able to compare and contrast values, beliefs, health practices and ways of life to their own. Students identified the components of a comprehensive cultural assessment. Students administered care integrating patterns

of human behavior that demonstrates respect and value of each Mexican patient. These experiences reflect the mission of the Youngstown State University and Bitonte College of Health and Human Services "to foster an understanding of diversity, sustainability and global perspectives". Students will share their experiences through a slide presentation with pictures and stories of study abroad in Mexico.

Kurz Charity Counseling AM Session 2: 10:30-12:00 Humphrey Room

Numerous aspects of Autism have recently become a hot research topic for many reasons. However the impact Autism can have on neurotypical family members has not been as extensively researched. Neurotypical children that have a sibling with autism may have severe psychological and emotional issues that should be explored (Petalas et. al, 2009). The purpose of this presentation is to inform professionals in the field of the different psychological, behavioral and emotional issues that arise as a result of having a sibling with autism, Interventions will also be discussed that can be used by professionals to reduce and/or eliminate clinical issues. Petalas et al. (2009) found siblings of children with autism have a greater risk of internalizing problems. Rao and Beidel (2009) reported that behavioral issues can be linked to the internalization of problem behaviors exhibited by their sibling with Autism. According to Rodrigue, Geffken, and Morgan (1993), family interactions, including sibling relationships, can have a significant impact on the sibling's social adjustment. Counselors can offer developmentally appropriate knowledge about Autism (Rosenberg, 2001). Once knowledge is acquired, normalizing an individual's situation can often be comforting. Research shows that support groups can also be affective with siblings (Rosenberg, 2001). In addition, counselors may work with both the parents and siblings to construct an appropriate treatment plan to address current needs; including reducing

Kusluch Joseph History AM Session 2: 10:30-12:00 Room 2068

When Joseph Stalin took control of the Soviet Union, the country underwent a stunning transformation, changing from a predominantly agricultural society to one of the leading industrial centers of the world. There is no city that personifies this change more than Magnitogorsk. Built from the ground up, Magnitogorsk would be state planned and created to show the superiority of a socialist community. My study examines different views on the city from the vantage point of Soviet citizens, Americans in Russia, and the communist government. This presentation will examine these different views and show how many people were committed to building socialism in Magnitogorsk.

Lang Emma Biology PM Session 2: 3:30-5:00 Ohio Room

The Y-12 weapons plant located in Oak Ridge, Tennessee contaminated East Fork Poplar Creek with heavy metals and mercury during World War II and the Cold War. In 1989, 1,000 bacteria isolates were preserved from an adjacent site contaminated with 86 ppm mercury and 1,500 isolates were preserved from a downstream site contaminated with 3 ppm mercury. Eighty-seven pure cultures of bacteria originating from the downstream site were removed from storage and tested for viability. The thirty-eight viable cultures were screened for resistance to mercury, lead, copper, chromium, cadmium, selenium, zinc, silver, and gold using replica plating. Ninety-seven percent of the isolates demonstrated resistance to three or more of the tested metals. A few of the screened isolates were selected for identification by 16s rDNA sequencing based on level of metal resistance and colony morphology. Previous sequencing of bacteria from the site contaminated with 86 ppm mercury identified strains of Enterobacter and Pseudomonas. Similar results are expected from the downstream site. The genes and mechanisms that generate the metal resistance will be investigated in the future.

Lehman Matthew Chemical Engineering AM Session 2: 10:30-12:00 Ohio Room

This project explores some of the technological issues concerning windmill design for large scale electricity production. Technical problems include providing adequate strength for the support column, resisting corrosion and stress corrosion cracking of the blades and other components, achieving a reliable gear box design, and minimizing adverse environmental impacts. In one case, a dozen windmills on a Japanese windmill farm failed structurally due to typhoon strength winds. To understand one of the modes by which some of these windmills suffered catastrophic failure, the project team performed an analysis of static bending stresses in which the calculated stress was compared to the ultimate tensile strength of the steel alloy from which the support columns were constructed. Based on available wind load data, the team confirmed that the typhoon strength winds most likely generated bending stresses above the load carrying capacity of the structural steel. The results of these calculations are presented in a table. Along with the stress findings, the poster points to a variety of other technical challenges brought up by this promising technology.

Lehr Justin Geography AM Session 2: 10:30-12:00 Breshnahan

The White-Tailed Deer Dilemma in Ohio As a civilization, we are becoming more aware of and proactive toward solving and repairing the challenges faced by our ecosystems. However, there exists an urgency to repair and reverse the present environmental condition in some regions associated in habitat fragmentation. Habitat fragmentation can be observed locally and regionally. Compounding this fragmentation, there is the rapid overgrowth of the white-tailed deer population in the Midwest and eastern United States. This condition has proven to have dangerous consequences. Finding and maintaining a safe and productive co-existence between humans and white-tailed deer continues to be a problematic concern woven deep into the fabric of the challenges of ecological conservation. Expensive and exhausting "smoke and mirrors" efforts to do so prove little opposition to the confusion of bureaucratic processes and power of private enterprises. This presentation discusses the conditions associated in the environmental preservation of habitat fragility and increased population pressures in the Midwest and eastern United States. In addition, it offers an examination of solutions which examine the co-existence between humans and deer through uniform cooperation between government agencies, development planners, farmers, and students to produce a synergistic aggregation of

Lesher Don Elect Engr Comp Digital Opt PM Session 2: 3:30-5:00 Coffelt Room

The purpose of this design is to allow the remote operation of a full size vehicle through existing technologies. Applications of this design are, but not limited to, military use during combat operations where a human driver could become a liability or be exposed to an extremely high level of danger. Other applications include scientific operations where vehicle operation would be too dangerous for humans. The entire system includes hardware and software. Due to the specified nature of each of these, the project was divided amongst two teams to allow for a more specialized development. The hardware is designed as a human analog. Designing the system to mimic the way a human interacts with one vehicle will allow it to be used in other vehicles with little or no modification. Hardware will consist of pedal operators and a steering interface. Software will be run on a small laptop. It will be a small server designed to take commands from a remote station over the Internet. The software will pass the commands to a small controller board to interface with the hardware. A video feed will be sent back to

Lopatta Danielle History AM Session 2: 10:30-12:00 Room 2068

This project involves the discovery the "real" John Wilkes Booth and his fellow conspirators in the Lincoln assassination, the attempt on William Seward's life, and supposed attempt on Vice President Johnson. The goal is to show how Booth coerced Lewis Payne, George Atzerodt, John Surratt, Mary Surratt, David Herold, and Samuel Arnold by examining his actions and relationships with those people. This has been done by examining court documents, testimonies, and affadavits, the diaries of John Wilkes Booth and his family members, and several monographs by scholars on the subject. Upon researching the saddening event of Lincoln's assassination, a plot is revealed that involves more than just the President's death. Through showing that the actions of these seven people live on in history, this research highlights the importance that Wilke's fellow conspirators played in the events of April 14, 1865 and their willingness to support Booth even up to their executions.

Lopez Ryan Mathematics AM Session 2: 10:30-12:00 Ohio Room

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Lowry Sarah English PM Session 2: 3:30-5:00 Humphrey Room

Fascicle 12: With Dickinson's focus on science and faith, it is amazing to us that she never once used "transform" in any of her poems. We have found that fascicle twelve seems to be about transformation; be it through religious faith, from childhood to old age, from sunrise to sunset, from living to dying. Fascicle twelve uses "transformation" in many different ways, but it unites all of the poems together. We also played with the aspects of body and soul, as well as musical tendencies. Fascicle 24: Thinking about fascicle twenty-four as a whole, the theme of the Civil War runs smoothly throughout all of the poems in one way or another. These poems in this particular fascicle work together to exhibit the nature of war from different vantage points, specifically concentrating on the meaning of life, the meaning of religion, the forces of nature, and the concepts of gender.

Lowry Sarah American Studies PM Session 2: 3:30-5:00 Humphrey Room

Brand names is a method through which individuals or groups demonstrate belonging to a social class, resulting in almost any product acting as a visual marker of an individual's social class. Though certainly not the first, People Like Us: Social Class in America (2001) stresses the importance of adopting the "tastes" of a given class; reaffirming the clichй that people very much are what they eat, or in the case of this paper, what they drink. I explore the complex relationship between coffee, consumption, and class through rhetorical analysis of electronic and print advertisements as well as physical structures of three of the country's leading coffee companies: Starbucks, Dunkin' Donuts, and Mc Donald's Mc Cafй. Each company caters to a specific class, and the resulting dialogue makes bold and bitter statements regarding popular perceptions of social class.

Lowry Sarah English PM Session 2: 3:30-5:00 Humphrey Room

One of the goals of our graduate student research project for the Methods of Composition Research course (ENGL 6901) at Youngstown State has been to apply ethnographic research methods to answer the following question: "What is college-level writing?" We, as a student research group, have agreed to focus on answering this question by applying it to the various disciplines throughout our college campus. To identify and discuss our own experiences and roles as investigators, we have agreed as a class to note our biases and include, but not limit, all the various types of writing at the college level. Although there are a multitude of programs at YSU, we feel there should be some expectations in common in terms of how college level writing is defined by each department: "How we do research, like how we teach, reflects our underlying assumptions about human nature and learning" (Calkins, xiii). This presentation will review the methods in which our class has gathered the required data to answer the question at hand. In addition, the data gathered thus far will be discussed and analyzed in an attempt to determine what Youngstown State University currently considers 'college-level' writing to be. As our research is currently ongoing, we hope to both review the current material collected and gather additional data during this presentation that may be used for potential feedback in this project.

Lu Alvin Biology Pre Medical AM Session 2: 10:30-12:00 Ohio Room

Sludge containing vinyl chloride (VCM) had been indiscriminately dumped in landfills that had no liners of other engineering controls. Leachate from the sludge infiltrated into water-supply aquifers. VCM is a known human carcinogen that targets the liver. Superfund sites that contain VCM as a contaminant of concern (COC) are located in counties/states that have elevated incidences of liver cancer. This study compares counties/states where liver cancer incidence is high and seeks to link this disease with possible long-term (chronic) ingestion of drinking water containing vinyl chloride, even at concentrations lower than levels that are considered safe (MCLs).

Ludt Sean Mechanical Engineering Tech PM Session 2: 3:30-5:00 James Gallery

The objective of this project is for an Art student to work collaboratively with an Engineering Technology student. The project encompasses an artist's vision of a bird's need to have their nest high up in the trees for protection from predators. The nest however, presents a false sense of security to the bird because it is very open; therefore it is vulnerable to the harsh elements of nature and predators that are capable of climbing. The Engineering Technologist's role is to provide a safe design of a supporting structure and entry ability to the nest and proving to be long lasting against the destructive elements of weather; while retaining the artist's design concepts, utilizing state of the art CAD design and production

Lum Gengkon Computing & Information Sys AM Session 2: 10:30-12:00 Ohio Room

Plant secreted proteins have biological functions which are important in the formation of cell walls, cellular communication, and defense against pathogens. We analyzed 1704 secreted proteins from a total of 22513 plant proteins, all of which were manually curated and annotated in the UniProt database. Of the secreted plant proteins analyzed, 55% and 13% are curated from Arabidopsis thaliana and rice, respectively. Gene ontology cellular components analysis revealed that 84% of them are located in the extracellular region, cell wall, or extracellular space. Molecular functional domain analysis showed that 33% had hydrolase activity and 29% had binding activity. Signal peptide analysis revealed that 97.5% of secreted proteins had signal peptides. The information is anticipated to be used to computationally identify more secreted proteins in plants and to construct a plant secretome

Lynn Larry Mechanical Engineering PM Session 2: 3:30-5:00 James Gallery

The power output of an automobile engine can be greatly increased by implementing a supercharger driven by a well-designed pulley system. The driving force acting on the pulley is dependent on the rotational speed of the drive system to which the pulley is attached. Stresses within the pulley change

as the rotational speeds of the pulley vary. It is desired to determine the stress distributions within a given pulley design for multiple pulley materials. A complete analysis for stresses of the pulley will be performed on the given power input, selected angle of contact between the belt and the pulley, and the pulley disk dimensions. The purpose of this study includes comparative measurements of stresses between these pulleys under various loading conditions. Based on theoretical and computational studies for stress, design specifications will be recommended and compared with experimental data.

Lyons William Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery

Plastic tunnels, which serve as miniature greenhouses, are used to facilitate the early growth of crops during months when temperatures are low enough to cause frost. A mechanical tunnel layer attached to the back of a tractor can be utilized to save time creating the plastic tunnels. The front half of the machine bends wires into arches and inserts them into the ground at equal distances. The rear half of the machine simultaneously covers the arches with a continuous layer of clear plastic. The design process for the machine included creating 3-D models to modify dimensions as well as obtain the required motion. Elements that were designed included the frame, cam technology for bending and inserting the tunnel's support hoops, and a roller assembly to allow the plastic to be rolled from the machine. Analyses of stresses and deflections were done analytically and computationally using Algor, a Finite Element Analysis software package. The design presented improved upon mechanical limitations of such machines on the market. Variability of distance between hoops was addressed by allowing user-defined gear ratios. A clutch assembly was added to prevent movement of the hoop laying mechanism while transporting the machine. The machine can also be adjusted for use with plastic rolls of either 1.524 meters (5 feet) or 1.829 meters (6 feet). These changes in the machine design created

Magyar Victoria Comm St Media Communicatn Trck AM Session 2: 10:30-12:00 Humphrey Room

This presentation is looking at the Cultivation Theory's relation to how women are being portrayed on television, and how it may lead to eating disorders and body dissatisfaction and modification.

Mahoney Brendan Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery

This project tests the feasibility of a remote control crop dusting plane for commercial production and explores a wide range of engineering disciplines. To handle the complex nature of the project, it was divided into four distinct design areas: wing, fuselage, tail, and dispersal system. Three main design constraints were identified for each design area. First, for the wing, they were the lift characteristics, stress analysis, and ease of construction. Second, for the fuselage, they were stress analysis, the aerodynamic characteristics, and the ease of manufacture. Third, for the tail, they were the balance of vertical, horizontal and moment forces, the component sizing, and the ease of manufacture. Last, for the dispersal system, they were the stability in flight, the coordination of flight and spray time, and the spray characteristics. In order to meet the design constraints, advanced stress analysis, fluid dynamic analysis software, and experimentation were used. Finite element analyses using Fluent software were instrumental in the selection of the wing geometry, the engine, and the final orientation of the wing. Additional finite element analyses using Algor software were an integral part of designing the support structure for the wing, the fuselage, and the tail. Also, the experimentation guided the dispersal system design. Finally, the results were supported by manual calculations and research. The flight and spray characteristics of the finished remote control crop duster were tested on a specifically devised course. The test results were recorded, analyzed and conclusions were drawn.

Makara Michael Biology PM Session 2: 3:30-5:00 Ohio Room

Viral Protein R (vpr) is a 96 amino acid peptide associated with the HIV virus.Vpr has been shown to have numerous functions in HIV infections such as cell cycle G2 arrest, induction of apoptosis, and suppression of immune activation. Because vpr has only recently gained attention, monoclonal antibodies are needed for purification and identification of the protein in vitro. Mice were injected with purified vpr and antiserum was collected. Harvested plasma cells were fused with cancer cells to form hybridomas. Supernatants were collected from clones and subclones of the hybridomas and were analyzed through an indirect enzyme-linked immunosorbent assay (ELISA) for antibody binding to vpr protein. Results of the assay were determined by colorimetric analysis. Three cell lines (DF.vpr.C3, DF.vpr.C4, and DF.vpr.A5) produced clones that tested positive after being subjected to indirect ELISA. Although the results look promising, further subcloning is needed before any conclusion about the tested subclones can be made. The hope of this study is to isolate cell lines that produce antibodies against the vpr protein. The antibodies will then be used to identify vpr protein in western blot analysis

Marstellar Jessica Chemistry PM Session 2: 3:30-5:00 Ohio Room

yjfC is a gene in Escherichia coli's genome whose function is unknown but is believed to encode a protein that has an activity similar to glutathionylspermidine synthetase. Glutathionylspermidine synthetase is an enzyme that catalyzes the formation of glutathionylspermidine (GSp), which is an intermediate in the biosynthesis of trypanothione. Trypanothione is an antioxidant found in several parasites that is necessary for their survival; because humans require a different antioxidant, trypanothione metabolism serves as a potential drug target. Similarly, GSp might be an important metabolite for E. coli. yjfC gene was amplified using E. coli genomic DNA and cloned into the expression vector pET-20b. The correct insertion of the gene into the vector was confirmed by automated DNA sequencing. pET-20b(yjfC) was transformed into E. coli BL21(DE3) cells and the YjfC protein was overexpressed upon induction with IPTG. The protein was precipitated with ammonium sulfate and partially purified by anion exchange

Masters Marci Family & Consumer Studies AM Session 1: 8:30-10:00 Ohio Room

The purpose of this research is to explore what the use of an observational tool that documents preschool children's social interactions while at the computer in the classroom reveals about their social skills. Observations of preschool children were conducted in Mahoning County Head Start Preschool classrooms which were selected to represent urban, suburban, and rural demographics. Data was collected through the use of a behavior checklist and only children who voluntarily visited the computer center were included in this study. The observations focused on the nature of the children's social interactions with peers and adults while at the computer during the regularly scheduled free play time in the classroom daily schedule. The collected data is being analyzed for differences among groups based on variables such as children's gender, age and race, morning or afternoon class times, classroom demographics, and learning center location. Preliminary analysis of the data collected reveals differences among groups, while more detailed analysis is ongoing.

McLane Kevin Mathematics AM Session 2: 10:30-12:00 Ohio Room

Bйzier curves are a special class of curves, defined parametrically, that are applicable to numerous real-world situations. They are extremely easy to create and modify to fit particular preferences of appearance or mathematical requirements. Applications vary from their use in computer graphics to the design of automobiles. In this project, the mathematical construction of Bйzier curves is presented and a computer program has been developed to create examples, to illustrate properties, and to extend the concept to form Bйzier spline functions.

McLaughlin Jeanette English PM Session 2: 3:30-5:00 Humphrey Room

Fascicle 12: With Dickinson's focus on science and faith, it is amazing to us that she never once used "transform" in any of her poems. We have found that fascicle twelve seems to be about transformation; be it through religious faith, from childhood to old age, from sunrise to sunset, from living to dying. Fascicle twelve uses "transformation" in many different ways, but it unites all of the poems together. We also played with the aspects of body and soul, as well as musical tendencies. Fascicle 24: Thinking about fascicle twenty-four as a whole, the theme of the Civil War runs smoothly throughout all of the poems in one way or another. These poems in this particular fascicle work together to exhibit the nature of war from different vantage points, specifically concentrating on the meaning of life, the meaning of religion, the forces of nature, and the concepts of gender.

McLaughlin Jeanette English PM Session 2: 3:30-5:00 Humphrey Room

One of the goals of our graduate student research project for the Methods of Composition Research course (ENGL 6901) at Youngstown State has been to apply ethnographic research methods to answer the following question: "What is college-level writing?" We, as a student research group, have agreed to focus on answering this question by applying it to the various disciplines throughout our college campus.

To identify and discuss our own experiences and roles as investigators, we have agreed as a class to note our biases and include, but not limit, all the various types of writing at the college level. Although there are a multitude of programs at YSU, we feel there should be some expectations in common in terms of how college level writing is defined by each department: "How we do research, like how we teach, reflects our underlying assumptions about human nature and learning" (Calkins, xiii). This presentation will review the methods in which our class has gathered the required data to answer the question at hand. In addition, the data gathered thus far will be discussed and analyzed in an attempt to determine what Youngstown State University currently considers 'college-level' writing to be. As our research is currently ongoing, we hope to both review the current material collected and gather additional data during this presentation that may be used for potential feedback in this project.

McLaughlin Ethan Mechanical Engineering PM Session 1: 1:30- 3:00 James Gallery

The goal of this project is the successful design and analysis of a stepped shaft. Shafts are common machine components used throughout industry taking enumerable forms. Shafts are used in many devices to provide mechanical advantages as well as ways to transfer energy from an input device to one or more outputs. Our task was to design a shaft based on several given specifications which will be discussed in the presentation. The shaft, which rotates at 1500 rpm, receives continuous power of 100 horsepower from a water turbine delivers 75 horsepower to an electrical generator and 25 horsepower to a bucket elevator. A static and fatigue failure analysis will be performed using given power transmission, angular velocity and loads in order to design the different sections of the stepped shaft. Results of the initial analysis will be verified using Finite Element Analysis and then checked with

McMaster Michael Physics AM Session 2: 10:30-12:00 Coffelt Room

Zinc oxide (ZnO) is a II-VI wide bandgap semiconductor which has potential applications in fabricating efficient electronic and optical devices. The goal of this research was to produce high quality ZnO film on gallium nitride (GaN) substrate by optimizing the substrate temperature. The GaN substrates were chemically cleaned and mounted on a ceramic heater and loaded into a vacuum deposition chamber that was pumped down to a base pressure of 3 x 10-7 Torr. The film deposition was preceded by a 30 minute thermal desorption carried in vacuum at 500 oC. The ZnO thin film was then deposited by sputtering from a ZnO target using an O2/Ar gas mixture onto GaN substrates heated at temperatures varying from 20 oC to 500 oC. Post-deposition annealing was done in a rapid thermal processor at 900 oC for 5 min in an ultrapure N2 ambient to improve the crystal quality of the films. The films were then optically characterized using photoluminescence (PL) measurement with a UV laser excitation. Our measurements reveal that ZnO films deposited on GaN substrate held at 200 oC gave the best film with the highest luminous intensity, with a peak energy of 3.28 eV and a full width half maximum of 87.4 nm. Results from low temperature (10 K) PL measurements and from x-ray diffraction will also be presented.

Mehalco Kelly Merch Fashion & Interior AM Session 1: 8:30-10:00 Ohio Room

Within my paper I took an inside glimpse into the online retail industry to see how consumers are reacting to the trend as well as how it is changing the way consumers decide to shop for clothing. As seen in my research paper, I surveyed seventy-five students to get their take on the world of e-commerce. What I discovered was not entirely unusual, but some areas were surprising yet hopeful for the online sphere. For instance, although only a small percentage of participants preferred to shop for clothing online, a rather high percentage stated interest in shopping online for clothing in the near future. Therefore when it comes to purchasing apparel over the internet, although it is still a new concept, the outcome looks good for the years to come. Even days such as Cyber Monday are experiencing an increase which over time could cause online retailing sites to be preferential to consumers of all kinds.

Mejo Rey John Electrical Engineering PM Session 1: 1:30- 3:00 Coffelt Room

Our project is based on the concept of a compressed air power plant proposed for the Norton Mine in Norton, Ohio. Through out history the difficulty of energy is storage. Many concepts have been developed in an attempt to solve this issue, but many have been inefficient. Currently First Energy is proposing building a compressed air system to store air during low energy demand times for the use during peak hours. Our project is a small demonstration of the technology involved. This concept uses compressed air in hopes to be more efficient than current energy concepts, such as water, and battery. This concept is much greener than alternative of having no storage systems on our power grid.

Mike Joshua Mathematics PM Session 2: 3:30-5:00 Ohio Room

We have investigated the role of the L-type calcium current (ICa-L) in arrhythmogenic early afterdepolarization (EAD) formation in rabbit right ventricular (RV) myocytes. The patch clamp technique was used to ascertain the apex-base distribution and biophysical properties of ICa-L in adult males and females in a drug induced model of Long QT Syndrome Type 2 (LQTS2). ICa-L density measured at 0mV was found to be 84.6% higher in female (7.2±0.83 pA/pF, n=8) compared to male base myocytes (3.9±0.38, n=12, $p<0.001$). Regional differences in ICa-L in the female RV were analyzed and demonstrated a 56.5% higher ICa-L density at the base (7.2±0.83 pA/pF, n=8) compared to the apex (4.56±0.45 pA/pF, n=9, $p<0.02$). There were no sex differences in Ica-L density among apex myocytes and no differences in the voltage dependence of Ica-L. Utilizing this data, we performed numerical simulations with a modified version of the Luo Rudy mathematical model of cardiac action potentials (Aps). With 50% suppression of the rapidly inactivating delayed rectifier potassium current to model LQTS2, female base myocyte simulations exhibited longer Aps and increased EAD vulnerability than male base myocytes. The

biophysical data and mathematical simulations together demonstrate that sex and regional differences in RV Ica-L correlate with the arrhythmia phenotype previously found in the adult rabbit left ventricular epicardiam and support the hypothesis that higher levels of Ica-L contribute to EAD genesis.

Miladore Joseph Phase 1 BS MD PM Session 2: 3:30-5:00 Ohio Room

A conveniently applicable substitute cartilage material is needed for weight bearing joints such as the knee. It should allow water lubricated films attached to the bone surfaces to slide smoothly and withstand repeated compressive cycles such as the average knee might experience. Following the experiments of a Japanese group headed by Dr. Jian Gong in Sapporo, we have synthesized a double network hydrogel layer 3-4 mm thick which is smooth, resiliant, slippery and contains 80-90% water. This enables it to slide against a similar layer grafted onto the complimentary bone condyle with an extruded thin film of water acting as a lubricating film between the sliding hydrogel surfaces. This mimics the same hydrodynamic model which natural joints use to function. We are currently evaluating its suitability to be grafted to bone like surfaces and remain attached under 100% humid conditions, and its durabiltity to withstand repeated compressive and shearing motion in an artificial knee machine.

Miller Kevin Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery

The challenges faced by the engineers at NASA were unique and novel when they designed the first Moonbuggy for the Apollo 15 mission to the moon. To commemorate their design achievements, NASA held its 18th annual Great NASA Moonbuggy Competition in Huntsville, Alabama at the U.S. Space and Rocket Center on April 1-2, 2011. The competition challenged teams of senior, undergraduate engineers to design, fabricate and compete with their vehicle in a race. The race simulated terrain that the original Moonbuugy had to traverse; which included sand pits, rocky inclines, and meteor craters. Some of the design requirements were: a two person powered vehicle, the ability to compress the vehicle to fit into a 1.22m X 1.22m X1.22m (4'X4'X4')box, a driving and break system, a turning radius of 4.57m (15') and height off ground of 4.57m (15'). Overall, the competition allowed the team to apply their engineering knowledge through a hands-on project that tested the groups understanding and ability of engineering

Mincher Arielle History AM Session 2: 10:30-12:00 Room 2068

This presentation on Ancient Israel will examine Israel's identity as an entity from its inception and its development as a nation until present day. Through the study of Archaeology it will be seen how information has been revealed overtime about the occupation of Israel and its history with opposing nations as well as the development of religion and identity between Judaism, Christianity and later elements of Islam. Through archaeology one can trace the changes of power, culture and religion by studying layers of artifacts and evidence of structures that once existed,which show symbols relating to Israel's beginning as a country. In looking at Israel, one can see how elements that were present in Israel's creation are still evident and powerful in the nation's identity today.

Minniti Nicolino Mechanical Engineering Tech AM Session 2: 10:30-12:00 Ohio Room

Analyze digital waveform (Square Wave) utilized by digital computer and digital communication systems. The mathematical model (Fourier Series) of the waveform will be developed. The amplitudes of the frequency spectrum of the waveform will be calculated. Oscilloscope and Spectrum Analyzer will be utilized in laboratory experiments to measure waveform amplitude in both time domain and frequency domain. Circuit simulations will be performed in time and frequency domain using Multisim 11 simulation program. Comparisons for mathematical calculations (Excel), laboratory measurements and circuit simulation results will be presented.

Modak John Industrial & Systems Engr PM Session 1: 1:30- 3:00 Ohio Room

The authors of this QUEST presentation worked with supervisory personal at a local fastener manufacturer, Brainard Rivet. The study which is the subject of this presentation was performed as part of the methods engineering class in the Industrial & Systems Engineering program. 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 this range of analysis techniques supported process improvements and the establishment of time standards as well as laying the foundation for improvements in ergonomics, safety and the definition of plant wide objectives.

Moore Alexis Biology PM Session 2: 3:30-5:00 Breshnahan

Limb muscles are often studied for their properties related to locomotion, but studies of architectural properties in limb muscles of animals specialized for other behaviors, such as digging, are less common.

This study quantified muscle architectural properties in the forelimbs of badgers (Taxidea taxus) and groundhogs (Marmota monax), two digging species from phylogenetically different clades (Carnivora vs Rodentia), and estimated maximum force production and power output of their forelimb muscles. Architectural properties measured included: muscle mass, belly length, volume, physiological cross-sectional area, fascicle length and pennation angle. Both species showed massive elbow extensors and digital flexors that together accounted for approximately 60% of intrinsic forelimb muscle mass. The elbow extensors displayed a low degree of pennation with longer fascicles, an architecture consistent with appreciable shortening capability and high power. The digital flexors showed relatively greater pennation and shorter fascicle lengths in addition to compartmentalization of muscle heads for both force production and range of contraction. These findings suggest both the elbow extensors and digital flexor muscles in badgers and groundhogs have the capacity for high force during scratch-digging, while the elbow extensors are better suited for high power during rapid digging movements. URC #3-11.

Morvay Brigitte Biology PM Session 2: 3:30-5:00 Ohio Room

The study strives to maximize growth of mesenchymal stem cells (MSCs) on Allomax surgical graft mesh and to foster cell expansion in assorted media at given densities. The bioengineered allogenic skin substitute (Allomax) should promote increased stem cell growth, which is aimed at improving abdominal tissue disrupted by reoccurring hernias. The first part of the study is focused on projecting how many rat MSCs can be grown on a 6 cm by 1 cm strip of mesh based on a smaller scale experimentation with 5 mm diameter circular pieces of mesh. Ideally, the goal is to obtain what would be 10^6 cells/mL on the 6 cm by 1 cm strip of Allomax. The MSCs are first grown in α-MEM based medium, followed by incubation at 37°C with 5% CO2 and the passage of 80% confluent cells. Cell growth on Allomax mesh is tested by incubating 5 mm circular pieces of mesh in medium with rat MSCs and in medium lacking rat MSCs. In addition, a dose response curve is generated beginning with a 4 x 10^4 cells/mL dilution followed by 4 serial 2-fold dilutions. Absorbance readings at 490 nm are then recorded to determine how many cells are present at each dilution. The second part of the experiment involves plating rat MSCs at 3 densities and allowing each cell density to proliferate in 10 different media. Once growth is inhibited, cells are counted under 200x microscopic magnification and, again, absorbance readings at 490 nm are recorded to determine how many cells grow in each medium at every cell concentration. Plating rat MSCs at various densities and in numerous media provides insight regarding the optimal plating density for MSCs and the most advantageous medium to utilize to maximize cell growth.

Moy Jennifer Chemical Engineering AM Session 2: 10:30-12:00 Ohio Room

A bimolecular reaction where the reactants compete for catalytic adsorption sites is optimized by properly blending the reactants to give the highest conversion. The three factors that were studied were the adsorption rates of the two reactants onto the catalytic surface, the desorption rate of the reactants, and the chemical reaction rate itself. Each of these factors determine the unique blending ratio of the two reactants that gives the maximum conversion of the key reactant and the production of

Moy Jennifer Chemical Engineering AM Session 2: 10:30-12:00 Ohio Room

Mixtures of rod-like surfactants and spherical nanoparticles are present in many personal care products as well as drug delivery systems. The focus of this study was to determine if the surfactant polymer nanorod cetyltrimethylammonium 4-vinylbenzoate (pC16TVB), adsorbed onto spherical silica (SiO2) surfaces, and if so, how the adsorption changed as SiO2 size varied. Using pyrene dye as a tracking device, UV-visible and fluorescence spectroscopy were used to monitor changes in rod adsorption with SiO2 diameters ranging from 220nm to 710nm. We found that upon altering the sphere diameter, the rod adsorption increases/decreases, and the saturation point moves to higher/lower concentrations, indicating a curvature effect on the adsorption.

Musial Joe Exercise Science PT Track AM Session 1: 8:30-10:00 Coffelt Room

Recently, research into the use of Whole Body Vibration (WBV) as an exercise training modality has expanded greatly. Various lines of inquiry are investigating the use of WBV training as a means to enhance energy expenditure and weight loss, muscle blood flow and tissue oxygenation, muscular force, power, and flexibility, posture and balance, and bone strength. Consistent findings of positive effects in any of these areas could have profound implications for health, physical fitness, athletic performance, and rehabilitation. The primary purpose of this project was to review the literature on the use of WBV training as an exercise modality, with particular focus on: (A) the major techniques for administering WBV training, (B) the theoretical mechanisms potentially underlying physiological responses to WBV, (C) the observed effects of WBV training, including positive effects, neutral effects, and potential detrimental effects, inferred from reports of detrimental side-effects of vibration exposure in the work

place. At this time, based on the inconclusiveness of much of the reviewed research, the use of WBV training as an exercise training modality can neither be clearly endorsed nor rejected.

Myers Joseph Mechanical Engineering PM Session 1: 1:30- 3:00 James Gallery

The goal of this project is the successful design and analysis of a stepped shaft. Shafts are common machine components used throughout industry taking enumerable forms. Shafts are used in many devices to provide mechanical advantages as well as ways to transfer energy from an input device to one or more outputs. Our task was to design a shaft based on several given specifications which will be discussed in the presentation. The shaft, which rotates at 1500 rpm, receives continuous power of 100 horsepower from a water turbine delivers 75 horsepower to an electrical generator and 25 horsepower to a bucket elevator. A static and fatigue failure analysis will be performed using given power transmission, angular velocity and loads in order to design the different sections of the stepped shaft. Results of the initial analysis will be verified using Finite Element Analysis and then checked with

Mymo Alethea Chemistry PM Session 2: 3:30-5:00 Ohio Room

β-glucosidases break down polysaccharides such as cellulose into free glucose molecules by hydrolyzing the glycosidic β(1→4) bonds. Bacteria use this free glucose as an energy source. Inhibition of microbial β-glucosidases can lead to starvation, providing a novel treatment for bacterial infections. E. coli β-glucosidase, BglX, was overexpressed in E. coli cells and purified using the salting out technique and ion exchange and gel filtration chromatographies. Sodium dodecyl sulfate - polyacrylamide gel electrophoresis was utilized to verify the presence of the protein as a band near 81 kDa and its purity. Using a spectrophotometric enzymatic assay, the catalytic parameter Km of BglX for p-nitrophenyl-β D-glucopyranoside as a substrate was determined to be 51 μM. A pH 5 environment proved necessary for optimum activity, and the presence of divalent metal did not significantly affect enzymatic activity. δ-gluconolactone was shown to inhibit BglX activity. The Protein Data Bank was used to predict protein structure. Partially-purifying and characterizing the β -glucosidase enzyme BglX from E. coli proved to be successful in this research despite the limited data known about BglX.

Natal German Mechanical Engineering PM Session 1: 1:30- 3:00 James Gallery

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Neiheisel James Mechanical Engineering PM Session 1: 1:30- 3:00 James Gallery

Machine Design Group Design Project Abstract. The project goal is to design a pressurized shell of a thick-walled cylindrical hydraulic actuator. These actuators are used in a broad variety of applications in heavy machinery fields. In the project the thickness of the cylinder must be determined for a range of factors of safety from 2 to 5 in order to be able to lift a static load of 14,000lbs from an inside wall pressure of 2000psi. Varieties of common materials used for designing hydraulic actuator shells in practical applications were analyzed for the optimal design choice. Using two different assumptions, one being thin-walled and the other being thick-walled cylinder design, stresses within the wall of the pressure vessel due to wall thickness were calculated. Although thin-walled cylinders were not specified to be analyzed in the problem, it was useful to do so for comparison with the final thick-walled choice. Analytical results were verified using COMSOL, a commercially available FEA software and were both

Nellis Erin Art Education AM Session 2: 10:30-12:00 Humphrey Room

With the growing number of students with special needs and various disabilities, many school districts are seeking alternative ways to deal with psychological and emotional issues that students are facing I order to enhance their well being and academic achievements. This presentation will discuss the relevance and effectiveness of art therapy in dealing with these issues and how it is currently being used in public schools to improve physical, mental, and emotional health of students.

Olenick Katie Biology Pre Medical PM Session 2: 3:30-5:00 Ohio Room

Recent studies confirm that grocery shopping carts are among the most contaminated public inanimate objects. The purpose of this research is to test The SanitiZer, NewTec Corporation's new device, for its ability to effectively eliminate bacteria from grocery carts. The SanitiZer contains two different types of lamps: an Rci cell which creates a hydro-oxidizer, hydro-ionizer, and hydro-peroxide mist, and a UV lamp. Serial dilutions of Escherichia coli, a Gram negative bacterial strain, and Staphylococcus epidermidis, a Gram positive bacterial strain, were spread on nutrient agar plates. The plates were exposed for 20 seconds in the SanitiZer with both lamps on, the Rci lamp only, and with both lamps off. When the UV light was on, both bacterial strains were reduced by over 99%.

Olszewski Amy Chemical Engineering AM Session 2: 10:30-12:00 Ohio Room

The ability of the yeast saccharomyces cerevisiae to ferment the sugars dextrose, maltose and cellobiose is explored. Ethanol production is investigated for maximum ethanol yield and sugar sustainability. Dextrose, a monosaccharide sugar is used in conjunction with the disaccharides maltose and cellobiose which are derived from starch and cellulose, respectively to produce ethanol through fermentation. The capacity of saccharomyces cerevisiae to overcome the alpha (1→4) glycosidic bond of maltose and the beta (1→4) glycosidic bond of cellobiose is determined and compared. Ethanol production is optimized for each sugar through varying yeast, sugar, and water ratios. Saccharomyces cerevisiae is grown anaerobically at 27°C and gas chromatography is used to measure ethanol concentration. A maximum ethanol mass percentage of 9.7% is achieved for dextrose at a mass ratio of 1.0 yeast : 8.8 sugar : 21.6 water. A maximum ethanol mass percentage of 8.3% is achieved for maltose at a mass ratio of 1.0 yeast : 8.8 sugar : 25.7 water. A maximum ethanol mass percentage of 3.8% is achieved for cellobiose at a mass ratio of 1.0 yeast : 6.6 sugar : 18.4 water. It is found that saccharomyces cerevisiae is capable of fermenting both disaccharides despite differences in bond conformations. Dextrose produces the highest ethanol yield, followed by maltose. These results support recent investigation into ethanol production from biomasses, including non-food grade carbon

Pacella Mark Industrial & Systems Engr PM Session 1: 1:30- 3:00 Ohio Room

A team of Industrial and Systems Engineering students from the Methods Engineering class were given the opportunity to review and make analyses of manual operations at the local Toys "R" Us distribution center. Stop watch time studies were performed and the information obtained from those were compared to similar processes video-taped at another industrial partner's location. This provided the opportunity for comparison of both classic time study and more modern video based techniques. Also for comparison of effectiveness tools such as predetermined time study systems, work sampling systems, and charting and graphing techniques were employed.

Palumbo Adam Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery

Plastic tunnels, which serve as miniature greenhouses, are used to facilitate the early growth of crops during months when temperatures are low enough to cause frost. A mechanical tunnel layer attached to the back of a tractor can be utilized to save time creating the plastic tunnels. The front half of the machine bends wires into arches and inserts them into the ground at equal distances. The rear half of the machine simultaneously covers the arches with a continuous layer of clear plastic. The design process for the machine included creating 3-D models to modify dimensions as well as obtain the required motion. Elements that were designed included the frame, cam technology for bending and inserting the tunnel's support hoops, and a roller assembly to allow the plastic to be rolled from the machine. Analyses of stresses and deflections were done analytically and computationally using Algor, a Finite Element Analysis software package. The design presented improved upon mechanical limitations of such machines on the market. Variability of distance between hoops was addressed by allowing user-defined gear ratios. A clutch assembly was added to prevent movement of the hoop laying mechanism while transporting the machine. The machine can also be adjusted for use with plastic rolls of either 1.524 meters (5 feet) or 1.829 meters (6 feet). These changes in the machine design created more

Patsy Anna Food & Nutrition Coordinated PM Session 1: 1:30- 3:00 Ohio Room

Childhood obesity is an international crisis, and there are a number of reasons for its rapid growth. Increased exposure to unhealthy food items combined with decreased physical activity (PA) and increased sedentary behavior are likely to be key contributors. As such, intervention strategies that are directed at these underlying causes are necessary in order to attenuate the progression of this epidemic. Dietary composition is one (modifiable) factor that may affect physical performance, and some research has shown that certain macronutrients may decrease exercise (and thus, energy expenditure). Other studies have shown that when combined with subsequent physical activity, meals that are high in these macronutrients can extend the appetite-suppressing effects of intake, thereby decreasing energy consumption. However, there have been no studies examining these effects in children and/or on non-structured, free-choice physical activity. Here we propose a study for the purposes of assessing effects of the caloric and fat content of meals on subsequent PA in non-overweight and overweight/obese school-aged children. We hypothesize that consuming a high-fat/high-calorie meal will reduce subsequent PA and enjoyment of that activity relative to a moderate-fat/moderate-calorie meal. The effect of high-fat/moderate-calorie and moderate-fat/high-calorie meals on PA will also be evaluated. As a secondary outcome, we will also measure the effects of the different meal conditions on subjective satiety during the postprandial/post activity period. This presentation will

Patsy Anna Food & Nutrition Coordinated PM Session 1: 1:30- 3:00 Ohio Room

The eating habits of dietetics professionals and students often come under scrutiny as it is often believed that these groups are overly restrictive in their food choices. This prospective study aims to find a relationship between nutrition habits and choices, and the progression of students through dietetics programs at Youngstown State University. Dietetics students, ranked junior or senior, 18 years or older are eligible to participate in this study. A link to anonymous, self-administered questionnaires using Survey Monkey will be distributed to the students asking questions related to sociodemographics, anthropometrics, and eating habits. Consent to participate is implicit with completion of the survey. Data will be pooled for analyses and it is anticipated that > 75% of dietetics students will report making changes to their diets in response to knowledge gained in their course work, and > 50% will report observing the eating habits of others.

Patton Rachel Food & Nutrition Coordinated PM Session 1: 1:30- 3:00 Ohio Room

Adults across America have various strategies for managing their weight. Among those who exercise to manage their weight, perceptions of the function of exercise may vary according to the individuals' self-assessment of appearance, weight status, or health status (Chang & Christakis, 2003; Brock et al., 2009; Wharton, Adams, Hampl, 2008). This study will assess the perceptions of the functions of exercise in weight management among students who frequent the Youngstown State University Wellness and Recreation Center. Students, male and female, over age 18 years, who consent to participate in the study will complete a 31-item questionnaire, which explores beliefs, knowledge, and behaviors regarding exercise. It is anticipated that students in health-related majors will have significantly ($p < 0.05$) greater exercise knowledge scores than non-health related majors, male participants will be significantly more likely to report enjoy weight training than females, and females will be significantly more likely than males to exercise for weight loss.

Paulin Lindsey Food & Nutrition Coordinated PM Session 1: 1:30- 3:00 Ohio Room

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Penwell Shawn Electrical Engineering Tech AM Session 2: 10:30-12:00 Ohio Room

Analyze digital waveform (Square Wave) utilized by digital computer and digital communication systems. The mathematical model (Fourier Series) of the waveform will be developed. The amplitudes of the frequency spectrum of the waveform will be calculated. Oscilloscope and Spectrum Analyzer will be utilized in laboratory experiments to measure waveform amplitude in both time domain and frequency domain. Circuit simulations will be performed in time and frequency domain using Multisim 11 simulation program. Comparisons for mathematical calculations (Excel), laboratory measurements and circuit simulation results will be presented.

Perren Druana Counseling AM Session 2: 10:30-12:00 Humphrey Room

Numerous aspects of Autism have recently become a hot research topic for many reasons. However the impact Autism can have on neurotypical family members has not been as extensively researched. Neurotypical children that have a sibling with autism may have severe psychological and emotional issues that should be explored (Petalas et al, 2009). The purpose of this presentation is to inform professionals in the field of the different psychological, behavioral and emotional issues that arise as a result of having a sibling with autism, Interventions will also be discussed that can be used by professionals to reduce and/or eliminate clinical issues. Petalas et al. (2009) found siblings of children with autism have a greater risk of internalizing problems. Rao and Beidel (2009) reported that behavioral issues can be linked to the internalization of problem behaviors exhibited by their sibling with Autism. According to Rodrigue, Geffken, and Morgan (1993), family interactions, including sibling relationships, can have a significant impact on the sibling's social adjustment. Counselors can offer developmentally appropriate knowledge about Autism (Rosenberg, 2001). Once knowledge is acquired, normalizing an individual's situation can often be comforting. Research shows that support groups can also be affective with siblings (Rosenberg, 2001). In addition, counselors may work with both the parents and siblings to construct an appropriate treatment plan to address current needs; including reducing

Peshel Ian Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery

The challenges faced by the engineers at NASA were unique and novel when they designed the first Moonbuggy for the Apollo 15 mission to the moon. To commemorate their design achievements, NASA held its 18th annual Great NASA Moonbuggy Competition in Huntsville, Alabama at the U.S. Space and Rocket Center on April 1-2, 2011. The competition challenged teams of senior, undergraduate engineers to design, fabricate and compete with their vehicle in a race. The race simulated terrain that the original Moonbuugy had to traverse; which included sand pits, rocky inclines, and meteor craters. Some of the design requirements were: a two person powered vehicle, the ability to compress the vehicle to fit into a 1.22m X 1.22m X1.22m (4'X4'X4')box, a driving and break system, a turning radius of 4.57m (15') and height off ground of 4.57m (15'). Overall, the competition allowed the team to apply their engineering knowledge through a hands-on project that tested the groups understanding and ability of engineering

Pesta Racheal Criminal Justice AM Session 1: 8:30-10:00 Humphrey Room

From 1990 - 2009 there have been a total of 770 homicides in Youngstown, Ohio. Most homicide studies tend to focus on the offender, however this research will focus on the victim. Particularly, the victim's demographic characteristics (age, race, and gender), conduct of the victim during the incident, and victim's prior criminal record. The focus has been shifted to the victim because some research poses that extralegal variables such as these will increase or decrease the likelihood of a conviction in that victim's own murder. It has been suggested by Baumer, Messner, and Felson (1999) that in particular a victim's race, gender, and conduct at the time of the incident affects the likelihood of their own murder to result in a conviction. Thus far, my research has only focused on the victim's prior criminal record to determine whether a connection exists between a prior criminal history and the likelihood of conviction.

Peterson Nicole Counseling PM Session 1: 1:30- 3:00 Ohio Room

As student affairs professionals in higher education, it is important to provide a positive learning experience for all students. LGBT students, especially transgender students, often fear being rejected and socially isolated based upon sexual orientation and gender expression. Beemyn (2004) implied while colleges and universities are making significant strides more needs to be done to make campuses more welcoming for the LGBT population. The purpose of this session is to provide an outline of the challenges transgender students face in college and ways to create a more welcoming campus climate through programming. Current programs being utilized by universities and the effectiveness of the programs will be discussed throughout the presentation. The session will discuss additional programs occurring at the university over the period of one week. The idea is for those in attendance to come

away with a more positive perspective about transgender students.

Ponnada Pradeepthi Chemistry PM Session 2: 3:30-5:00 Ohio Room
Formation of ternary complexes from metal ions and bioligands are considered to be models for substrate-metal ion-enzyme interactions and other metal mediated biochemical interactions. In these complexes two protons of dipeptides are detached while the dipeptides coordinates to metal ions as a tridentate chelate. These complexes were reported to have antitumor activity like diamminedichloroplatinum(II), Cisplatin and other pharmacological activities like with copper gained importance in cancer research. Amino acids or peptides were used based on the fact that carrier ligands are used for selective transport of anti-tumor active complexes formed using other metals like Co, Ni and Zn whose properties were determined by X-ray crystallography.

Popovich Nick Mathematics AM Session 2: 10:30-12:00 Ohio Room
Bйzier curves are a special class of curves, defined parametrically, that are applicable to numerous real-world situations. They are extremely easy to create and modify to fit particular preferences of appearance or mathematical requirements. Applications vary from their use in computer graphics to the design of automobiles. In this project, the mathematical construction of Bйzier curves is presented and a computer program has been developed to create examples, to illustrate properties, and to extend the concept to form Bйzier spline functions.

Porter Timothy History AM Session 1: 8:30-10:00 James Gallery
Franklin Roosevelt stated that December 7, 1941 is a date which will live in infamy when he addressed United States Congress shortly after the bombing of Pearl Harbor in Hawaii. However, that bombing of Pearl Harbor was more than just the beginning of the United States' involvement into the Second World War. It was also the beginning of a growth period for a small city in southern California that is today one of the largest cities in the United States. The growth can be attributed to the establishment of the United States military and the development of the Pacific Coast Fleet establishing San Diego, California as one of its major locations. This presentation will examine the influence of the United States military and more specifically the United States Navy's involvement in the development of San Diego.

Price Eric Biology PM Session 2: 3:30-5:00 Ohio Room
The thermally dimorphic fungus Penicillium marneffei is the etiological agent of the third leading cause of AIDS related death in Eastern Asia. The condition of Penicillosis caused by P. marneffei can be deadly if left untreated. This fungus is also dimorphic with changes in temperature. At 25 degrees Celsius, the fungus grows as a filamentous mold and at 37 degrees Celsius, the fungus begins growing as yeast. The technique of Agrobacterium mediated transformation was used to produce random T-DNA insertion mutants. Mutants with outward phenotypic defects were chosen to be characterized. Initially, the mutants were characterized phenotypically by slide culture techniques to discover if there were any differences in morphology as compared to the wild type at 25 degrees Celsius. The mutants were also grown at 37 degrees to determine if the mutation has an effect on the mechanism of dimorphism. The disrupted gene was then identified by amplification of the flanking regions of the T-DNA insertion through inverse PCR. The fragment was then sequenced to elucidate the function of the gene that was

Pupino James Mechanical Engineering PM Session 1: 1:30- 3:00 James Gallery
Machine Design Group Design Project Abstract. The project goal is to design a pressurized shell of a thick-walled cylindrical hydraulic actuator. These actuators are used in a broad variety of applications in heavy machinery fields. In the project the thickness of the cylinder must be determined for a range of factors of safety from 2 to 5 in order to be able to lift a static load of 14,000lbs from an inside wall pressure of 2000psi. Varieties of common materials used for designing hydraulic actuator shells in practical applications were analyzed for the optimal design choice. Using two different assumptions, one being thin-walled and the other being thick-walled cylinder design, stresses within the wall of the pressure vessel due to wall thickness were calculated. Although thin-walled cylinders were not specified to be analyzed in the problem, it was useful to do so for comparison with the final thick-walled choice. Analytical results were verified using COMSOL, a commercially available FEA software and were both

Quinn Aaron Industrial & Systems Engr PM Session 1: 1:30- 3:00 Ohio Room
Members of the methods engineering class in the industrial and systems engineering program at Youngstown State University worked with supervision and labor at a local food manufacturing company, Summer Gardens manufacturing. The students examined an area of concern for the manufacturer in order to document present efficiencies and make proposals for future improvements. Using a variety of

time study graphing and charting, and problem solving techniques the students were able to present management and workers with a number of viable options in a relatively short amount of time. The company, being familiar with the benefits of and employing a number of industrial engineers was very receptive to the activities and the proposals made. This QUEST presentation is the result of applying both technical and communication skills within an industry sponsored project.

Ragan Robert Electrical Engineering AM Session 2: 10:30-12:00 Ohio Room

Our LED display board, 8"x 6", is designed using numerous 5x7 LED matrices. We are designing the programming for each of the characters. Next, we will input it into a microprocessor that transfers it to our matrices. An integrated wireless device allows us to control the display from any web-accessible computer. The outcome of our device is to make communication between students, faculty and others

Ragan Nicholas Chemistry AM Session 2: 10:30-12:00 Ohio Room

Perovskite-related compositions in the K(AxCu1-x)F3 system were investigated, where A is the metal Mn+ or Ni+. The series K(AxCu1-x)F3, where x = 0.1, 0.2…0.9, were synthesized and characterized along with their ternary end-members by students in an undergraduate general chemistry laboratory as part of the Project REEL implementation at Youngstown State University during the fall, 2010 semester. This series has not been previously reported to our knowledge. The structure and composition were characterized hands-on by the students via X-ray powder diffraction and X-ray fluorescence, respectively, and this data will be presented.

Ragan Robert Electrical Engineering PM Session 1: 1:30- 3:00 Coffelt Room

A solar panel consists of three solar boards connected in series. Each board has 20 solar cells connected in series. The cells produces .5V individually and 30V overall. The solar panel will charge a battery that can power electric devices. The outcome of our solar panel is to learn about alternate energy sources and compare to practices in use today.

Raghanti David Mechanical Engineering Tech PM Session 2: 3:30-5:00 James Gallery

In my line of inquiry I am exploring the under workings of the Iconic self. With collaboration between departments I am examining the conceptual under workings of the Super Hero Persona. I am then presenting these concepts to my partner Jim Beck for dynamic problem solving, and we were able to create one shared vision for this project, The Power Ring. Through crafting my own unique super hero identity I am creating an alternate personality capable of realizing my final goal, transformation into the Iconic self. Then in practice I am creating a backlog of events, images, artifacts, and a continuing narrative driven towards authenticating this new aspect of self. This project then helps add to that validity by filling in the backlog of personal artifacts with this unique set of items. By combining artistic renderings with digital output machinery and injection molding we have taken the concept of the power ring and output it through different processes. The final result created two versions of the ring one-version a small set of four rings cast in bronze with detailed patinas applied to the surface. And the second A large production run of injection molded rings capable of being given away to viewers to commemorate performances, and other interactions with the iconic personality

Rahman A.B.M. Civil Engineering PM Session 1: 1:30- 3:00 Ohio Room

This paper demonstrates the use of an open source freely available symbolic mathematics package MAXIMA to solve mathematical problems in structural analysis. Maxima is a free software with a fairly complete computer algebra system written in lisp with an emphasis on symbolic computation. The calculations involved in analysis of determinate structures are simple and often can be solved by hand calculations. But most of the structures in real life are indeterminate, the solution process of which always involved complex calculations, matrix operations, differential and integral calculus etc and same is true for the deflection problems of both determinate and indeterminate structures. Structural analysis problems can be divided into two steps, first step is to develop the equations which can be of any type such as: matrix equation, differential equation or integral equation depending on the method adopted to solve the problem. Second step is to solve those equations for the unknowns which involve pure mathematical operations. In this presentation three examples of solving structural analysis problems using Maxima have been demonstrated. Three different methods (method of integration, slope-deflection method & stiffness method) have been adopted to solve three problems. It shows how to develop the necessary equations in maxima and how to solve these equations for unknowns applying appropriate Maxima commands. The accuracy of the results have also been justified by comparing with hand calculation results, which also implies that use of symbolic computation software reduces human

Raske Juren Elect Engr Comp Digital Opt PM Session 2: 3:30-5:00 Coffelt Room

The purpose of this design is to allow the remote operation of a full size vehicle through existing technologies. Applications of this design are, but not limited to, military use during combat operations where a human driver could become a liability or be exposed to an extremely high level of danger. Other applications include scientific operations where vehicle operation would be too dangerous for humans. The entire system includes hardware and software. Due to the specified nature of each of these, the project was divided amongst two teams to allow for a more specialized development. The hardware is designed as a human analog. Designing the system to mimic the way a human interacts with one vehicle will allow it to be used in other vehicles with little or no modification. Hardware will consist of pedal operators and a steering interface. Software will be run on a small laptop. It will be a small server designed to take commands from a remote station over the Internet. The software will pass the commands to a small controller board to interface with the hardware. A video feed will be sent back to

Ratliff Patricia Nursing AM Session 1: 8:30-10:00 Ohio Room

Patient safety and comfort is dependent upon nursing care. The procedures required to ensure safety and comfort need to be researched to provide nurses with evidence to support how they ensure comfort and safety needs wiill be met. The purpose of this poster is to present a review of literature surrounding the benefits of hourly patient rounding by nurses in hospital settings. This is one means by which nurses may help to ensure the safety and comfort of their patients. Hourly rounding occurs when nurses check on hospitalized patients each hour to ask them about their personal needs, level of pain, and need for repositioning if they are immobile. Hourly rounding has been shown to reduce falls, pressure ulcers, the amount of pain medicine required and reduce health care costs, as well as increase patient satisfaction. This poster describes rounding procedures, patient outcomes, and nursing procedures to provide evidence to support the use of hourly rounding in clinical nursing practice.

Rauschenbe Paul Industrial & Systems Engr PM Session 1: 1:30- 3:00 Ohio Room

Methods engineering students from the Industrial and Systems Engineering program worked with a local third tier automotive supplier, Treemen Industries. The students investigated the use of various methods engineering techniques to evaluate engineered work stations. Opportunities for process improvements were analyzed applying industrial engineering skills acquired from the program curriculum. The industrial partner, which produces metalized injection molded parts, was able to benefit from the involvement of the investigators toward meeting a number of lean initiatives in response to the automotive customer's need for continuous improvement in lead time reduction, on

Ray Jason History AM Session 1: 8:30-10:00 James Gallery

While doing research from many different sources on the topic of "Illegal Gambling in the world of Organized Crime", many thoughts could go through one's mind on this subject. Whether it is casino gambling, gambling house raids, money transactions, card games, larceny, lone sharking, etc., all of these can be traced back to some form of organized crime. Many of the stories and facts written throughout history zero in on the many different connections between organized crime and illegal gambling. This researcher can infer that after gathering information from the past, interviewing present day people, and examining present day scandals on this subject, that in fact there is more to organized crime than just death, gang warfare, drive by shootings, violence, etc. In fact, there are many factors that need to be examined when discussing this aspect of organized crime.

Reid Natasha Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery

This project tests the feasibility of a remote control crop dusting plane for commercial production and explores a wide range of engineering disciplines. To handle the complex nature of the project, it was divided into four distinct design areas: wing, fuselage, tail, and dispersal system. Three main design constraints were identified for each design area. First, for the wing, they were the lift characteristics, stress analysis, and ease of construction. Second, for the fuselage, they were stress analysis, the aerodynamic characteristics, and the ease of manufacture. Third, for the tail, they were the balance of vertical, horizontal and moment forces, the component sizing, and the ease of manufacture. Last, for the dispersal system, they were the stability in flight, the coordination of flight and spray time, and the spray characteristics. In order to meet the design constraints, advanced stress analysis, fluid dynamic analysis software, and experimentation were used. Finite element analyses using Fluent software were instrumental in the selection of the wing geometry, the engine, and the final orientation of the wing. Additional finite element analyses using Algor software were an integral part of designing the support structure for the wing, the fuselage, and the tail. Also, the experimentation guided the dispersal system design. Finally, the results were supported by manual calculations and research. The flight and spray

characteristics of the finished remote control crop duster were tested on a specifically devised course. The test results were recorded, analyzed and conclusions were drawn.

Reppert Benjamin Mechanical Engineering PM Session 1: 1:30- 3:00 James Gallery
A conveyor system operates on a continuous cycle with the loading and unloading of an engine block. The main components of the conveyor to be designed are the connecting pins and the horizontal hanger bar. In this particular problem, the hanger bar has a hole in each end for it to be pinned into the conveyor system. The hanger bar also has a hole in the middle of the bar for it to be pinned into the fixture that will hold the engine block. The load on each hanger is 85 lb from the fixture and a fluctuating load of 225 lb from the engine block for a maximum load of 310 lbs. The design was focused on maximizing the cycle life of the system due to the fluctuating shear stresses. The correction factors for theoretical fatigue strength for the material were used to calculate the corrected fatigue strength. The stress concentration caused by the pin holes was accounted for in the design. Goodman's criteria for fatigue failure were use in determining the cycle life using a factor of safety of 4. The results will then be

Restifo Adam Mechanical Engineering AM Session 2: 10:30-12:00 Ohio Room
Low powered lasers and LED light sources along with several types of filters and lenses were setup in a lab environment to allow mixing of the three primary colors (Red, Green, Blue) to make other secondary colors. Power meters and spectrometers were used to compare the actual radiative power from each light source with the intensity of the luminosity of the colors as perceived by the human eye. The project was chosen by our team in order to develop a better understanding of the science behind color mixing used in digital displays such as computer monitors and televisions, and to ultimately find a relationship between radiative power and human perception of light sources. An overview of the findings from our experiments will be presented at QUEST, which will include graphs and pictures showing the relative sensitivities of the human eye to different colors, as well as a mathematical model that best fits the

Ridzon Timothy Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery
Plastic tunnels, which serve as miniature greenhouses, are used to facilitate the early growth of crops during months when temperatures are low enough to cause frost. A mechanical tunnel layer attached to the back of a tractor can be utilized to save time creating the plastic tunnels. The front half of the machine bends wires into arches and inserts them into the ground at equal distances. The rear half of the machine simultaneously covers the arches with a continuous layer of clear plastic. The design process for the machine included creating 3-D models to modify dimensions as well as obtain the required motion. Elements that were designed included the frame, cam technology for bending and inserting the tunnel's support hoops, and a roller assembly to allow the plastic to be rolled from the machine. Analyses of stresses and deflections were done analytically and computationally using Algor, a Finite Element Analysis software package. The design presented improved upon mechanical limitations of such machines on the market. Variability of distance between hoops was addressed by allowing user-defined gear ratios. A clutch assembly was added to prevent movement of the hoop laying mechanism while transporting the machine. The machine can also be adjusted for use with plastic rolls of either 1.524 meters (5 feet) or 1.829 meters (6 feet). These changes in the machine design created

Rigney Cody Computer Science AM Session 2: 10:30-12:00 Ohio Room
Bйzier curves are a special class of curves, defined parametrically, that are applicable to numerous real-world situations. They are extremely easy to create and modify to fit particular preferences of appearance or mathematical requirements. Applications vary from their use in computer graphics to the design of automobiles. In this project, the mathematical construction of Bйzier curves is presented and a computer program has been developed to create examples, to illustrate properties, and to extend the concept to form Bйzier spline functions.

Roddy LesleyAnne Food & Nutrition Coordinated PM Session 1: 1:30- 3:00 Ohio Room

The eating habits of dietetics professionals and students often come under scrutiny as it is often believed that these groups are overly restrictive in their food choices. This prospective study aims to find a relationship between nutrition habits and choices, and the progression of students through dietetics programs at Youngstown State University. Dietetics students, ranked junior or senior, 18 years or older are eligible to participate in this study. A link to anonymous, self-administered questionnaires using Survey Monkey will be distributed to the students asking questions related to sociodemographics, anthropometrics, and eating habits. Consent to participate is implicit with completion of the survey. Data will be pooled for analyses and it is anticipated that > 75% of dietetics students will report making changes to their diets in response to knowledge gained in their course work, and > 50% will report observing the eating habits of others.

Rodriguez Annette Anthropology AM Session 1: 8:30-10:00 Humphrey Room

Darwin's Theory of Evolution has always been accompanied by controversy. Many people think accepting it will require them to give up their religious beliefs. Legal battles pertaining to teaching Evolution and teaching Creationism continue to this day. The debate over which one to teach has teachers reluctant to teach either. Both high school and college professors alike have noticed that students have many misconceptions about Evolution and that those misconceptions prevent them from successfully understanding it. This paper attempts to explore why students are not learning the sciences, mainly Darwin's theory, effectively. Is it their own beliefs that prevent them to open their mind to the ideas put forth by Evolution? Is it ineffective teaching? This paper will also explore Intelligence Design, a movement with a different view of Evolution, and how it impacts the teaching of science. Alternatives to deal with students' misconceptions and how to teach Darwin's theory without compromising students' beliefs will be offered. In other words, science and religion do not have to be

Rolston Kayla Psychology AM Session 1: 8:30-10:00 Jones Room

Developmental theories assert that both the role of the individual (the organismic component) and the role of the environment (the contextual component) interact to influence development, yet these factors are often separated when evaluating what contributes to students' academic development. Debate surrounds the influence of schools and more specifically teachers on students, and evaluating the impact of such variables in isolation provides a limited and unrealistic picture. This study sought to determine what component and encompassed variables had a larger influence on students' academic achievement when the interaction between them was accounted for. Through the use of data from the Ohio Department of Education and structural equation modeling, it was found that despite debate, schools and teachers do matter and in fact play a significant role compared to other variables. This finding has important implications for determining what factors should be manipulated to promote

Rovnak Samantha Mechanical Engineering AM Session 2: 10:30-12:00 Ohio Room

Low powered lasers and LED light sources along with several types of filters and lenses were setup in a lab environment to allow mixing of the three primary colors (Red, Green, Blue) to make other secondary colors. Power meters and spectrometers were used to compare the actual radiative power from each light source with the intensity of the luminosity of the colors as perceived by the human eye. The project was chosen by our team in order to develop a better understanding of the science behind color mixing used in digital displays such as computer monitors and televisions, and to ultimately find a relationship between radiative power and human perception of light sources. An overview of the findings from our experiments will be presented at QUEST, which will include graphs and pictures showing the relative sensitivities of the human eye to different colors, as well as a mathematical model that best fits the

Ruozzo Stephanie Music Education PM Session 2: 3:30-5:00 Jones Room

The folk music popularized by Bob Dylan in the 1960s is often viewed as a "folk revival." In my presentation, I argue against this interpretation in favor of regarding Dylan as the continuation of a legacy already well-established. I will examine the commonalities among Dylan's music and the folk music of other eras. In this examination, I would like to particularly emphasize the connection between Woody Guthrie and Bob Dylan. I will look at their lyrics (in form and content), influences, political beliefs/actions, and especially at the personal relationship between the two singers. Lastly, I will speak about the affect of Dylan's music on social awreness and activism in the 1960s; namely, what causes Dylan's music advocated and what his personal opinions about societal issues were. Through researching all of these aspects of Bob Dylan's music, I hope to prove that Dylan himself did not merely lead a revival, but kept the torch of a living and constantly evolving genre burning.

Russ Kelly Psychology AM Session 1: 8:30-10:00 Jones Room

Song and Schwarz (2009) found that difficult to pronounce words are perceived as unfamiliar due to low processing fluency. Additionally, such words are perceived as more risky, regardless of risk desirability, because of unfamiliarity (Song & Schwarz). In the present experiment, participants were presented with ten fabricated prescription drug names, which had been determined in a pilot study to be easy or difficult to pronounce. Additionally, typology divisions (hydrochloride- or sulfate-based) were included as a factor. Participants rated potential for side effects and perceived benefits (i.e., risk and risk desirability). Ease of pronunciation had a significant effect on perception of side effects, $F(2, 49) = 4.12$, $p = .048$, as well as on perception of benefits, $F(2, 49) = 14.41$, $p < .001$. Based on the findings of Song and Schwarz, a positive correlation between side effects and benefits was hypothesized. However, contrary to the hypothesis, perception of benefits decreased as risk perception increased.

Ryan Caitlyn Creative Writing AM Session 1: 8:30-10:00 Humphrey Room

Publishers of commercial audio language-learning programs have made impressive claims regarding the speed and extent to which consumers will acquire a second language, some going as far as to promise native-like proficiency. In an effort to interrogate these and other such claims, this study examined the performance of six subjects who participated in the Pimsleur Russian audio language-program. One native Russian speaker (NS) was recruited to record the first half of two different conversations. Conversation A exclusively contained words included in the Pimsleur program, while Conversation B utilized words in a less formal register that students might encounter in an authentic Russian-speaking environment. Subjects' responses to the Russian prompts were recorded, and the NS rated each subject's performance based on several criteria. Observation of the data revealed weak performances in both Conversation A (Pimsleur-supplied) and Conversation B (authentic), lending support to our hypothesis that commercial language programs overstate their efficacy. Although this study was limited in scope to six cases, the performance of subjects in relatively simple conversational situations was decidedly poorer than claimed by publishers of the Pimsleur program, which warrants cautious reliance

Ryan Caitlyn Creative Writing PM Session 2: 3:30-5:00 Humphrey Room

The Hoodie Chronicles is an experiment in voyeurism and perspective. This series of poems acts as a disembodied account of the lives our clothing lives, following a hooded sweatshirt as it passes between social classes and travels across continents.

Saborse Jacob Biology PM Session 2: 3:30-5:00 Breshnahan

Mobbing is a common response of prey birds to aggressively displace potential predatory birds. This response transcends lineages and empirical evidence indicates that auditory cues from one species elicit mobbing responses in the same and other species. Black-capped Chickadees (BCCH) vary the number and amplitude of notes in the "chick-a-dee" call to denote information about the level of threat a predator poses. However, culturally transmitted vocalizations are known to quickly diminish in populations of songbird species that become isolated or are small in size due to habitat fragmentation, potentially exacerbating their decline. We use this system as a model to study the cultural transmission of information important to prey survival and as a model of cultural breakdown in populations of species that are threatened by isolation via habitat fragmentation. This project will be replicated in areas containing populations of Eastern Screech Owls (ESOW) and in those lacking them to assess whether BCCH alarm calls have a learned cultural component. Regional dialects are learned in many songbirds, and locale-specific calls may uniquely convey information to members of the same mixed flock. If this is the case, alarm calls and mobbing responses to alarm calls should differ among locales, depending on whether they co-occur with ESOWs. If a high learned component to alarm calls emerges, this suggests management which increases the connectivity of otherwise isolated populations could be of strong conservation value to many songbirds in decline. Our data shows the number of "D" notes given by BCCHs in response to ESOWs varies depending on whether or not they co-occur with ESOWs.

Sammartino Michael Electrical Engineering PM Session 1: 1:30- 3:00 Coffelt Room

Micromouse is a robotics competition in which a team builds a relatively small autonomous robot with movements that resemble a mouse. This robot can not only navigate through a maze, but also calculates the most optimal route to the middle of the maze in a timely and efficient manner. By using infrared sensors on our robot we can track the location of a wall and designate the mouse to take the correct route. Using feedback from encoders and sensors we can program a 'checks and balance' routine so that our robot will stay approximately in the middle of the walls, not sidetracking and cutting corners which would decrease overall performance. We are using the Orangutan X2 Robotic controller made by Pololu and programmed with C language using a freeware software program called AVR Studio. The competition

is being held at the PAC, Professional Activities Conference, hosted by IEEE in Erie, PA.

Sarnowski Julie Counseling AM Session 1: 8:30-10:00 Ohio Room

Alcohol use and its consequences is a paramount concern to officials on college campuses. The purpose of this program was to facilitate an alcohol awareness educational program on a local college campus. Since most research supports harm reduction programming as opposed to more unrealistic abstinence based programs, the education program focused on impacting cognitions around alcohol consumption. The program entitled "Hall Crawl" mimicked a bar crawl type of event by having series of activities (e.g., root beer pong; wearing impairment goggles and applying condoms to bananas or shuffling playing cards) were designed to impact awareness regarding slowed reflexes, impaired judgment, unintended consequences resulting from use, healthy coping alternatives as well as information on the college's alcohol policy. The activities were facilitated in the lounges of four dorms on campus and snacks and prizes were part of the programming for additional participant incentives. Undergraduate college students with support from the Counseling Department facilitated these activities. Since this was the first program of its kind on the campus, data was collected regarding the number of participants who completed each activity as well as lessons learned (e.g., the dangers of social drinking, awareness of the role of impairment in simple tasks, and the risks of alcohol poisoning) throughout the program implementation. The Counseling Department is hoping to make this an annual event. This presentation will outline specific lessons learned for future implementation of similar programs.

Scacchetti Jarrett Electrical Engineering PM Session 1: 1:30- 3:00 Coffelt Room

Micromouse is a robotics competition in which a team builds a relatively small autonomous robot with movements that resemble a mouse. This robot can not only navigate through a maze, but also calculates the most optimal route to the middle of the maze in a timely and efficient manner. By using infrared sensors on our robot we can track the location of a wall and designate the mouse to take the correct route. Using feedback from encoders and sensors we can program a 'checks and balance' routine so that our robot will stay approximately in the middle of the walls, not sidetracking and cutting corners which would decrease overall performance. We are using the Orangutan X2 Robotic controller made by Pololu and programmed with C language using a freeware software program called AVR Studio. The competition is being held at the PAC, Professional Activities Conference, hosted by IEEE in Erie, PA.

Scheckelhoff Chris Chemical Engineering AM Session 2: 10:30-12:00 Ohio Room

Perovskite-related compositions in the K(AxCu1-x)F3 system were investigated, where A is the metal Mn+ or Ni+. The series K(AxCu1-x)F3, where x = 0.1, 0.2…0.9, were synthesized and characterized along with their ternary end-members by students in an undergraduate general chemistry laboratory as part of the Project REEL implementation at Youngstown State University during the fall, 2010 semester. This series has not been previously reported to our knowledge. The structure and composition were characterized hands-on by the students via X-ray powder diffraction and X-ray fluorescence, respectively, and this data will be presented.

Schumacher Richard Religious Studies AM Session 1: 8:30-10:00 Humphrey Room

The objective of this research paper is to link three specific ideas posited by the American Transcendentalists to what has become broadly known as New Thought Christianity. The specific ideas to be traced from their expression in Transcendentalism to what has become official or implied doctrine in the New Thought Christian world are, God is/as Mind, a divinity within humans and the action of the divine through spiritual law. In today's information driven society the worldwide viral spread of ideas can take place instantly via the internet. In the mid-nineteenth and early twentieth century, ideas moved a little more slowly. But the viral analogy is appropriate here. This project will connect the proponents of the ideas under consideration by demonstrating their contact with each other and thus allowing the ideas to spread the across the country. The connection among the key leaders of the New Thought Movement will be exposed in the following three ways. First the linkages will be shown through physical proximity to one another, second through documented patient-healer relationship or student-teacher relationships, and in one specific instance through a business relationship and marriage. Tracing the ideas from the Transcendentalists to Modern New Thought can only be accomplished through showing the thread of the ideas under consideration here running through the writing of the transcendentalists and founders of New Thought. It is their writings that will bind together the links that creates the chain progressive Christian thought that stretches from the early 1800s to today.

Seelman Adam Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery

This project tests the feasibility of a remote control crop dusting plane for commercial production and explores a wide range of engineering disciplines. To handle the complex nature of the project, it was divided into four distinct design areas: wing, fuselage, tail, and dispersal system. Three main design constraints were identified for each design area. First, for the wing, they were the lift characteristics, stress analysis, and ease of construction. Second, for the fuselage, they were stress analysis, the aerodynamic characteristics, and the ease of manufacture. Third, for the tail, they were the balance of vertical, horizontal and moment forces, the component sizing, and the ease of manufacture. Last, for the dispersal system, they were the stability in flight, the coordination of flight and spray time, and the spray characteristics. In order to meet the design constraints, advanced stress analysis, fluid dynamic analysis software, and experimentation were used. Finite element analyses using Fluent software were instrumental in the selection of the wing geometry, the engine, and the final orientation of the wing. Additional finite element analyses using Algor software were an integral part of designing the support structure for the wing, the fuselage, and the tail. Also, the experimentation guided the dispersal system design. Finally, the results were supported by manual calculations and research. The flight and spray characteristics of the finished remote control crop duster were tested on a specifically devised course. The test results were recorded, analyzed and conclusions were drawn.

Seiple Richard Industrial & Systems Engr PM Session 1: 1:30- 3:00 Ohio Room

A team of Industrial & Systems Engineering students performed a study of the manual labor content of distribution center workers. Using various techniques from the Methods Engineering course; work design was documented, performance levels were identified and the subject and surrounding work areas were characterized. From this initial analysis the investigation was aimed at uncovering opportunities for improvement in worker efficiencies, process value-added content and continuous improvement in productivity goals. Specifically, time study techniques, problem solving tools and operational best practices were applied to the situation and used for justification of all preliminary proposals.

Sethi Sumedha Biology PM Session 2: 3:30-5:00 Ohio Room

Penicillium marneffei is the only thermally dimorphic Penicillium species. It grows as a filamentous mold at room temperature 25°C producing a red pigment when grown for longer than 24 hours. When grown at 37°C, the fungus grows as unicellular yeasts which are known to act as pathogens to immunocompromized individuals causing a disease called Penicilliosis mainly in South-East Asia. The dimorphism may partially depend on up/down regulation of the cell division genes. Cell growth is highly regulated depending on the nutrition availability, temperature, stress situation and cell proliferation. Growth refers to increase in cell mass, which requires the positive regulation of anabolic processes and negative regulation of catabolic process. The chief cell growth gene studied for this study is TOR, also called Target Of Rapamycin is a serine/threonine protein kinase. The TOR signaling pathway is unconventional, non-linear, and has a nutrient sensing checkpoint capacity. TOR signal mRNA encodes the proteins necessary for cell growth and autophagy inhibition. This study explores the differences in gene expression between the Yeast and Mold phases at different time points. Starting from the morphology comparison from day 1 to day 5, both Yeast and Mold cultures have distinct structures. The RNA extracted using the QIAcube was used to check different primers designed for Tor, Yak and Actin as a reference gene. A gradient PCR was conducted to find the exact annealing temperature of Tor and Actin primers. A preliminary qRT-PCR was performed. Future studies include optimization of the qRT-PCR and

Sharma Nazuk Finance PM Session 1: 1:30- 3:00 Humphrey Room

A number of studies have been done to explore factors affecting the use of credit among college students. While some studies have proposed that risk factors may include financial knowledge & attitudes, personality characteristics & demographic or situational factors; others have used behavioral models for determining student credit & debt attitudes and thereby using the results in exemplifying compulsive buying behaviors, health & other psychological risks. Literature suggests using financial knowledge as a tool to moderate debt behavior and improving financial well-being. This study combines the suggested aspects wherein using causal modeling, it attempts to evaluate the effect of Perceived Financial Knowledge (PFK) and Financial Wellness (FW) on Financial Budgeting and Tracking (FBT) among college students. The FBT is also being examined as an affecter of student borrowing. The second part of the study assumes a behavioral role by using the PII (Personal Inventory Involvement) construct as a moderator of these relationships. The study follows a three stage process starting out with the literature review, and then administering a survey and finally, using the data collected via Survey Monkey for interpreting results with AMOS software package. The survey is in the process of being sent

out to approximately 300 undergraduate students in YSU. This study can help provide an insight into student debt attitudes using the involvement construct which has previously been used in the marketing literature to understand the decision making process. Using PII in financial context may provide a

Sines Charlie Industrial & Systems Engr PM Session 1: 1:30- 3:00 Ohio Room

A team of Industrial & Systems Engineering students performed a study of the manual labor content of distribution center workers. Using various techniques from the Methods Engineering course; work design was documented, performance levels were identified and the subject and surrounding work areas were characterized. From this initial analysis the investigation was aimed at uncovering opportunities for improvement in worker efficiencies, process value-added content and continuous improvement in productivity goals. Specifically, time study techniques, problem solving tools and operational best practices were applied to the situation and used for justification of all preliminary proposals.

Smaldino Chris Electrical Engineering AM Session 2: 10:30-12:00 Ohio Room

Our LED display board, 8"x 6", is designed using numerous 5x7 LED matrices. We are designing the programming for each of the characters. Next, we will input it into a microprocessor that transfers it to our matrices. An integrated wireless device allows us to control the display from any web-accessible computer. The outcome of our device is to make communication between students, faculty and others

Smith Andrew Physics AM Session 2: 10:30-12:00 Coffelt Room

Zinc Oxide (ZnO) is a transparent II-VI semiconductor with a direct band gap and has potential applications for making efficient optoelectronic devices such as laser diodes and light emitting diodes as well as in solar panels, taking advantage of its transparency. ZnO films have been deposited onto sapphire using radio frequency sputtering in different gases including nitrogen and different mixtures of argon and oxygen. The films were then annealed for different durations at 900°C and characterized using photoluminescence spectroscopy measurements with a HeCd laser to examine the crystal quality of the samples. The conditions that give the best quality film were for films deposited in 100% argon at 500°C. The optimum annealing conditions were 3 minutes and 5 minutes. Photoluminescence analysis yielded peaks at 377 nm for each sample measured at room temperature 368 nm at 10 K.

Smith Elliott Mechanical Engineering PM Session 1: 1:30- 3:00 James Gallery

A conveyor system operates on a continuous cycle with the loading and unloading of an engine block. The main components of the conveyor to be designed are the connecting pins and the horizontal hanger bar. In this particular problem, the hanger bar has a hole in each end for it to be pinned into the conveyor system. The hanger bar also has a hole in the middle of the bar for it to be pinned into the fixture that will hold the engine block. The load on each hanger is 85 lb from the fixture and a fluctuating load of 225 lb from the engine block for a maximum load of 310 lbs. The design was focused on maximizing the cycle life of the system due to the fluctuating shear stresses. The correction factors for theoretical fatigue strength for the material were used to calculate the corrected fatigue strength. The stress concentration caused by the pin holes was accounted for in the design. Goodman's criteria for fatigue failure were use in determining the cycle life using a factor of safety of 4. The results will then be

Smith Lynzie Family & Consumer Studies AM Session 1: 8:30-10:00 Ohio Room

Ultraviolet exposure, commonly referred to as tanning or sunbathing, has become a common practice. The risk of skin cancer is increased by UV exposure and decreased by sun protection. Many studies have touched on the topic of tanning, but few have included specific variables that affect motives for tanning, such as gender and ethnicity. It is important to investigate the motives, behavioral tendencies, and health risks related to tanning. The purpose of this quantitative research study is to examine the effects of tanning on body image. The study involved six factors that were previously identified: general attractiveness, media influence, family/friends influence, physical fitness appearance, acne reasons, and skin aging concerns. The results of the study showed that the main reasons for tanning were in the general attractiveness category, and the main reasons for people choosing not to tan were in the skin aging category. It was also found that males' reasons for tanning are in the physical fitness appearance category. The relevance of these findings to skin cancer prevention and future studies is discussed.

Smith Kathleen Chemical Engineering AM Session 2: 10:30-12:00 Jones Room

Bacteria produces butanol naturally. However, when the concentration of butanol gets too high in the fermentation broth, the excess causes the bacteria to die off. I studied the effect of octanol to remove excess butanol in order to keep the bacteria thriving. Because water and octanol are immiscible, the upper octanol layer will "pull" the butanol from the lower aqueous layer. There are two important questions that I am seeking to answer: How effective is the octanol at removing the butanol from the aqueous phase, and how long does the process of removal take? To address the first question, I turned to ChemCAD, a software program that allowed me to simulate a distillation column to predict the theoretical concentrations of each chemical in the two layers. The ChemCAD software predicted that octanol was able to remove the butanol from the water more effectively when compared with my data from the Gas Chromatographer (GC). Using an equal mass of ethanol as a basis, I made calibration curves for each compound, which enabled me to analyze samples where the initial concentration was unknown. I am still in the process of answering the second key question, that is, how fast the octanol can react to effectively extract the butanol from the aqueous layer. Using the GC to analyze the concentration of butanol in the aqueous layer, I assembled an apparatus containing a beaker with water and octanol and I injected varying known amounts of butanol to the aqueous layer. By varying the amount of butanol added as well as the time interval at which I gathered samples from the aqueous

Snider Charles Physics AM Session 2: 10:30-12:00 Coffelt Room

When two coherent beams of light interact with an atom they tend to drive the atom to a non-absorbing state through a process called Electromagnetically Induced Transparency (EIT). If the light's frequency dithers, the atom's state stochastically moves in and out of this non-absorbing state. We describe a simple quantum optics model of this process that captures the essential experimentally observed statistical features of this EIT noise, with a particular emphasis on understanding power broadening.

Snyder Carrie Applied Behavior Analysis AM Session 1: 8:30-10:00 Jones Room

As we age, certain predictable but avoidable changes occur. One change being that older adults come to rely on others for more and more of their daily care. Maintaining functional independence, to the extent that it's desirable, increases life satisfaction. The goal of this study was to increase independent dressing behavior for 6 residents diagnosed with cognitive impairments. A multiple baseline design was used to evaluate the effects of a brief training procedure for nursing staff in an assisted living facility to implement the System of Least Prompts (SLP) procedure. Generalization of independent behavior to an untargeted ADL was also assessed. A significant increase in independent dressing behavior and generalization of independent behavior to an untrained ADL was evident. Notably, resident dressing time did not increase following implementation of the SLP procedure. These results provide evidence of the effectiveness and efficiency of SLP in increasing independent behavior for older adults with cognitive

Solic Anthony Electrical Engineering PM Session 1: 1:30- 3:00 Coffelt Room

To send 2,700 MW of bulk power for 8 hours to Nevada and California thru a 500 kV bipolar DC transmission line. This transmission line will be used to send power that was stored in the Norton Compressed Air Energy Storage (CAES). This facility will store energy during off peak times that will be sold to Nevada or California during peak time. This project will take into account the differences in the cost of electric during time of day and each part of the country. I will also discuss DC interconnects and how they play an important roll in sending power from east to west and vice versa. I will also show how this transmission line will be able to provide black start help in the event of a blackout in the east or west. DC and AC power have significant differences when it comes to transmitting power. I will discuss some of the differences which will help choose a design to transmit up to 3,000 MW of bulk power over

Stacy Rose Counseling PM Session 1: 1:30- 3:00 Ohio Room

Bullying is an issue within schools nationwide. "Bullying affects a large number of children and lays the groundwork for long-term risk for psychological, physical, and psychosomatic outcomes" (Vanderbilt and Augustyn, 2010). Students are especially influenced by bullying due to their already vulnerable developmental state. Bullying also presents short and long term effects on students who witness or participate in bullying behaviors. In addition, the effect that bullying has on students are long-lasting and can become permanent changes in the self-perception of their lives. This presentation will address the multiple effects that bullying in the areas of academics, personal, and social development as well as introduces strategies and techniques to help reduce bullying behaviors within schools.

Stanek Joe Mathematics AM Session 2: 10:30-12:00 Ohio Room

Encryption is the process of converting information into code and decryption is the process of converting the code back into the information. We studied RSA Encryption/Decryption, a widely used public-key cryptosystem that takes advantage of the difficulty in factoring large numbers as a product of prime numbers. We present the mathematics that this specific cryptosystem utilizes as well as provide a basic example of how the RSA process works.

Stanish Michael Electrical Engineering PM Session 1: 1:30- 3:00 Coffelt Room

Our team consisting of Michael Stanish, J.R. Harvey and Audria Grubbs will be attempting to design and build an underwater speaker that will resonate a clear sound heard underwater. To do so we will be acquiring the materials needed. A basic speaker will be used with the face of the speaker covered with a waterproof flexible material. We will then cut into the side a clear plastic tub placing the speaker face into this hole and sealing with a waterproof caulking. To send a clear sound through water we will be multiplying the frequency at which the signal is sent. After building the speaker, tests will be run to ensure safety and the precision of our design. To demonstrate the functionality of our design we will transmit audio frequencies that could be heard if one were to hypothetically submerge themselves in the water. We will need a table to set the demonstration on, a projector and a screen to display the

Sternagle Devin Chemical Engineering AM Session 2: 10:30-12:00 Coffelt Room

Etching is a very pivotal process in the fabrication of microelectronic and optoelectronic devices and involves highly reactive gas plasmas that are made to impinge on the semiconductor surface and physically or chemically remove the unwanted part of the materials. The goal of this project was to investigate the etch rate of silicon carbide (SiC) and gallium nitride (GaN) semiconductors using sulfur hexafluoride (SF6) gas. The etching machine used in this project was the Plasmaline Etching system equipped with a 300 watt radio frequency power supply. The GaN and SiC samples were patterned with a photoresist via photolithograpghy and then had 100 nm aluminum and 100 nm gold etching mask deposited on top of them. The samples were then plasma etched in SF6 for several hours. During the etching, the gas pressure was kept at 0.3 Torr and the sample was cooled using flowing water. The residual etch mask was removed and the etched step measured using the atomic force microscope. We will present the etch rate obtained and this will be compared to the published etch rate for these

Strahin Brandon Mechanical Engineering PM Session 1: 1:30- 3:00 James Gallery

A conveyor system operates on a continuous cycle with the loading and unloading of an engine block. The main components of the conveyor to be designed are the connecting pins and the horizontal hanger bar. In this particular problem, the hanger bar has a hole in each end for it to be pinned into the conveyor system. The hanger bar also has a hole in the middle of the bar for it to be pinned into the fixture that will hold the engine block. The load on each hanger is 85 lb from the fixture and a fluctuating load of 225 lb from the engine block for a maximum load of 310 lbs. The design was focused on maximizing the cycle life of the system due to the fluctuating shear stresses. The correction factors for theoretical fatigue strength for the material were used to calculate the corrected fatigue strength. The stress concentration caused by the pin holes was accounted for in the design. Goodman's criteria for fatigue failure were use in determining the cycle life using a factor of safety of 4. The results will then be

Suter Bill Prof Writing & Editing PM Session 2: 3:30-5:00 Humphrey Room

One of the goals of our graduate student research project for the Methods of Composition Research course (ENGL 6901) at Youngstown State has been to apply ethnographic research methods to answer the following question: "What is college-level writing?" We, as a student research group, have agreed to focus on answering this question by applying it to the various disciplines throughout our college campus.

To identify and discuss our own experiences and roles as investigators, we have agreed as a class to note our biases and include, but not limit, all the various types of writing at the college level. Although there are a multitude of programs at YSU, we feel there should be some expectations in common in terms of how college level writing is defined by each department: "How we do research, like how we teach, reflects our underlying assumptions about human nature and learning" (Calkins, xiii). This presentation will review the methods in which our class has gathered the required data to answer the question at hand. In addition, the data gathered thus far will be discussed and analyzed in an attempt to determine what Youngstown State University currently considers 'college-level' writing to be. As our research is currently ongoing, we hope to both review the current material collected and gather additional data during this presentation that may be used for potential feedback in this project.

Swisher John Elect Engr Comp Digital Opt PM Session 1: 1:30- 3:00 Coffelt Room

Our project is based on the concept of a compressed air power plant proposed for the Norton Mine in Norton, Ohio. Through out history the difficulty of energy is storage. Many concepts have been developed in an attempt to solve this issue, but many have been inefficient. Currently First Energy is proposing building a compressed air system to store air during low energy demand times for the use during peak hours. Our project is a small demonstration of the technology involved. This concept uses compressed air in hopes to be more efficient than current energy concepts, such as water, and battery. This concept is much greener than alternative of having no storage systems on our power grid.

Tatebe Caleb Chemistry AM Session 2: 10:30-12:00 Ohio Room

Perovskite-related compositions in the K(AxCu1-x)F3 system were investigated, where A is the metal Mn+ or Ni+. The series K(AxCu1-x)F3, where x = 0.1, 0.2…0.9, were synthesized and characterized along with their ternary end-members by students in an undergraduate general chemistry laboratory as part of the Project REEL implementation at Youngstown State University during the fall, 2010 semester. This series has not been previously reported to our knowledge. The structure and composition were characterized hands-on by the students via X-ray powder diffraction and X-ray fluorescence, respectively, and this data will be presented.

Taylor Tiffany Nursing BSN PM Session 1: 1:30- 3:00 Room 2068

Nursing students from the Bitonte College of Health and Human Services will describe life changing cultural study abroad immersion experiences from traveling to Mexico to provide healthcare in a rural community where it is virtually non-existent. They traveled with faculty and healthcare professionals and volunteers from Ohio Medical Clinic Missionaries, and became an integral part of the healthcare team. They worked with Mexican community leaders to set up and operate a clinic from a church in San Quintin, Mexico. They developed nonverbal communication abilities and had to work through interpreters and use critical thinking as they adapted to the culture and environment. Students earned clinical course credit as they administered care to Mexican patients and were able to compare and contrast values, beliefs, health practices and ways of life to their own. Students identified the components of a comprehensive cultural assessment. Students administered care integrating patterns of human behavior that demonstrates respect and value of each Mexican patient. These experiences reflect the mission of the Youngstown State University and Bitonte College of Health and Human Services "to foster an understanding of diversity, sustainability and global perspectives". Students will share their experiences through a slide presentation with pictures and stories of study abroad in Mexico.

Terzak John Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery

One of the most pressing issues with the operation of wind turbines is that the majority of the Earth's surface area does not provide sufficient wind velocity to economically operate a wind turbine on a regular basis. This, coupled with the failures of gearboxes caused by wind jerk, or rapid changes in acceleration, has made wind turbines impractical for the majority of the planet. In attempting to solve these problems, the use of TRIZ (Theory of Inventive Problem Solving) by Genrich Altshuller was implemented. TRIZ is a method of inventive thinking that leads the user to a convergent solution. This is a large improvement over the standard methods of problem solving, such as brainstorming, outside influence, and trial and error; because these methods are divergent and take a substantial period of time to find a solution. TRIZ produced the idea to use a hydraulic transmission to replace the standard transmission used in wind turbines, which consists of a series of gearboxes designed to produce operational rotational speeds at the generator. The generator is optimally run at a constant speed. The TRIZ process used mechanical contradictions to identify possible solutions to these contradictions. One such solution was the use of hydraulic components to design a hydraulic transmission that used load sense control to take the variable input from the wind and produce a constant output. Conceivably, this

Thatikunta Meena Biology Pre Medical PM Session 2: 3:30-5:00 Jones Room

Bharata Natyam, a classical Indian dance style, was conceived 2,000 years ago. The dance has not only managed to survive, but has flourished. Bharata Natyam's enduring presence begs the question: What sustains Bharata Natyam in contemporary society? More explicitly, how has Bharata Natyam maintained relevancy? The presentation will discuss the reinvention of Bharata Natyam in modern society to answer these questions. First, the presentation will survey Bharata Natyam's intent and movement, as practiced during its Renaissance period, to gain an understanding of Bharata Natyam's historical conceptualization. Then the presentation will explore present-day or contemporary Bharata Natyam. Analysis of modern choreographers and their works will be used to explicate the secularization, democratization, and vocabular expansion of the dance form. To conclude the presentation, a self-

choreographed piece will be performed to demonstrate application of the discussed contemporary ideals. Explanation of the creative liberties and influences present in the piece will further emphasize the modernization of Bharata Natyam. Contemporary Bharata Natyam will reveal itself as a testament to the form's versatility and endurance as an ever-relevant medium of expression.

Thomas Dylan Biology Pre Medical AM Session 2: 10:30-12:00 Ohio Room

Sludge containing vinyl chloride (VCM) had been indiscriminately dumped in landfills that had no liners of other engineering controls. Leachate from the sludge infiltrated into water-supply aquifers. VCM is a known human carcinogen that targets the liver. Superfund sites that contain VCM as a contaminant of concern (COC) are located in counties/states that have elevated incidences of liver cancer. This study compares counties/states where liver cancer incidence is high and seeks to link this disease with possible long-term (chronic) ingestion of drinking water containing vinyl chloride, even at concentrations lower than levels that are considered safe (MCLs).

Torres Edwin Finance PM Session 1: 1:30- 3:00 Humphrey Room

The issue of whether changes in firms' earnings are associated with changes in CEO pay have been well-documented. However, recently, firms have been holding increasingly higher levels of excess cash flow on their balance sheets. Firms may be holding excess cash as an investment strategy to signal that the financial position of the firm is good. On the other hand, excess cash could also signal that the firm is not expanding in terms of growth due to poor investment opportunities and, therefore, not acting in the best interests of shareholders. In the present study, I examine whether these large cash balances held by firms are related to changes in CEO compensation. Using twenty large-cap, U.S. publicly-traded firms for the period 2006-2007, I determine whether the level of cash is associated with changes in CEO pay using OLS multiple regression. CEO compensation is decomposed in terms of changes in salary, bonus, stock options, and total compensation. Cash flow measures consist of free cash flow and cash from operating, investing, and financing activities. The results provide preliminary evidence that increases in free cash flow balances are positively associated with increases in total CEO compensation. Moreover, the results show that free cash flow provides additional information beyond earnings in its relation to total CEO

Toth Molly Anthropology AM Session 2: 10:30-12:00 Breshnahan

The island of San Salvador in the Commonwealth of the Bahamas, once home to the Lucayan Indians, is purported to have been the first place Christopher Columbus landed in the New World. Since 1995, Youngstown State University students have excavated a prehistoric Lucayan site at North Storrs Lake on San Salvador under the direction of Principal Investigator, Thomas Delvaux. Excavations since the project's inception have yielded Palmetto wear pottery, beads made of shell, remnants of various fauna, as well as both worked and unworked trade items, suggesting that the Lucayan were involved in trans-oceanic trade as the producers of finished goods for export. In December of 2009, a preliminary, descriptive study was undertaken to examine an assemblage of human skeletal remains housed at the Gerace Research Centre on San Salvador. Research was resumed in December of 2010 with the primary goal of conserving the remains, and a secondary goal of creating an inventory of all skeletal materials present, determining the Minimum Number of Individuals (MNI) in the collection, creating a biological profile using metric and non-metric analysis, and inventorying skeletal pathologies and trauma when appropriate. Of the thirteen skeletal elements present, the skull yields the greatest insight into the life of the individual; it is from the skull that estimations of ancestry, age at time of death, sex, and health can be made. The presence of cradle boarding resulting in a flattening of the frontal and occipital bones suggests that this individual was of Lucayan ancestry.

Trimbur Richard Marketing Management AM Session 1: 8:30-10:00 Humphrey Room

Consumer behavior is an ever-changing science that needs to be mastered by any business in order to thrive. Similar to most others, the retail marketing industry has had to successfully forecast consumer needs and wants or have had to have the ability to adapt quickly to them. Most retail stores are able to do so by specializing in a selection of offerings. One store has gone above and beyond the realm of the normal retailer by creating a location that encompasses almost every possible product and service imaginable. Harrods Department Store, located in the Knightsbridge region of London, has emerged as the worldwide leader in retailing, offering arguably the world's widest selection of products and services of any single standing location. Embodying the motto, "All Things for All People, Everywhere," Harrods is said to carry every product "from a pin to an elephant". A recent W.C.B.A. study tour to London led YSU students to wonder,"How can a retail marketing giant exist successfully in a global business world at a single location without strong online driven sales?" By examining the uniqueness of Harrods Department Store and viewing what factors have contributed to its success, the answer to this question can be more

easily assessed. This research takes an in-depth view of how Harrods manages customer relations, supply chain logistics, pricing strategies, as well as growth strategy and potential.

Truitt Christopher Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery
Plastic tunnels, which serve as miniature greenhouses, are used to facilitate the early growth of crops during months when temperatures are low enough to cause frost. A mechanical tunnel layer attached to the back of a tractor can be utilized to save time creating the plastic tunnels. The front half of the machine bends wires into arches and inserts them into the ground at equal distances. The rear half of the machine simultaneously covers the arches with a continuous layer of clear plastic. The design process for the machine included creating 3-D models to modify dimensions as well as obtain the required motion. Elements that were designed included the frame, cam technology for bending and inserting the tunnel's support hoops, and a roller assembly to allow the plastic to be rolled from the machine. Analyses of stresses and deflections were done analytically and computationally using Algor, a Finite Element Analysis software package. The design presented improved upon mechanical limitations of such machines on the market. Variability of distance between hoops was addressed by allowing user-defined gear ratios. A clutch assembly was added to prevent movement of the hoop laying mechanism while transporting the machine. The machine can also be adjusted for use with plastic rolls of either 1.524 meters (5 feet) or 1.829 meters (6 feet). These changes in the machine design created

Ugrin John Industrial & Systems Engr PM Session 1: 1:30- 3:00 Ohio Room
A series of investigative exercises were performed by process improvement engineers from the Methods Engineers class in the industrial and Systems engineering program. Northern States Metals is a leader in alternative energy solutions via their contribution to the solar panel construction and implementation industry. Using both classic and modern computer-based video techniques manual work content was quantified and opportunities for process improvement were identified. The students were able to see how work design improvements affect not only the subject work area but also the related work areas feeding into and following the subject work area. The students gained experience dealing with the supervisory and labor work forces and established a foundation for personal communication skills growth development. Thus, this QUEST presentation is the culmination of exercises both technical and professional exploration, discovery, and growth.

Vemuri Sruthi Civil Engineering AM Session 2: 10:30-12:00 Jones Room
Constructed wetlands are mainly used for the reduction of sediment and nutrient loading into the water bodies. The research is being conducted on a pond located in Columbiana County, OH. The pond has been affected by high concentration of nutrients entering the pond, causing heavy growth of algae and duckweed. After rainfall events, the inflow frequently carries high concentrations of nutrients and suspended solids into the pond. There are different nutrients entering the pond, but the main concern and focus is phosphorus. The constructed wetland which was built above the pond helps to reduce the sediment and nutrient loading to the pond. A well formulated research plan is being followed to support the project. First, a preliminary water quality survey was conducted to measure the nutrient and oxygen levels as well as algal biomass in the pond. During the research the goal is to identify equations which can predict how the wetland removes phosphorus. The final phase will be postconstruction monitoring to measure the reduction in nutrient levels and to evaluate the accuracy of model predictions. The ultimate objective is to make the pond less productive and more aesthetically appealing.

Verde Andrea Food & Nutrition Coordinated PM Session 1: 1:30- 3:00 Ohio Room
The eating habits of dietetics professionals and students often come under scrutiny as it is often believed that these groups are overly restrictive in their food choices. This prospective study aims to find a relationship between nutrition habits and choices, and the progression of students through dietetics programs at Youngstown State University. Dietetics students, ranked junior or senior, 18 years or older are eligible to participate in this study. A link to anonymous, self-administered questionnaires using Survey Monkey will be distributed to the students asking questions related to sociodemographics, anthropometrics, and eating habits. Consent to participate is implicit with completion of the survey. Data will be pooled for analyses and it is anticipated that > 75% of dietetics students will report making changes to their diets in response to knowledge gained in their course work, and > 50% will report observing the eating habits of others.

Vesey Cory Mechanical Engineering PM Session 1: 1:30- 3:00 James Gallery
Machine Design Group Design Project Abstract. The project goal is to design a pressurized shell of a thick-walled cylindrical hydraulic actuator. These actuators are used in a broad variety of applications in

heavy machinery fields. In the project the thickness of the cylinder must be determined for a range of factors of safety from 2 to 5 in order to be able to lift a static load of 14,000lbs from an inside wall pressure of 2000psi. Varieties of common materials used for designing hydraulic actuator shells in practical applications were analyzed for the optimal design choice. Using two different assumptions, one being thin-walled and the other being thick-walled cylinder design, stresses within the wall of the pressure vessel due to wall thickness were calculated. Although thin-walled cylinders were not specified to be analyzed in the problem, it was useful to do so for comparison with the final thick-walled choice. Analytical results were verified using COMSOL, a commercially available FEA software and were both

Vesey Cory Mechanical Engineering AM Session 2: 10:30-12:00 Ohio Room
Low powered lasers and LED light sources along with several types of filters and lenses were setup in a lab environment to allow mixing of the three primary colors (Red, Green, Blue) to make other secondary colors. Power meters and spectrometers were used to compare the actual radiative power from each light source with the intensity of the luminosity of the colors as perceived by the human eye. The project was chosen by our team in order to develop a better understanding of the science behind color mixing used in digital displays such as computer monitors and televisions, and to ultimately find a relationship between radiative power and human perception of light sources. An overview of the findings from our experiments will be presented at QUEST, which will include graphs and pictures showing the relative sensitivities of the human eye to different colors, as well as a mathematical model that best fits the

Vitullo Tyler Elect Engr Comp Digital Opt AM Session 2: 10:30-12:00 Ohio Room
Our LED display board, 8"x 6", is designed using numerous 5x7 LED matrices. We are designing the programming for each of the characters. Next, we will input it into a microprocessor that transfers it to our matrices. An integrated wireless device allows us to control the display from any web-accessible computer. The outcome of our device is to make communication between students, faculty and others

Wagner Ashley Information Technology AM Session 2: 10:30-12:00 Ohio Room
Bйzier curves are a special class of curves, defined parametrically, that are applicable to numerous real-world situations. They are extremely easy to create and modify to fit particular preferences of appearance or mathematical requirements. Applications vary from their use in computer graphics to the design of automobiles. In this project, the mathematical construction of Bйzier curves is presented and a computer program has been developed to create examples, to illustrate properties, and to extend the concept to form Bйzier spline functions.

Waldinger Sarah Biology AM Session 2: 10:30-12:00 Ohio Room
Sludge containing vinyl chloride (VCM) had been indiscriminately dumped in landfills that had no liners of other engineering controls. Leachate from the sludge infiltrated into water-supply aquifers. VCM is a known human carcinogen that targets the liver. Superfund sites that contain VCM as a contaminant of concern (COC) are located in counties/states that have elevated incidences of liver cancer. This study compares counties/states where liver cancer incidence is high and seeks to link this disease with possible long-term (chronic) ingestion of drinking water containing vinyl chloride, even at concentrations lower than levels that are considered safe (MCLs).

Warren John Chemistry AM Session 2: 10:30-12:00 Ohio Room
Glutathione metabolism differs amongst humans and bacteria and has the potential to be a good target for antibacterial agents. Within Escherichia coli, glutathione can form an amide bond with spermidine to produce the conjugate glutathionylspermidine. This reaction is catalyzed by the enzyme glutathionylspermidine synthetase/amidase. Three genes, gsp, ygiC and yjfC have previously been identified and proposed to be associated with glutathionylspermidine metabolism; however, the specific function of ygiC and yjfC has yet to be determined. The objective of this research is to eliminate these genes from the E. coli genome and evaluate the responsiveness of the knockout strains to various stress conditions. Corresponding genes were replaced by antibiotic resistance genes through homologous recombination. Once the gene disruptions have been achieved, the antibiotic resistance gene was eliminated utilizing a helper plasmid pCP20. The techniques used to create gene disruptions, or knockouts, include polymerase chain reaction and electroporation. Seven strains have been created: single knockout (gsp, ygiC, or yjfC), double knockout (gsp/ygiC, gsp/yjfC, or ygiC/yjfC), and triple knockout (gsp/ygiC/yjfC). The susceptibility of the original and knockout strains of bacteria to different stress

Wasser Melissa Political Science PM Session 1: 1:30- 3:00 Humphrey Room

In recent years, illegal immigration has been a hot button issue in the United States. While most agree that this issue deserves attention, consensus dissolves around how to respond to the problem. Illegal immigrants have been coming to this great country for centuries; America is a country of immigrants. In Arizona, the state senate has introduced a bill called Senate Bill 1070 (SB 1070), which would require any person stopped by police to prove that they live in the United States legally by showing registration papers or a form of identification. Critics argue that this is a form of racial profiling, as police are pulling some over solely on the basis of race and ethnicity to check their legal status. Others say that Arizona is taking matters into their own hands by creating their own law to combat illegal immigrants because the federal government hasn't done enough to protect the border with Mexico. Currently, the United States Justice Department has filed a lawsuit that temporarily blocked Arizona's implementation of SB 1070 under a violation of the Supremacy Clause in the U.S. Constitution. This paper will examine the history of immigration and the journey of SB 1070 in Arizona. This will lead to an examination of the constitutionality of the law and a look at the court battles that will surround this controversial piece of legislation. Some questions that the author will address are: Why is Arizona's SB 1070 unconstitutional? Should the enforcement of immigration be held solely in the hands of the federal government or should states be enforcing this law? Or is Arizona forced to take matters into their own hands because of the

Weathersp Christena Geography AM Session 2: 10:30-12:00 Breshnahan

Water is a chemical substance used to sustain nearly all forms of life on Earth, and covers nearly 70% of the Earth's surface. Although Earth is comprised mostly of water, 97% of Earth's water is saltwater; fresh water is a mere 3%. Industrialization, urbanization along with population pressures on clean water resources makes it a more important resource than oil; as clean fresh water is a basic human right. Norway, Canada, and Peru are soon to become major economic players due to their rich water sources. Areas of the United States, particularly southwest, do not have enough water to support current lifestyles. Conversely, areas such as the northeast United States water is readily available. This have and have not scenario is not exclusive to the United States and does occur throughout the world, such as with India and Pakistan. Industrialization and urbanization, along with global climate change further exacerbate the contrasting conditions that exist. This presentation discusses the physical characteristics that create water have and have not regions as well as the social, economic and political concerns associated with water use, depletion and demand. Two case studies presented illustrate the water concerns and relations between India and Pakistan, and Canada and the United States.

Weaver Mike Information Technology AM Session 2: 10:30-12:00 Ohio Room

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Weaver Melinda Respiratory Care AM Session 1: 8:30-10:00 Coffelt Room

Background: Dyspnea scales are used to subjectively evaluate functional limitations due to dyspnea in patients with chronic obstructive pulmonary disease (COPD). The primary purpose of this study is to compare two different commonly used dyspnea scales, the Modified Medical Research Council (MMRC) and the Modified Borg Scale (MBS).We hypothesize that COPD patients can more easily rate dyspnea level with the MMRC than those patients who use the MBS. Methods: Patients between the ages of 21 to 85 years with a diagnosis of COPD and current pulmonary rehabilitation prescription were recruited. Subjects were instructed to document their level of breathlessness at rest and two minutes after completing their first prescribed exercise using the MBS and MMRC dyspnea scales. The dyspnea ratings for each scale before and after graded exercise and patient preferences for ease of use were recorded. Descriptive statistics were used to report results. Results: Twenty-five patients, ages 62 to 92 years, mean, 71.2 years (+SD 8.7) participated. Most were male (56%). Fifty two percent of subjects found the MMRC easier to use. The majority of patients, 52%, reported the MBS more accurately described their dyspnea level. Conclusions: The MMRC is an easy tool to use, but not perceived as a scale that accurately describes dyspnea levels in patients with chronic disease during exercise.

Webber Aliesha Nursing BSN PM Session 1: 1:30- 3:00 Room 2068

Nursing students from the Bitonte College of Health and Human Services will describe life changing cultural study abroad immersion experiences from traveling to Mexico to provide healthcare in a rural community where it is virtually non-existent. They traveled with faculty and healthcare professionals and volunteers from Ohio Medical Clinic Missionaries, and became an integral part of the healthcare team. They worked with Mexican community leaders to set up and operate a clinic from a church in San Quintin, Mexico. They developed nonverbal communication abilities and had to work through interpreters and use critical thinking as they adapted to the culture and environment. Students earned clinical course credit as they administered care to Mexican patients and were able to compare and contrast values, beliefs, health practices and ways of life to their own. Students identified the components of a comprehensive cultural assessment. Students administered care integrating patterns of human behavior that demonstrates respect and value of each Mexican patient. These experiences reflect the mission of the Youngstown State University and Bitonte College of Health and Human Services "to foster an understanding of diversity, sustainability and global perspectives". Students will share their experiences through a slide presentation with pictures and stories of study abroad in Mexico.

Wheeler Janna Art Studio General Fine Art Op PM Session 2: 3:30-5:00 Jones Room

My work has inspired me to explore portraiture through mundane and overlooked objects. Objects sometimes offer human-like qualities: the individuality of a door's wood grain similar to fingerprints, the voluminous padding and curves in a wing-tufted chair similar to the body, the abrasions and apparent wear of a door knob similar to wrinkles of aging skin. Also, evidence of human interaction gives the subjects attitude and character that influences my motivation to visually portray certain objects. The challenge of capturing realism and texture in a manner that provokes the question of reality drives my process. Subjects are carefully chosen and placed in a staged environment with dramatic lighting, and photographed at desired angles and perspectives to fully capture potential; behold, the painting will have already begun before paint touches the surface of the canvas. Paint application is controlled with several thin layers of glaze to enhance visual complexity of space and perception. Balance is achieved by giving light more opacity than other areas of the painting. Intense and dramatic contrast of light and dark within my work carries both formal and conceptual weight. Natural light can create advanced theory involving an unsteady cast shadow that suggests passage of time, thus age. This interest is an outgrowth of my fascination with the concept of absence and presence and the boundaries of the physical and

White Laura Psychology AM Session 1: 8:30-10:00 Jones Room

Breast cancer has affected the lives of many people. According to the National Cancer Institute approximately 1 in 8 women will be diagnosed with breast cancer at some point in their life. This study is designed to investigate the emotional experiences of women between the ages of 20-35 who have received a breast cancer diagnosis. Differences in the experience and regulation/management of emotions from initial diagnosis until the end of the treatment process will be investigated. Each woman will be required to complete a survey at least 4 days per week in order to assess: 1) emotions experienced; 2) change in emotions over time; 3) how emotions are managed at each stage of treatment.

It is hypothesized that young women with breast cancer will feel a wide range of negative emotions very strongly after their diagnosis due to a low emotional acceptance. Whether or not the intensity of these emotions persists will be influenced by the degree of social support. Thus, it is also hypothesized that women who have a strong social support system will be better able to cope with their emotions and have a lower distress level. Results of this study may help future patients understand the range of emotions experienced after a diagnosis of breast cancer. Further, these results may serve as a starting point to develop strategies to help young woman diagnosed with breast cancer manage and cope with

White Beth Allied Health AM Session 1: 8:30-10:00 Room 2068

The purpose of this study was to determine whether enhanced peripheral border collimation on general diagnostic radiographs would decrease a radiologist technologist radiation exposure level. The collimation procedure request was above and beyond the normal collimation standards allotted by the positive beam limitation device (PBL). The study was approved by the local institutional review board (IRB). Written informed consents were obtained from all participants including the participating facility. The methods used during this research included, collection and analysis of data before and after recommended collimation procedures were implemented. The format for data collection was quasi experimental in nature and included addressing the participating technologist's dosimetry readings; controlled dosimetry readings for each x-ray room; the number of exams performed using the Bucky tray or table top method; and the number of exams performed in each x-ray rooms. The radiation exposure

limits for technologists and the general public were addressed. The National Committee of Radiation Protection and Measures (NCRP) provided the basis for allowed exposure limits. After reviewing the statistical information the determination was made, the collimation procedure would be a feasible part of a radiologic technologist's daily routine in order to decrease radiation exposure to

Wilaj John Mechanical Engineering PM Session 2: 3:30-5:00 James Gallery
The power output of an automobile engine can be greatly increased by implementing a supercharger driven by a well-designed pulley system. The driving force acting on the pulley is dependent on the rotational speed of the drive system to which the pulley is attached. Stresses within the pulley change as the rotational speeds of the pulley vary. It is desired to determine the stress distributions within a given pulley design for multiple pulley materials. A complete analysis for stresses of the pulley will be performed on the given power input, selected angle of contact between the belt and the pulley, and the pulley disk dimensions. The purpose of this study includes comparative measurements of stresses between these pulleys under various loading conditions. Based on theoretical and computational studies for stress, design specifications will be recommended and compared with experimental data.

Wilkins Thomas Electrical Engineering PM Session 1: 1:30- 3:00 Humphrey Room
I am writing about the new cuts in payouts from the insurance companies, and the affects it has on the doctors and patients. Also about the new Obama Health Care Reform.

Willmitch Michael Elect Engr Comp Digital Opt PM Session 2: 3:30-5:00 Coffelt Room
The purpose of this design is to allow the remote operation of a full size vehicle through existing technologies. Applications of this design are, but not limited to, military use during combat operations where a human driver could become a liability or be exposed to an extremely high level of danger. Other applications include scientific operations where vehicle operation would be too dangerous for humans. The entire system includes hardware and software. Due to the specified nature of each of these, the project was divided amongst two teams to allow for a more specialized development. The hardware is designed as a human analog. Designing the system to mimic the way a human interacts with one vehicle will allow it to be used in other vehicles with little or no modification. Hardware will consist of pedal operators and a steering interface. Software will be run on a small laptop. It will be a small server designed to take commands from a remote station over the Internet. The software will pass the commands to a small controller board to interface with the hardware. A video feed will be sent back to

Wilson Solita Chemistry AM Session 2: 10:30-12:00 Ohio Room
Perovskite-related compositions in the K(AxCu1-x)F3 system were investigated, where A is the metal Mn+ or Ni+. The series K(AxCu1-x)F3, where x = 0.1, 0.2…0.9, were synthesized and characterized along with their ternary end-members by students in an undergraduate general chemistry laboratory as part of the Project REEL implementation at Youngstown State University during the fall, 2010 semester. This series has not been previously reported to our knowledge. The structure and composition were characterized hands-on by the students via X-ray powder diffraction and X-ray fluorescence, respectively, and this data will be presented.

Worst Arthur Mechanical Engineering AM Session 2: 10:30-12:00 James Gallery
As the price of crude oil continues to rise, so does the demand for renewable energy. The use of wind energy sounds like an ideal solution; however practical application has yet to be perfected. The large windmills in use today contain very large and expensive parts. Common failures in these windmills are the gearboxes used to increase the shaft speed of the electric generator. It is very expensive to maintain them since they are very high from the ground and very heavy. The idea is to replace the gearbox with a variable displacement hydraulic pump that transfers fluid to the ground where the power is generated. Removal of the large gearboxes makes the system more capable of withstanding the varying wind speeds and gusts that take place. Now that most of the system would be placed on the ground, it makes for easier and therefore cheaper maintenance. This reduces the maintenance costs and allows the power to be regulated before it gets to the generator via the hydraulic system. The variable displacement pump provides a constant output at various input speeds. This feeds a hydraulic motor, which outputs a constant shaft speed. This turns the electric generator at a constant speed, which outputs the specified electric power. The concept of this system could bring major changes to the windmill market. Maintenance costs of the windmill are reduced while electric power is increased. The hydraulic system provides the best of both worlds; it runs the generator at a near constant speed while providing a long

Wrataric Amanda English PM Session 2: 3:30-5:00 Humphrey Room

Fascicle 12: With Dickinson's focus on science and faith, it is amazing to us that she never once used "transform" in any of her poems. We have found that fascicle twelve seems to be about transformation; be it through religious faith, from childhood to old age, from sunrise to sunset, from living to dying. Fascicle twelve uses "transformation" in many different ways, but it unites all of the poems together. We also played with the aspects of body and soul, as well as musical tendencies. Fascicle 24: Thinking about fascicle twenty-four as a whole, the theme of the Civil War runs smoothly throughout all of the poems in one way or another. These poems in this particular fascicle work together to exhibit the nature of war from different vantage points, specifically concentrating on the meaning of life, the meaning of religion, the forces of nature, and the concepts of gender.

Yommer Dennis English PM Session 2: 3:30-5:00 Humphrey Room

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Yommer Dennis English PM Session 2: 3:30-5:00 Humphrey Room

One of the goals of our graduate student research project for the Methods of Composition Research course (ENGL 6901) at Youngstown State has been to apply ethnographic research methods to answer the following question: "What is college-level writing?'" We, as a student research group, have agreed to focus on answering this question by applying it to the various disciplines throughout our college campus.

To identify and discuss our own experiences and roles as investigators, we have agreed as a class to note our biases and include, but not limit, all the various types of writing at the college level. Although there are a multitude of programs at YSU, we feel there should be some expectations in common in terms of how college level writing is defined by each department: "How we do research, like how we teach, reflects our underlying assumptions about human nature and learning" (Calkins, xiii). This presentation will review the methods in which our class has gathered the required data to answer the question at hand. In addition, the data gathered thus far will be discussed and analyzed in an attempt to determine what Youngstown State University currently considers 'college-level' writing to be. As our research is currently ongoing, we hope to both review the current material collected and gather additional data during this presentation that may be used for potential feedback in this project.

Yurcho Anthony Chemical Engineering AM Session 2: 10:30-12:00 Jones Room

Interpenetrating phase composites (IPCs) belong to a class of materials containing two or more interconnected phases throughout their microstructures. Youngstown State University is collaborating with Fireline TCON, Inc. of Youngstown, OH to carry out research on ceramic-metallic IPCs with improved thermal resistance, superior erosion, corrosion, and impact properties, and less weight than traditional materials used in refractory linings, automobile braking components, and military armor systems. This study aims to characterize the microstructural properties of two ceramic-metallic IPCs produced by Fireline's unique reactive metal penetration (RMP) process. Material characterization was performed using scanning electron microscopy (SEM), energy dispersive spectroscopy (EDS), x-ray diffraction (XRD), focus ion beam (FIB), and Vickers hardness testing. It was determined that a three-dimensional network of Al2O3 and Al phases formed in the first sample, while Al2O3, Al, and Al-Fe alloy phases formed in the second. The results indicate that the final properties of ceramic-metallic IPCs can be tailored to specific applications by varying the RMP processing parameters.

Yurco Isaac Engineering Mechanical AM Session 2: 10:30-12:00 James Gallery

The challenges faced by the engineers at NASA were unique and novel when they designed the first Moonbuggy for the Apollo 15 mission to the moon. To commemorate their design achievements, NASA held its 18th annual Great NASA Moonbuggy Competition in Huntsville, Alabama at the U.S. Space and Rocket Center on April 1-2, 2011. The competition challenged teams of senior, undergraduate engineers to design, fabricate and compete with their vehicle in a race. The race simulated terrain that the original Moonbuugy had to traverse; which included sand pits, rocky inclines, and meteor craters. Some of the design requirements were: a two person powered vehicle, the ability to compress the vehicle to fit into a

1.22m X 1.22m X1.22m (4'X4'X4')box, a driving and break system, a turning radius of 4.57m (15') and height off ground of 4.57m (15'). Overall, the competition allowed the team to apply their engineering knowledge through a hands-on project that tested the groups understanding and ability of engineering

Zuhosky Walter History AM Session 1: 8:30-10:00 James Gallery

We begin in Youngstown, Ohio by describing how a popular, established drinking habit was suddenly abolished by law. It was Ohio legislation first, and later, the national Volstead Act, which made it illegal to produce or sell alcoholic beverages. Locally, bootlegging and speakeasies flourished. Famous gangsters of the time frequented the area. My own grandparents had a house built in 1927 in Sharon Heights, Ohio. Not able to move in immediately since they still were living in Johnstown, PA, they rented the house. We never knew the gangsters who rented the house, only that they paid their rent in cash to a realtor, and eventually left. This area was visited by John Dillinger, Ma Barker and her two sons, and Clyde Barrow, before he met Bonnie. This area had favorite speakeasies rumored to be even run by these gangsters. Such famous speakeasies would turn into gambling roadhouses after the eighteenth amendment was repealed. The lottery, also called "the bug", was run in Youngstown. A person could place a bet on their numbers of choice, illegally, of course. People could now bet on baseball, horses, and other vices. Out of town gaming houses were out of the jurisdiction of the cities police force. These out of the way casinos, run by the mob, were the beginning of the big time casinos of today, just as "the bug" was the forerunner of today's state lottery. All information was researched from books and newspapers from in and around this area. Two important interviews were also used. The outcome of my research is that proof exists to back up the old stories of this era of American history.