



- Balestra, Alisa A** English Bresnahan Rm. 1:45 - 2:00  
*Can Feminism be Paternalistic?*  
 The groundroofs of feminism and its social practices derive largely from the need for choice, and more importantly, the fact that women can and ought to make informed decisions without fear of coercion and exploitation from patriarchal systems and its values. Because the act of choosing among various options is inherently dependent upon control, or a perceived sense of control, and autonomous decision-making, women ought to be able to make free and informed decisions about their lives without interference from outside agencies; however, feminists often deny women the opportunity to make such decisions on behalf of the latter's "best interest." In this analysis, I will explore how feminism encourages and employs paternalism with regard to contract surrogacy, with paternalism, an act that is in and of itself both ironic and problematic, given feminist goals and agendas.
- Baltic, Ryan** Chemistry Ohio Rm. 8:30 - 10:00  
*Conformational Analysis Using 1H-1H Coupling Constants*  
 One of the main goals in the second semester of Organic Chemistry (Chemistry 3720) is for students to become familiar with the tools used by Organic chemists to work out the structures of their molecules. The main technique employed is Nuclear Magnetic Resonance spectroscopy (NMR), which gives detailed information about the types of atoms present in molecules, as well as how those atoms are connected. One of the most useful pieces of information to be taken from NMR spectra is the coupling constant, which is a measure of the communication between adjacent atoms such as hydrogen. The relative size of these coupling constants gives information on molecular structure and conformation, which is vital to understanding the interactions of organic molecules with biological systems. This presentation will feature the analysis of coupling constant data from carbohydrate research samples and will discuss the relative conformations of these molecules.
- Barlow, Mark D** Electrical and Computer Engineering Ohio Rm. 1:30 - 3:00  
*High Power Tesla Coil*  
 The Tesla Coil can reach voltage potentials approaching 1,000,000 volts at a frequency of 60,000 cycles per second while consuming nearly 7 kilo watts of power. The device was designed and built by Mark Barlow, an Electrical Engineering Graduate Student, attending Youngstown State University. Barlow has spent years independently researching the work of Nikola Tesla, an electrical engineer, who built the first of these devices around the year of 1896. Since then, variations on Nikola Tesla's invention commonly referred to as the "Tesla Coil", have been used in many applications ranging from simple radio circuits to complex particle accelerators. Despite the many successful technologies that came from Tesla Coil origins, the device has yet to be used for the purpose in which it was designed, to broadcast electrical energy for power applications. The Tesla Coil is a remarkable invention that incorporates many fundamental aspects of electrical engineering. From basic circuit theory to complex electromagnetic field relationships, the Tesla Coil stands as a testimony to modern engineering and its ability to harness the forces of nature.
- Barlow, Mark D** Electrical and Computer Engineering Ohio Rm. 10:30 - 12:00  
*YSU / Delphi Packard Academic Partnership*  
 Electronic content in modern automobiles is ever-increasing; interference from external electrical noise can cause improper operation, and electrical wiring can be a primary path for coupling noise into electronics. Delphi and YSU are working together through the Electromagnetic Field Research and Instrumentation Center (EFRIC) to develop solutions to these problems. The focus of this research is on the copper-based transmission lines and the effectiveness of shielding, twisting, grounding, and other cable construction parameters on electrical noise mitigation. The research group is conducting various experiments to detect noise interferences. The results are analyzed to utilize the best solution to prevent disruptive coupling of electrical noise into electronics in automobiles. The current results will be presented.
- Bayda, Christopher L** Electrical and Computer Engineering Gallery 10:45 - 11:00  
*Design of an Autonomous Robot for Object Collection and Sorting*  
 The main objective for this project is to design an autonomous robot. It must possess the capability to follow a given course. The robot must also lift and sort assorted steel, plastic, and brass balls from the course and place them into a receptacle. The robot will compete against other robots in a robotics competition presented by Youngstown State University.
- Beauchene, Renee** Teacher Education Jones Rm. 4:30 - 4:45  
*Rhythm and Rhyme: Poetry Across the Middle School Curriculum*  
 This presentation will explore the various ways that teachers can use poetry with Middle level students in the content areas. Poetry is known to be an inspiration for reading, writing, and language acquisition for middle level students. This presentation looks at how poetry can enhance content areas such as math, science, social studies, music, and art. The presenters will demonstrate motivational activities for reading and writing poetry using popular children's authors' works as a springboard for original student compositions. Poetry has the potential to increase students' interest in their content areas and to help them retain content information.
- Becker, James B** Geological and Environmental Sciences Jones Rm. 11:45 - 12:00  
*Salt Water Encroachment in the Cockburn Town Aquifer, San Salvador, Bahamas*  
 Many of the islands in the bahamas suffer from poor and even unhealthy water quality. As the well fields pump freshwater from shallow aquifers, the aquifer is recharged with saline water that travels through the subsurface from the ocean. The saline water, is a natural contaminant that may render the water produced from the field unfit for human consumption. Our research focuses on the Cockburn Town well field on the Bahamain island of San Salvador. We propose to study the long term effects of over-production at the wellfield on the island of San Salvador by measuring salinity levels and comparing the findings to data collected over several years. By understanding and monitoring the problem we hope to predict future well quality and offer a viable solution to the problem of high salinity levels. The presented results are based on salinity profile measurements performed in March 2006 on approximately sixty wells in the Cockburn Town water well field.

- Beniston, Margaret A** Health Professions Pugsley Rm. 2:00 - 2:15  
*Health Disparities*  
 The purpose of this presentation is to describe a mock conference, which had to be planned, conducted, and evaluated by the students as a requirement of the HSC 3702 Foundations of Health Education: Methods and Material class. This project fulfilled several of the course competencies, which include: lesson planning, presentation skills, effective use of visual aids (PowerPoint), development of continuing education for health educators, the ability to use creditable internet-based data sources and the opportunity for a better understanding of cultural competence. This project also enabled Community Health majors to meet multiple and complex criteria that allowed to reach the quality that is required to present at a real conference. The Health Disparities mock conference was held on October 10, 12, and 17, 2005. There were 14 presenters. The topics discussed were Health Disparities related to: Access to quality of care, Immunizations rates for adult and children, Asthma, Cancer, Cardiovascular Disease, Diabetes, HIV/AIDS, Infant mortality, mental health, rural health, Syphilis, TB, Viral Hepatitis, and Cultural Competence. To make this mock conference as realistic as possible, each of the presentations was critiqued by the members of the audience (fellow students of the class). Each member of the class was required to review the evaluation of his/her presentation, and write a reflective paper about their strengths in the presentation, to focus on what needed improvement in their presentation and apply this by coming up with a personal improvement plan. The project also required students to create a handout which included a learning activity. The purpose of creating the handout/activity was to increase the audiences understanding and comprehension of each Health Disparity topic. This too was evaluated by the presenter's fellow students. Each of the course competencies was achieved by this project. The lesson plan, PowerPoint, handout/activity, evaluation and reflection are documents that the students may choose to include in their professional portfolio.
- Beniston, Margaret A** Health Professions Pugsley Rm. 2:15 - 2:30  
*Hurricane Relief Project*  
 Eta Sigma Gamma, The Health Education National Honorary, planned, conducted and evaluated a fundraiser to assist in the efforts of providing aid to hurricane Katrina victims. The goal was to earn \$1,084, the distance in miles from Youngstown State University to New Orleans. We used social marketing theory four P's and techniques in planning the event to maximize donations. The Product: Providing appropriate tangible and intangible incentives increases target group participation. The tangible incentive was Mardi Gras beads, appropriate because of their popularity with college students. The intangible incentive was the opportunity for student to sign their name to a posted entitled "I support hurricane relief for Katrina victims". Price: beads were sold for \$1.00 a strand to make them affordable to just about everyone. This low price also enabled students to buy more than one strand if they chose to. Place: the event was held in Kilcawley, on the Wick Ave bridge, and in the lobby of Cushwa Hall in both mornings and afternoons. Promotion mix: table display decorated with Mardi Gras colored table cloths, large poster which displayed: a map with the distance from Youngstown to New Orleans highlighted; pictures and facts about the hurricane and its victims, as well as Mardi Gras masks and other easily recognizable symbols of the New Orleans area. Personal selling techniques used: the twelve Eta Sigma Gamma members did not stand behind a table, but rather walked up to passersby and encouraged them to donate to this cause. They also wore and held multiple strands of beads while promoting the cause. Mardi Gras-themed posters were displayed around campus before and during this event. The goal for the project was exceeded. \$1,100 was donated to the Red Cross.
- Beniston, Margaret A** Health Professions Pugsley Rm. 2:30 - 2:45  
*World AIDS Day*  
 Members of the YSU chapter of Eta Sigma Gamma, the National Health Education Honorary, and planned, conducted and evaluated the World AIDS Day Education Project, which was conducted December 1, 2006. The campaign was planned based on health education theory and the National Health Education Standards. The project consisted of several activities. A poster display in Kilcawley Center Arcade, was staffed from which verbal information, print literature, condoms and bottled water with project logo and HIV/AIDS resource information labels were distributed. An educational games was conducted; it was a "Wheel of Fortune" type game in which participants tested and increased their knowledge about HIV/AIDS facts and prevention, and tickets for a raffle for large, donated prizes. To be eligible to participate in the World AIDS Day program we required our members to study basic AIDS and HIV facts, and pass a quiz on these facts with 90% mastery. From this project, community and school health majors learned how to design interactive and fun learning activities, and how to document participant learning. We also refreshed our knowledge of local and national HIV and AIDS statistics and prevention. The majors also increased their skill in effective teamwork, collaboration with other campus programs and community agencies. They also participated in public health advocacy and used multiple communication channels. Consumers learned or had reinforced HIV/AIDS facts and prevention methods.
- Bethany, Michael W** Mechanical Engineering Gallery 8:45 - 9:00  
*Design of an Automated Induction Brazier*  
 For manufacturers, optimization is the ultimate goal. This optimization must be reached on a certain set of levels including production rate, efficiency, production cost and environmental impact. Current technology for the production of any type of valve body calls for high production cost and potentially dangerous environmental side effects. Thus, it has become necessary to determine an alternative method to the furnace method in use. The manufacturing of a particular valve body has been redeveloped. The valve body was composed of a brass body with two protruding copper tubes. These tubes were connected to the body using an inert atmosphere brazing technique involving an induction coil as the heat source. The inert atmosphere minimized the amount of oxidation to the part. In addition, the part was brazed with no flux material present. The use of induction coils, inert atmosphere, and no flux aided in the optimization of minimal surface discoloration and eliminated the necessity of post-braze cleaning. The process had a constant part flow through the induction coils. In order to aid in this constant flow, the valve bodies and copper tubes were introduced into the system press fit. Once in operation, this machine operated at a rate of approximately four parts per minute. Also, the parts, though heated to the necessary temperature for the brazing material to melt, were cooled to a removal temperature that allowed for operational safety standards to be met. This paper reveals the final design concept and provides the derivation process of all of its components. Multiple induction coil designs, methods of transferring the part, computer modeled cooling techniques, inert atmospheres and mechanisms of controlling the inert atmosphere are described in this study. Each possibility is carefully considered and advantages and disadvantages are examined.

- Bibey, Amber** Chemistry Ohio Rm. 8:30 - 10:00  
*Conformational Analysis Using 1H-1H Coupling Constants*  
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- Bierdeman, Jennifer L** Criminal Justice Room 2068 1:45 - 2:00  
*Female Juvenile Delinquency*  
 Since 1992, the number of female juveniles arrested for Violent Index Crimes has steadily increase despite the fact the violent crime in general has been decreasing. This paper will examine the social, biological, and psychological factors that help explain why society is seeing this increase. The researchers will address demographical information about these young women who are engaging in delinquent acts. Information from a case study of female delinquents at a county based juvenile facility will be presented. The information will focus on offenses committed, family demographics, behaviors while detained, and dispositions
- Boyd, Nathan C** Electrical and Computer Engineering Gallery 11:00 - 11:15  
*Home Automation*  
 We plan to design a home automation/cyber security system. To begin this project, we will build a model house and automate devices such as lights, locks, and the garage door. The general idea of the project will be to interface a Visual basic.NET form to a Phidget, which will in turn control the items of choice. Phidget is the interface we will use. We plan to use deadbolts as locks and standard lights. The Phidget will be wired directly to 24 volt relays, which will control the switching operations of the lights and locks. For our garage door, we are going to design a "pulley system" and make the door out of wood which will also be controlled by a Phidget and powered by a motor. The automation will make the room secure and convenient. The PC will give commands to our Phidget, which will then control our devices such as "Lights On, Lights Off." If there is extra time, we can easily build on this project by adding components and tasks such as video surveillance, sensors and internet/network access. We have also not ruled out the possibility of trying to implement our design on an actual room within the engineering building.
- Breidenbaugh, Caralisa** Geological and Environmental Sciences Jones Rm. 11:00 - 11:15  
*Comparative Water Chemistry Analysis of Pigeon Creek and an Adjacent Hypersaline Lake, San Salvador, Bahamas*  
 An investigation of transmissivity of groundwater between a closed lake and Pigeon Creek was conducted on San Salvador Island in the Bahamas as part of the ENST 6999 Topics course at Youngstown State University. A human-constructed road provides a barrier between the hypersaline, closed lake and the northern end of Pigeon Creek, which is a lagoon that is connected to the open ocean. The study measured water surface levels and water chemistry in the lake and Pigeon Creek at high and low tides to determine if there was tidal influenced groundwater flow between the two bodies of water. The level of the water surface in northern Pigeon Creek fluctuated 10-15 centimeters between low and high tide during the study while no fluctuation of the level of the water surface in the hypersaline lake was observed. Trends in pH, electrical conductivity, salinity, and dissolved oxygen measurements collected from water in Pigeon Creek and the lake were not correlative between the two bodies of water. The lack of change in the level of the water surface in the lake during tidal fluctuations in Pigeon Creek demonstrates that the water level in the lake is not tidal influenced. The lack of tidal influence in the closed lake coupled with the differing trends for water chemistry measurements between the lake and Pigeon Creek suggest that groundwater flow between the two bodies of water is on a longer time scale than the tidal cycle.
- Brenner, Paul C** History Coffelt Rm. 4:00 - 4:15  
*Victim Perception of Treatment After the Holocaust*  
 In all of Human history, few events are as tragic and long lasting as the killing of millions of human beings under the German Third Reich. The holocaust presents to a researcher, an opportunity to look at mankind at its worst and to see how it reacts to the occasion. In this study, the question becomes first how did the victims of this atrocity see themselves as having been treated not by the Nazis, but later by the rest of the world? This question is followed by a second question; how did the way the victims viewed themselves as having been treated, match with how the people of the western world's view of the treatment of these victims?
- Brenner, Michael R** American Studies Room 2068 10:30 - 10:45  
*Race and class in "Harry Potter"*  
 J.K. Rowling presents a myriad of different species in her Harry Potter novels. The wizards in the books treat each of these species and beings differently, and some more fairly than others. Themes of racism, slavery, and elitism are often covered in the books, calling into question why each species is treated as it is. This paper will explore the various prejudices and the stated and possible reasons behind these prejudices presented in the Harry Potter novels.
- Brenner, Paul C** History Room 2068 11:00 - 11:15  
*With Justice for Some: An Examination of the Use of Force Against the Homestead and Pullman Strikers*  
 America, circa 1890, was a country prepared to embark on a new century and yet was totally consumed with other problems. Chief among these was the growing unrest among workers and management. Of these unrests, I will look at the lockout at the Homestead Pennsylvania plant of the Carnegie Steel Corporation occurring in 1892, and the later Pullman Strike which occurred in 1894. At the outset, the situation at Homestead degenerated and became a violent labor dispute. The Pullman Strike, which occurred two years later, was the result of a wildcat strike occurring at Pullman, Illinois. The leaders of both strikes were subsequently tried for their involvement. In this project, the use of force against labor will be examined. It seeks to determine what level of force was used to stop the labor disputes, if this force was necessary, and finally what role the involvement of communist and anarchist forces played in this.

- Brink, Adam R** Mechanical Engineering Gallery 9:15 - 9:30  
*Permanent Magnet Motor*  
 The rate of consumption of our planet's fossil fuels has led to dangerous amounts of pollution and shortages of irreplaceable natural resources. Through the constant improvement of energy delivery systems, the world may be able to maintain its production rates while consuming fewer fossil fuels. This analysis provided data that showed that the permanent magnet motor had the potential to remedy the world's power consumption problem. The analysis also showed the potential for mass production of the magnet motor. The efficiency was also analyzed, with respect to the existing magnet motor prototype. The original magnet motor was revised to eliminate design flaws. Excess energy lost through vibrations was reduced through changes in the housing material, housing design, and additional damping. Materials used for the motor were standardized for ease of production as well as cost effectiveness. The magnetic cogs in the prototype were also analyzed. New magnetic materials were considered with the potential of increased power output. The analysis of the prototype was intended to create a fully operational permanent magnet motor. With the new design, the prototype design problems were addressed and solved. These problems included mechanical vibrations, standardization, cost effectiveness and efficiency. Through the development of a practical permanent magnet motor, there is the potential to create a more efficient power delivery system.
- Caldwell, Nathan B** Physics and Astronomy Coffelt Rm. 10:45 - 11:00  
*Design of an Energy-release Experiment on <sup>177</sup>Lu*  
 Nuclear isomers are long-lived excited states that can store large amounts of energy in compact samples. The isotope <sup>177</sup>Lu possesses a 160 day isomer that is known to decay naturally by gamma-ray and beta emission, but a controlled release of this energy upon demand has not yet been demonstrated. A test of this effect is scheduled for late spring 2006 in YSU's X-Ray Effects Laboratories. This talk will discuss the experimental challenges and design, guided by computer simulations.
- Caldwell, Adam J** Electrical and Computer Engineering Gallery 4:00 - 4:15  
*Solar Power Unit*  
 Our design project will be working with solar panels to help save on energy costs in the future. What we will be doing is using Plexiglas to make a small contained area to which we can show how a house heats. After the house is constructed, we will lay the solar panel on top of the house which will draw our power. Once these solar panels start drawing power from the light source, this power will go to a battery that will get charged up and store the power. Then, after the power is transported to the battery, we will have an A/D converter that will switch over the power. Also, we are going to have to have some relays in line to boost our power up to be able to run our heater. Next, we will run the wires to our heater which will be located inside the house. Once this is all wired up and set up, we will have a 68HC11 microprocessor inside the house with the heater to control the temperature. The processor will have a temperature sensor connected to it to be able to tell the heater to turn on when wanted. So, after the project is completely finished, we will be able to control the temperature from a computer for the Plexiglas house which we have constructed. This, after completion, will bring a new concept in home heating that will save everyone thousands of dollars.
- Campbell, Matthew J** Mechanical Engineering Gallery 9:30 - 9:45  
*TJT 3000 Mini Gas Turbine*  
 In a gas turbine, a pressurized gas spins the turbine. The engine produces its own pressurized gas, and it does this by burning a fuel such as propane, natural gas, kerosene, or jet fuel. The heat that comes from burning the fuel expands air and the high-speed rush of this hot air spins the turbine. Gas turbines have three major parts: compressor, combustion area, and turbine. The compressor takes the air from the inlet and compresses it to a much higher pressure. The combustion area takes in the high pressure air, mixes fuel, and ignites it to create an even higher pressure generating high velocity. The final stage is the turbine. The air from the combustion area is forced through the turbine. This causes the turbine to spin very quickly and extract the energy. To confirm the Brayton Cycle, temperature and pressure probes must be placed in the proper locations to follow the ideal cycle. Thermocouples were inserted at four different positions. Pitot tubes will also be inserted at four different positions. With these readings the entropy change was calculated. With the same reading the efficiency of the compressor and turbine were also calculated.
- Campbell, Nicole R** Human Ecology Pugsley Rm. 1:30 - 1:45  
*Caregivers in Youngstown Zip Code 44502: Their Knowledge of Blood Lead Level Testing Laws*  
 Lead Poisoning is a preventable environmental disease that affects an estimated 19,000 children under age six in Ohio (490 in Mahoning County). Children who are most at risk for lead exposure live in older homes, play in soil contaminated with lead, and have direct contact with a family member who works with lead on the job or as a hobby. An Ohio law was enacted in 2004 to require all children ages 6 and under, living in a high-risk zip code, to receive a Blood Lead Level test. The Ohio Department of Health also developed a plan to eliminate childhood lead poisoning by 2010. There are many objectives in the plan, five of which are related to getting 100% of high-risk kids BLL tested, achieved by educating both parents and doctors. Some doctors have not met the past requirements for BLL testing. Some parents are also uninformed or apathetic to health risks associated with lead exposure and the importance of testing young children. It is important that children receive either preventive or intervention services. The purpose of the current research is to identify caregivers living in the high-risk zip code 44502 with children under the age of six, and quantify their knowledge of lead poisoning prevention, risk factors, effects, state and federal testing requirements, and their source of information. Surveys will be distributed to church members (within the 44502 zip code) who have children younger than six in their household.

- Campbell, Nicole R** Human Ecology Room 2068 3:45 - 4:00  
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- Canatsey, Michelle R** Geological and Environmental Sciences Pugsley Rm. 10:45 - 11:00  
*Paleolimnological Records of Bass Lake Infer Human Impacts*  
 Bass Lake in Geauga County, Ohio, contains the last native population of brook trout in Ohio. In order to protect this habitat in the future, we need to determine how humans have impacted the lake in the past. Because lakes deposit sediments each year, one way to determine the history of a lake is to study a core of this sediment. Using a hand-driven piston corer, we extracted a 92 centimeter core from Bass Lake and conducted loss-on-ignition analysis to determine carbon and carbonate contents for each centimeter interval by burning the samples at 550 C and 1000 C, respectively. I dried sub-samples at 110 C to determine water content. Based on carbon content fluctuations, we chose nine core depths to analyze fossil diatom genera. Historical records were collected to determine possible human impacts, and these were compared with carbon and diatom data. Possible evidence of damming in the 1900s and eutrophication due to recent development is seen in the carbon and diatom record. We will continue our research on Bass Lake, including further analysis of diatom species and 210Pb dating, to evaluate the changes in Bass Lake due to human impact.
- Carlson, Audra D** Psychology Humphrey Rm. 4:15 - 4:30  
*The Effects of Parental Characteristics on Middle-School Students' Study Habits and Career Choices*  
 The current study seeks to assert the claims of the Social Cognitive Career Theory (Lent, Brown, & Hackett 1994, 1996). The SCCT asserts that an individual's career choice is based on the interplay of several variables: self-efficacy, outcome expectations, interests, and their intentions and goals. Subsequent studies have come to conflicting results. The current study explores the SCCT as it applies to middle-school aged students with an emphasis on math and science. The factors of gender, socioeconomic status, and parent's career choices will be explored in hopes of finding any correlating effects on career choices and interests of the students.
- Carter, Rob L** Geography Jones Rm. 2:30 - 2:45  
*Modeling the YSU Campus in 3-D Using GIS*  
 This presentation will cover the steps and methods undertaken to create an interactive 3-D computer model of the YSU campus using Geographic Information Systems, or GIS. Topics covered will include data collection, field methods, 2-D input and 3-D extrusion in ESRI's ArcGIS software, and finally 3-D rendering of buildings in @Last Software's SketchUp program. Applications of the model will also be discussed, including its use to visually represent possible future additions to the YSU campus, and the possible extension of the project to include the city of Youngstown's future plans.
- Cartright, Ginger R** Geological and Environmental Sciences Jones Rm. 1:30 - 1:45  
*Assessment of Hurricane Frances Storm Surge on San Salvador, Bahamas*  
 The purpose of this research is to examine direct evidence of hurricane-produced strand line (debris deposits) to the predicted wave heights expected for a hurricane of the magnitude encountered. Hurricane events are ferocious and damaging storms that flood coastlines and cause billions of dollars' worth of damage each year, yet few wind-wave models exist that can accurately predict the resulting surges of water that flood coastal areas when hurricanes make landfall. To date, the most currently used and widely accepted model for predicting hurricane wave heights is the Saffir-Simpson Hurricane Scale, commonly abbreviated SSS. The National Weather Service's National Hurricane Center (NHC) uses the SSS as a means to predicting the storm surge heights that accompany hurricanes, and a hurricane's SSS rating is released in forecasts and also to the media as a means for alerting the public as to the potential damage that particular hurricane has for the predicted landfall area. A new scale has recently been proposed that will be used in conjunction with the SSS in aiding researchers and weatherpersons to more accurately predict the incoming surge and possible shoreline damage. Post-storm analyses aid in the development of the HIS by documenting the maximum elevation of storm surge, the area impacted, and the wind speed of a particular hurricane event. Hurricane Frances, which struck the small Bahamian island of San Salvador directly on September 7, 2004, provided an excellent example to conduct a post storm analysis using both the Saffir-Simpson Scale and the Hurricane Impact Scale.
- Casacchia, Nicole L** Mathematics and Statistics Pugsley Rm. 11:00 - 11:15  
*Statistical Modeling of Downed Dead Wood in a Riparian Forest*  
 The generation of downed dead wood (DDW) is an important process in forest ecosystems, as it recycles carbon and key nutrients, promotes habitat diversity, and creates canopy gaps utilized by light requiring species. Downed wood can be generated by disturbances such as wind, fire, or disease, or through the aging and death of individual trees. Our study quantified DDW within the old-growth riparian ecosystem of Zoar Valley gorge, NY and also investigated whether canyon walls provided protection from episodic wind disturbances. Data was collected from forty-one 30 x 30 meter quadrats, located on ten terraces within the gorge, cataloguing volume, species (if possible), decay class, and compass orientation of DDW pieces >15 cm in diameter. To find whether DDW was uniformly distributed or oriented, Kolmogorov-Smirnov goodness of fit tests were performed. Total DDW volume on terraces ranged up to 145 m<sup>3</sup>/ha, typical of the high volumes seen in old growth forests. American Beech (*Fagus grandifolia*) and Sugar Maple (*Acer saccharum*) were the two most abundant species collected as DDW. Prevalence of downed American Beech may be due to the effects of beech bark disease, an invasive pathogenic fungus. As much as half of this species' wood volume was fallen and dead. Five out of ten of the terraces analyzed displayed DDW orientation with prevailing winds, suggesting an influence greater than expected.

- Cassel, Jermeko S** Electrical and Computer Engineering Gallery 3:45 - 4:00  
*Multi-Signal Wireless Telemetry Module*  
 Our goal is to design and implement a multi-signal wireless telemetry module. This module will acquire visual, audio, and temperature data from its surrounding environment. The data will be filtered, encoded, and transmitted to a remote terminal using sensors, transceivers, and signal multiplexing. At the remote terminal, the received data will be filtered, decoded, and sent to its appropriate destination (i.e. speaker, monitor, and computer.) The standalone module will also have the ability to be retrofit to various mobile and stationary objects.
- Catterlin, Richard G** Biology Ohio Rm. 10:30 - 12:00  
*Woody Plants of the YSU Arboretum: Then and Now*  
 The YSU Arboretum, located north of King Graves Road and east of Warner Road in Hartford, Ohio, was originally planted with several species of trees in groups. Some planted species were native and others were not. Early on, the Arboretum was cared for and weedy species were removed. However, over the last few decades, the Arboretum was not cared for and nature has been allowed to run its course. Specimens of the woody plant species at the Arboretum were collected in early October 2005. These were compared to specimens in the YSU Herbarium which were collected in the 1960's. Lists of which species were present in 2005 and in the 1960's were made. Some species present in the 1960's were lost, possibly the result of competition. Also, some species were found only in 2005. These species, some weedy, probably came into the Arboretum after the 1960's. This study aims to determine which species compete well and have persisted under natural conditions in the YSU Arboretum.
- Chernushin, Shawn A** Mechanical Engineering Gallery 9:00 - 9:15  
*Human Powered Vehicle*  
 Human Powered Vehicles (HPV's) are aerodynamic, highly engineered vehicles that may be used on land, in the water, or the air. Although vehicles operated by human power are not in high demand in this age of computers, the engineering and design elements of such vehicles are of importance for engineers. This study illustrates the design and testing processes for a three wheeled, single rider HPV similar to a recumbent bike. The main goal of this project was to successfully engineer a HPV with focus on: elegance and ingenuity of design, safety, practicality of design, and presentation. The goal was to strip the existing HPV of nearly all components, leaving only the frame, front pedals, rear wheel, and rear derailleur. The entire steering system, front wheels and hubs, drive train, brake system, frontal fairing, and seat will all be redesigned to maximize efficiency, safety, and ease of use. The performance of the HPV was rigorously tested in a series of competition events sponsored by the American Society of Mechanical Engineers (ASME): 1) Design Event, 2) Sprint Event, and 3) Endurance Event. The design event allowed the judges to consider the HPV's physical design, while weighing in a formal written report and an oral presentation given by the team. There was an emphasis on originality and soundness of design. Also considered in the design were the safety aspects, such as braking and turning radius requirements. The sprint event tested the vehicle's straightaway speed along a 100 meter flat course. The endurance event tested the vehicle's ability to race on a grand prix style road course of approximately 65 kilometers in length. The performance of our vehicle was a reflection of our overall design abilities including computer simulation, use of applicable calculations, and quality of fabrication.
- Chichak, Michael** Chemistry Ohio Rm. 8:30 - 10:00  
*Conformational Analysis Using 1H-1H Coupling Constants*  
 One of the main goals in the second semester of Organic Chemistry (Chemistry 3720) is for students to become familiar with the tools used by Organic chemists to work out the structures of their molecules. The main technique employed is Nuclear Magnetic Resonance spectroscopy (NMR), which gives detailed information about the types of atoms present in molecules, as well as how those atoms are connected. One of the most useful pieces of information to be taken from NMR spectra is the coupling constant, which is a measure of the communication between adjacent atoms such as hydrogen. The relative size of these coupling constants gives information on molecular structure and conformation, which is vital to understanding the interactions of organic molecules with biological systems. This presentation will feature the analysis of coupling constant data from carbohydrate research samples and will discuss the relative conformations of these molecules.
- Chupa, Jennifer L** Psychology Humphrey Rm. 2:15 - 2:30  
*Putting a Face on Poverty: Perceptual Differences Towards Poor Women and Poor Men*  
 Intimate knowledge of episodic circumstances preceding poverty will elicit more sympathy than spontaneous stereotypical responses to poverty. This experiment will be broken into two main groups; one group will rate poor women and the other group will rate poor men. Of the group that will rate poor women, half of the group will receive a scenario that episodically frames the circumstances of a poor woman, and half will read a novel article equivalent in length. The same dynamic will be used with the group rating poor men. The data gathered from the framed questionnaires will be compared to the data gathered from the controlled questionnaires. I hope to find that the experimental group will display attitudes towards poor people that are more sympathetic than those of the control group. I also anticipate that attitudes towards poor women will be more positive than those towards poor men.
- Cochran, Thomas C** Mathematics and Statistics Ohio Rm. 10:30 - 12:00  
*Mechanisms that Regulate Relaxation Pathways in Aortic Smooth Muscle*  
 Smooth muscle tissue is found in blood vessels and many major organs of the human body. Smooth muscle contraction and relaxation play pivotal roles in regulating the flow of blood through our blood vessels. During a summer research project, we exposed smooth muscle to different drugs and inhibitors to determine what effect each had on contraction and relaxation. The smooth muscle we used came from the aortic tissue of Long Evans rats, and experiments were performed in a solution that mimics the temperature and concentration levels of fluids inside the animal. Although this is a small piece of a larger experiment, hopefully the final results will allow us to see the role smooth muscle tissue plays in hypertension.

- Cole, Michelle K** Biology Pugsley Rm. 11:15 - 11:30  
*The Effects of Nocturnal Light in *Odontotaenius disjunctus* (Coleoptera: Passalidae)*  
 The effects of nocturnal light on the activity of burrowing insects have been rarely investigated. The goal of this study was to examine the effects of nocturnal light intensity on nocturnal activity of Bess beetles (*Odontotaenius disjunctus*). Individuals (n=18) were exposed to three artificial light treatments 25w (low light treatment), 50w (medium light treatment), or 75w (high light treatment) Eco terra Night glo bulbs that were used to simulate the moonlight intensity of new moon, half moon, and full moon, respectively. During each light treatment, the activities were observed and amount of time spent in total activity; walking, feeding, burrowing, and resting under the mulch. These activities of *O. disjunctus* were videotaped for four hours under artificial lights on the three nights around each lunar phase. They were then compared to determine if time spent doing each activity was significantly affected by the artificial light. Total activity (walking, feeding, and burrowing) differed significantly between the high light treatment and the medium light treatment, but this difference was not due to time spent walking, feeding, or burrowing. That difference was due to time spent resting (above the mulch) and time spent under the mulch. These results suggest that nocturnal light intensity may affect the nocturnal activity of *O. disjunctus*. This may be due to the fact that beetles are infesting of wood on the full moon (Zürcher 2001), or creating family living structures or mating during the half moon. Tunnels and chambers were both found after the half moon supporting the idea that they were creating family units. Young were found supporting the idea they were mating. These are possible reasons they may be affected by the lunar phases, but more studies need to be done.
- Coller Sr, Robert E** Geological and Environmental Sciences Jones Rm. 10:30 - 10:45  
*Hurricane Perception: Native Islander Perceptions of Hurricanes*  
 Our project is one of both cultural ethnology and geology. We plan to better understand the Bahamian Culture and increase our good relationship with them through personal interviews. Our focus for the interviews will be geology based, by asking about their perceptions of hurricanes, specifically Hurricane Frances in 2004. We want to understand how the Bahamians of San Salvador feel about hurricanes in general, prepare themselves for hurricane arrivals, and go on after the hurricanes have passed. By using a geological focus for the interviews, we can start a data base containing the areas of San Salvador that have been worst damaged by past hurricanes, as well as what type of damage has occurred. This data base can be used by future students to continue a study started this year on ancient hurricanes.
- Colucci, Abigail** English Bresnahan Rm. 4:15 - 4:30  
*Walt Whitman and Abraham Lincoln: The Paradox of the Individual and the Union*  
 This paper, entitled "Walt Whitman and Abraham Lincoln: The Paradox of the Individual and the Union," evaluates the tumultuous political events that occurred during the 1850s, through the Civil War period of the 1860s, which tried the strength of the Union, and ends during the 1870s, which is when Whitman gave his oral speeches in regards to President Lincoln's death. The paper further deals with the links between poet Walt Whitman and President Abraham Lincoln, how they dealt with the issue of preserving the union, and how they simultaneously developed an idea of reconciliation between the paradox of the individual and the union; however, I also prove that, while both men did discover how to solve this problem, the paradox, which warred liberty against power, was unable to be resolved due to the Civil War and the premature death of President Lincoln. Through their writings, speeches, and ideas, both Whitman and Lincoln attempted to reconcile the paradox of the individual and the union; however, both may have been too idealistic in their hopes of resolution and national events may have prevented the complete acclimation of their desires. Both great men held the preservation of the Union in their highest regards and used every opportunity to speak out against anything that would stand in the way of maintaining the Union. While both men knew their conception of the Union was an ideal vision, after the death of Lincoln Whitman realized this mystical dream to solve the paradox would never fully blossom, and therefore attempted to cover up this paradox by focusing instead on the tragic loss of Lincoln. Instead of uniting the nation through democracy, Whitman attempted to unite the nation through the fallen president.
- Corman, Kevin M** Biology Ohio Rm. 10:30 - 12:00  
*Nicotine Increases Motor Activity in Male and Female Rats*  
 A better understanding of the mechanisms of nicotine dependence and withdrawal is needed in order to treat people during nicotine cessation. This study examined the behavioral responses of male and female laboratory rats (Sprague-Dawley) to various doses of nicotine. Female rats were further analyzed to determine if estrus hormones influenced the response to nicotine. Groups of rats were subjected to daily intraperitoneal injections of nicotine. Locomotor activity was monitored using automated Opto-Varimex animal activity monitors (Columbus Instrument; 43.2 x 44.4 cm). The activity monitors measure horizontal and vertical movements. Behavioral measurements (distance traveled over given period of time) were taken by monitoring movement via computer tracking software. Nicotine at doses of 0, 0.01, 0.03, 1 or 3 mg/kg was administered twice daily for seven (7) consecutive days. All groups were then subjected to a withdrawal period of three (3) days. On the eleventh day, all rats were given a test dose of nicotine and behavior was measured again. Statistical analysis showed that nicotine has a significant dose-dependent effect to increase locomotor activity of both male and female rats. Presently, data are being further analyzed to determine if there were sex related differences in the sensitivity to nicotine and if the state of the estrus cycle of the female rats played a role in the resulting behavior once nicotine was administered. Test day results showed that the rats that had been previously treated with nicotine exhibited a larger behavioral response than the rats that had not received nicotine. Furthermore, the magnitude of this response was proportional to the nicotine dose. This enhanced response to nicotine following previous exposure to the drug is termed behavioral sensitization and provides a measure of the degree of nicotine addiction. In the future we hope to use this measure to assess the effectiveness of novel treatment strategies for treating nicotine addiction.

- Cornfield, Jeffrey T** Mathematics and Statistics Ohio Rm. 8:30 - 10:00  
*An Examination of the Water Quality of Cattaraugus Creek,*  
 The purpose of this study is to evaluate the water quality of Cattaraugus Creek in New York. A comparative study during high and low flow, along with differences in water quality in each branch, was conducted through out the three river branches: Combined Main, and South Branch. The Main and South Branches converge to make up the Combined Branch. Data previously take from last year will also be used to compare the branches on a year to year variance. Using an YSI 6600 Sonde Probe the water quality parameters taken were, temperature, specific conductivity, pH, turbidity, dissolved oxygen, and chlorophyll. Nitrate and Phosphate nutrient tests were also conducted using standard methods, along with Fecal Coliform counts. All the data was collected and analyzed by using Microsoft Excel and statistical differences by using SPSS. Calculations for the transects of the river- including the stream bed and river banks- were taken, using a level, laser, measuring tape, and meter stick, we were able to calculate the depth at a certain width. Based on the ANOVA results fluctuated in statistical difference in the water quality for each individual branch as well as a different between day to day and year to year data and low and high flow data of the river.
- Crawford III, Alvin E** Criminal Justice Room 2068 2:00 - 2:15  
*U.S. Parole in Concept and Process*  
 I will discuss the following: a chronological history and definitions of the federal parole system from origin to present day, a collection of public and professional responses on the purpose and efficiency of parole, two to three cases-in-point of praiseworthy/critical/mixed feelings toward the parole experience, and a commentary on trends and issues.
- Crook, Michelle M** Electrical and Computer Engineering Gallery 1:45 - 2:00  
*Electronic Controller for Water Temperature and Level*  
 A sophisticated controller will be desired to control the water level and temperature of a bathtub. The controller is built using digital and analog knowledge along with circuit design and programming. In order to control the water level, a strip of sensors will be used with the program C++. The temperature of the bath water is controlled by a microprocessor.
- Crunkleton, Justin R** Mechanical Engineering Gallery 9:00 - 9:15  
*Human Powered Vehicle*  
 Human Powered Vehicles (HPV's) are aerodynamic, highly engineered vehicles that may be used on land, in the water, or the air. Although vehicles operated by human power are not in high demand in this age of computers, the engineering and design elements of such vehicles are of importance for engineers. This study illustrates the design and testing processes for a three wheeled, single rider HPV similar to a recumbent bike. The main goal of this project was to successfully engineer a HPV with focus on: elegance and ingenuity of design, safety, practicality of design, and presentation. The goal was to strip the existing HPV of nearly all components, leaving only the frame, front pedals, rear wheel, and rear derailleur. The entire steering system, front wheels and hubs, drive train, brake system, frontal fairing, and seat will all be redesigned to maximize efficiency, safety, and ease of use. The performance of the HPV was rigorously tested in a series of competition events sponsored by the American Society of Mechanical Engineers (ASME): 1) Design Event, 2) Sprint Event, and 3) Endurance Event. The design event allowed the judges to consider the HPV's physical design, while weighing in a formal written report and an oral presentation given by the team. There was an emphasis on originality and soundness of design. Also considered in the design were the safety aspects, such as braking and turning radius requirements. The sprint event tested the vehicle's straightaway speed along a 100 meter flat course. The endurance event tested the vehicle's ability to race on a grand prix style road course of approximately 65 kilometers in length. The performance of our vehicle was a reflection of our overall design abilities including computer simulation, use of applicable calculations, and quality of fabrication.
- Curiale, Joseph A** Biology Ohio Rm. 10:30 - 12:00  
*The Effect of Substance P, a Commonly Found Tachykinin, on the M-Current of Bullfrog Sympathetic Neuron Cells*  
 Substance P is a small peptide molecule consisting of a chain of eleven amino acids that is employed in the central nervous system for the transmission of pain information. Substance P binds to and activates its receptor, resulting in the inhibition of a specific ionic current, the M-current (Im). Inhibition of Im is an important mechanism for the transmission of pain information to higher brain centers. With continued exposure to Substance P, the receptor undergoes desensitization, after which the receptor no longer responds to the peptide and allows for Im recovery. This desensitization mechanism decreases neuronal activation and thus reduces pain transmission. Using electrophysiological recordings from isolated bullfrog (*Rana catesbina*) neurons, investigation of M-current inhibition by Substance P and the decrease in this inhibitory action with time as the Substance P receptor desensitizes can be studied. The specific goals of this investigation are to determine the magnitude of M-current inhibition by various concentrations of Substance P, and the timing and magnitude of receptor desensitization in the continued presence of Substance P. It is hoped that a Substance P analogue can be designed that produces desensitization without activation, thereby blocking the transmission of pain information.
- Custer, Alexia N** Psychology Humphrey Rm. 1:30 - 1:45  
*Attribution of Blame*  
 The purpose of this study was to examine attributions of blame for victims of a violent crime. The hypotheses of this were 1) the defendant will receive a longer prison term when the female victim is sober than when she is intoxicated, 2) the victim will receive a larger percentage of blame when she is intoxicated than when she is sober, and 3) when asked to reconsider with a time difference, the defendant will receive more jail time, indicating a relatively stronger tolerance to sexual assault today compared to thirty years ago. Forty Youngstown State University female undergraduate students volunteered to participate in this study. After completing written informed consents, the participants read a scenario about an incidence of sexual assault. One half of the students read about a young woman who was intoxicated at the time of the assault; the second half reviewed a scenario in which the individual is sober. The participants were asked to sentence the defendant to a prison term and also to attribute blame to each person involved. Judgments were made by filling out a two page questionnaire. After completing the first page, students were asked to recall the scenario, but to imagine it had taken place in 1976, thirty years earlier. With the time difference in mind, participants were asked to reconsider the length of the prison term and percentage of blame they had previously assigned to the individuals involved in the incident. Results will be discussed in the context of attribution theory.

- D'Angelo, Larissa** English Bresnahan Rm. 2:15 - 2:30  
*Censorship in American Schools and Libraries: a Local Survey.*  
 The research involved more than fifteen local high schools, middle schools, and public libraries. The research's aim is to investigate on the actual state of censorship in children's literature in local educational institutions and in the entire public library system of the Mahoning Valley. The statistics on the most frequently banned books at a local area will be compared with the national survey compiled by the ALA Office of Intellectual Freedom. A subsequent local vs. national comparison of the reasons why such books cannot enter classrooms will be done. The results of the survey will clarify what Youngstown students grow up reading, why it is so, and how this affects society as a whole.
- Dao, Khao M** Chemistry Ohio Rm. 10:30 - 12:00  
*Metal Catalyzed Oxidation: Copper vs. Cobalt in the Oxidation of Hen Egg White Lysozyme*  
 Reactive oxygen species (ROS) are a class of compounds produced by the reduction of molecular oxygen. They are involved in over 100 human diseases. ROS are generated from a variety of sources, but the most common means of production is a reaction between a metal ion and naturally produced hydrogen peroxide. Usually metal ions are tightly sequestered to prevent the production of ROS; however, due to a number of disease states, aging, and periods of oxidative stress, metal ion concentrations increase in the blood. Available metal ions will bind to biological molecules. Reaction of these bound metal ions with hydrogen peroxide leads to the production of ROS causing damage in a localized area. This localized damage is referred to as site-specific damage. Such damage occurs to all classes of biological molecules but particularly targets proteins. This study compares the oxidation of a model protein, hen egg white lysozyme, by using copper or cobalt in the presence of hydrogen peroxide. Oxidation was examined by high performance liquid chromatography (HPLC), sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE), and mass spectrometry (MS).
- Darling, Julia K** Chemical Engineering Gallery 1:30 - 1:45  
*Analysis of a Production Process*  
 This analysis of an acetone production process has been speculated to have potential to be used in industry. This acetone production process was analyzed by manipulating temperature and pressure of various industrial equipment to find the most acetone that could be produced given the reactions. Analysis was done with ChemCad, Excell, and price analysis was also done and includes speculation about whether or not this process would be feasible to be used in industry.
- Davison, Laura** Chemistry Ohio Rm. 8:30 - 10:00  
*Conformational Analysis Using 1H-1H Coupling Constants*  
 One of the main goals in the second semester of Organic Chemistry (Chemistry 3720) is for students to become familiar with the tools used by Organic chemists to work out the structures of their molecules. The main technique employed is Nuclear Magnetic Resonance spectroscopy (NMR), which gives detailed information about the types of atoms present in molecules, as well as how those atoms are connected. One of the most useful pieces of information to be taken from NMR spectra is the coupling constant, which is a measure of the communication between adjacent atoms such as hydrogen. The relative size of these coupling constants gives information on molecular structure and conformation, which is vital to understanding the interactions of organic molecules with biological systems. This presentation will feature the analysis of coupling constant data from carbohydrate research samples and will discuss the relative conformations of these molecules.
- Day, Stephanie L** Geography Jones Rm. 1:45 - 2:00  
*Cost of Living Evaluation for San Salvador, Bahamas*  
 An evaluation of the prices for consumer goods in stores on San Salvador Island in the Bahamas was done as a means of comparing the relative cost of living in the Bahamas to comparable costs in the United States. A number of factors impact the pricing of commodities on San Salvador. The Bahamian government does not impose sales taxes on income taxes on its residents. Funding of the government is supplied by taxes on imported goods. Tax rates vary according to the perceived level of luxury for a good. A second factor involves the transportation costs of shipping commodities from Nassau to the less populated family islands such as San Salvador. The resulting break-in-bulk costs add to the pricing of the products. The final consideration is the limited market potential represented by an island with a population of 1000 residents. We collected price information on a variety of consumer goods available at different stores on San Salvador Island. We then compared the prices of these commodities to the prices for comparable goods at retail outlets in the United States. We examined prices at varying retail levels including convenience stores, small scale food stores and larger supermarkets.
- DeWitt, Carli A** Psychology Humphrey Rm. 2:45 - 3:00  
*What's In a Name?*  
 This study examines whether prestige has an impact on people. An earlier study was conducted that found an article written by a man was rated higher than the same article written by a woman. In this particular study there are two exact articles, but in one, the author graduated from The University of Notre Dame, and the other article was written by a graduate of Lakeland Community College. The hypothesis is that the article written by the person who graduated from The University of Notre Dame will be rated higher than the opposite article. It is expected that the prestige of universities will play an important part in this study.
- Dikun, Joseph A** Biology Jones Rm. 1:45 - 2:00  
*Cost of Living Evaluation for San Salvador, Bahamas*  
 An evaluation of the prices for consumer goods in stores on San Salvador Island in the Bahamas was done as a means of comparing the relative cost of living in the Bahamas to comparable costs in the United States. A number of factors impact the pricing of commodities on San Salvador. The Bahamian government does not impose sales taxes on income taxes on its residents. Funding of the government is supplied by taxes on imported goods. Tax rates vary according to the perceived level of luxury for a good. A second factor involves the transportation costs of shipping commodities from Nassau to the less populated family islands such as San Salvador. The resulting break-in-bulk costs add to the pricing of the products. The final consideration is the limited market potential represented by an island with a population of 1000 residents. We collected price information on a variety of consumer goods available at different stores on San Salvador Island. We then compared the prices of these commodities to the prices for comparable goods at retail outlets in the United States. We examined prices at varying retail levels including convenience stores, small scale food stores and larger supermarkets.

- Dikun, Joe** Chemistry Ohio Rm. 8:30 - 10:00  
*Conformational Analysis Using 1H-1H Coupling Constants*  
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- Dittrich, James W** Counseling Jones Rm. 5:00 - 5:15  
*The Legal Environment of Intervention in Child Abuse and Neglect in the Electronic Age*  
 The web can be a valuable source of information for educators; directory information for state agencies, investigative procedures, and legal information about changes in mandatory reporting obligations (brought about by Ohio Revised Code Section 2151.421) are available to guide school employees. Megan's Law and The Jacob Wetterling Crimes Against Children and Sexually Violent Offender Registration Act establish the legal grounds on which sex offender registries have been created in all fifty states. Access to this information is available online to educators that suspect sexual abuse. On the other side of the coin, sexual predators routinely use the Internet to initiate contact with potential victims. Social networking sites, whose target audience demographic includes minor children, provide predators with personally identifiable information that can be used to identify, contact, or locate a child. Internet web sites can also lead to school policy conundrums. It is clear that reporting is mandatory, but in the spectrum of these cases, where are the boundaries where teachers and administrators can intervene? We will explore this gray area in a test case, Latour vs. Riverside Beaver School District, filed in Western Pennsylvania District Court. This case involved a student who published rap songs, outside of school, on the world wide web. The school district expelled the student on the basis of the threatening and psychologically damaging lyrical content, and was subsequently sued by the ACLU on First-Amendment grounds.
- Doddato, Rachel d** History Coffelt Rm. 3:30 - 3:45  
*Children of the Lodz Ghetto*  
 The children of the Lodz ghetto were not given the luxury of having a childhood. As children, they were faced with adult issues and responsibilities. Although, they were still denied the full benefits. Children had to treat the preservation of themselves as their goal. They had to face the world as adults without having left, or in some cases even entered, puberty. The story of the children of the Lodz ghetto has only been touched upon and this work hopes to add to the information available.
- Dong, Fei** Computer Science and Information Systems Humphrey Rm. 11:30 - 11:45  
*Spam Detection and Identification*  
 Data Mining is the process of analyzing data to identify patterns or relationships. These patterns are not easily detectable. Data Mining makes use of various algorithms to dig down into the data and find useful patterns, hence the name data "mining". E-mail spam involves sending identical, or nearly identical messages to thousands (or millions) of recipients without their permission. The difference between legitimate mail and illegitimate mail is not clear enough for the currently used filters. The relation between the two can be found out using data mining techniques. By looking at the spam mails and legitimate mails, we can find out the differences between them and determine rules which characterize a "spam" mail. This problem is categorized as classification task. Various data mining techniques are being experimented to build a powerful spam filter like statistical approach, making use of statistical procedures; behavior based spam filtering, offline data mining analysis system, learning systems – supervised learning, (document) density based spam filtering as well as real time spam filtering for the advancement of data mining. These techniques have taken spam filtering as a challenge and if successful, will end the spam nightmare. There are several other methods used to classify various data objects into class decision trees, model evaluation, rule-based classifier, nearest neighbor classification, Bayesian Classification. This paper deals with the evaluation of various methods, and their effectiveness in determining spam mail from legitimate mail. Also, the basic data mining techniques such as data visualization are used to tackle this problem better.
- Donnadio, Michelle A** Electrical and Computer Engineering Gallery 1:45 - 2:00  
*Electronic Controller for Water Temperature and Level*  
 A sophisticated controller will be desired to control the water level and temperature of a bathtub. The controller is built using digital and analog knowledge along with circuit design and programming. In order to control the water level, a strip of sensors will be used with the program C++. The temperature of the bath water is controlled by a microprocessor.
- Donofrio, Maureen E** Educational Administration, Research and Foundations Jones Rm. 4:45 - 5:00  
*Teaching By The Seat of Your Pants -- Literally!*  
 Are we innocently preventing our students from learning? Are we unknowingly causing harm due to something we look at but never think about every day we're in the classroom? Explore the physiological effects of traditional ninety-degree seating on students' ability to learn. Recieve information on types of seating that are more conducive to learning. Danish physician, A.C. Mandal, has changed the face of Danish schools with his new design of school furniture. Danish school furniture protects the spine and lessens the chance of chronic back pain in adults. According to Mandal, the number one cause of chronic back pain in adults stems from traditional 90-degree seating that we endured as schoolchildren. Americans tend to purchase school furniture based on economics and stackability, leaving little concern for the health and safety of our student's. See what furniture is out there, and learn what buyers should beware of with the new "ergonomic" furniture.

- Dowe, Gerald C** Psychology Humphrey Rm. 2:30 - 2:45  
*The Effects of Social Facilitation on Multiplication Problems*  
 My study consists of the effects of social facilitation on multiplication problems. The participants are General Psychology students, taking one of three simple multiplication tests in the basement of Debartolo Hall. The participants taking the test will have ten minutes to complete the test. They are instructed that there be no talking, and that they will not be permitted to use any calculators. They are instructed to work left to right and to complete all of the problems. There will be two different conditions to the test, the alone condition or the audience condition. All instructions will remain the same for both conditions. The students with the audience will be told that the people that they see in the room are just there to evaluate their performance, and that there is to be no talking. I will be present in the room during the testing at all times. I will run five participants in the audience group making one student the test taker, and the other four the audience. I will run only one student in the alone condition. I will be the only one who will score the tests, and who will see the results. The students will be advised not to talk about the experiment to their class mates and that it is to remain confidential.
- Drabison, Dave A** Mechanical Engineering Gallery 11:45 - 12:00  
*YSU Super Mileage Vehicle Design*  
 When developing a super mileage vehicle, many different design characteristics need to be taken into consideration. Such design aspects include the aerodynamics and material used for the body, the material of the frame, and most importantly the overall efficiency of the engine, while at the same time being cost effective. These design characteristics all must be taken into consideration due mainly to the limitation of the resources available. Fuel consumption, or the use of the world's limited natural resources, has become one of society's largest concerns. This very aspect has led to innovative design modifications for more efficient engines. These engines have allowed for development of vehicles to conserve fuel. The vehicle's engine efficiency is directly affected by various aspects of the engine along with the body of the vehicle. When designing a super mileage vehicle, which in our case is a three-wheeled vehicle, each aspect of design must be considered. Characteristics concerning the vehicle design included weight, aerodynamics, and optimum engine performance. The report will illustrate various analysis of the aerodynamics of the body of the vehicle including drag coefficients, weight analysis before and after all modifications, and also engine performance before and after modifications. The majority of the design focused on optimizing the engine by the following methods: Tuning the gear ratios to provide maximum output using basic kinematics, designing an appropriate exhaust length for maximum power using exhaust wave analysis, and obtaining proper air to fuel ratios for maximum performance. These aspects will be tuned specifically for the speed range the vehicle will operate at during competition. As an end result, maintaining a higher fuel economy and tuning a more efficient engine will obtain a more resourceful vehicle. The findings will be presented for future reference and provide a starting point for future teams that choose to further develop this project.
- Drennen, Blake E** Geography Jones Rm. 2:15 - 2:30  
*GIS In Real Estate*  
 Our primary example focuses on the methods and procedures of analyzing data spatially in existence with other variables to decipher planning for the real estate industry. Our project is an example of implementing a casino in downtown Youngstown. It must be noted that our conception in presentation does not try to encompass all potential for the software, for the measure is far too great. However, we will communicate the potential for marketing schemes and maneuvers jointly from a technical perspective. Our slide presentation shows the nature of the planning stages conversely through the results of the software (GIS). A fully rendered example of our structure placement will be given as well. Our overall achievement is to display the importance and versatility of spatial technology within the realm of information technology.
- Dripps, Kelly M** Middle Childhood Education Jones Rm. 4:00 - 4:15  
*Managing Young Adolescents and Environments-Strategies and Techniques*  
 I will present the data that I collect regarding middle school teachers' perceptions of student behaviors. I will survey the teachers about their most prevalent behavior problems, use of classroom rules, and whether they subscribe to a particular classroom management theorist.
- Duca, Marco S** Mechanical Engineering Gallery 11:15 - 11:30  
*Racing Go-Kart*  
 Racing go karts have been around since the 1950's but have just recently began to progress into a sport of its own. Today, these highly modified, fast and agile karts are used for training tools for professional racers and as a hobby for the recreational weekend warrior. The kart being built for this particular project is a road racing kart consisting of an electric start 125cc two-stroke engine producing roughly 28 horsepower with a top speed near 85mph and a 0-60 time equivalent to that of most modern sports cars, roughly 5 seconds. The engine and components will be mounted to a 4130 Chrome-moly rigid frame. The completed kart will then be tested and tuned until the group is satisfied and raced in a local karting series. A number of different tests and analysis will be performed on the kart. Stress analysis will be performed on the chassis. The kart frame will be drawn using the SolidWorks software available and analyzed with the Algor FEM PRO application. Modifications to the frame may take place based on the stress analysis results
- Duncan, Sara** Chemistry Ohio Rm. 8:30 - 10:00  
*Towards Mimics of the Aminosugars Found in the Capsular Polysaccharides of S. aureus types 5 and 8*  
 The protective capsular polysaccharides that coat S. aureus types 5 and 8 contain the rare aminosugars N-acetyl-D-mannosamine uronic acid, N-acetyl-D-fucosamine, and N-acetyl-L-fucosamine. We are interested in producing analogs of these sugars that may be capable of disrupting the biosynthesis of the individual sugars and the construction of the capsular polysaccharide. An approach to N-acetyl-L-fucosamine from L-rhamnose will be presented along with our efforts on mimics of each of the enantiomeric fucosamines.
- Duran, Jonathan J** Computer Science and Information Systems Ohio Rm. 1:30 - 3:00  
*A Quest for Quest: Designing a Web-Based Gaming Environment*  
 Macromedia Flash Professional 8, the industry's most advanced authoring environment for creating interactive websites and digital experiences, was utilized to create a computer adventure game entitled "Quest." Five critical development issues will be discussed; 1) collision detection – strategies for building virtual environment boundaries, 2) motion illusion – using a stationary character and background translations to create the effect of movement, 3) depth layering – using multiple graphic layers to generate the appearance of depth in a two-dimensional world, 4) action script programming – including timesaving tips to avoid code redundancy, and 5) file-size management – standard practices to minimize load time via the web, and maximize the user's experience.

- Durochia, Suzanne M** Marketing Pugsley Rm. 3:45 - 4:00  
*A Short Study Tour: What Works and What Doesn't?*  
 January 5-15, 2006, a group of students traveled to London as part of Youngstown State University's Business Study Tour. After being involved in this study tour, we will present what makes a short (10-14 day) study tour successful, and what problems may arise during an overseas study tour. Also, the feasibility of money spent to education gained in the short time spent studying. This presentation will also compare the relationship and differences between undergraduate and graduate study tours. We will describe what advantages or disadvantages there are when integrating the two different groups. We will also compare some educational benefits of a study tour to a classroom education. We will describe how a short study tour can substitute for a semester abroad with comparable educational benefits.
- Durse, Nick A** Mechanical Engineering Gallery 2:15 - 2:30  
*Materials Engineering at Youngstown State - Part II*  
 The revitalization of Materials Engineering at Youngstown State University is not only significant for the College of Engineering & Technology, but for the entire campus and local community as well. Equipment such as the scanning-electron microscope (SEM), the energy-dispersive x-ray spectrometer (EDS), the three-dimensional printer (3DP) and powerful materials characterization software enable students to become involved in advanced research in the exciting field of materials engineering. Research of this magnitude is tied to industry participation, as there is local demand for the testing and analysis of industrial engineered materials. Under the direction of Dean Cynthia Hirtzel, students complete and continue to work on projects related to materials engineering. This includes the testing and evaluation of engineered materials, materials characterization analysis, and failure analysis. The basis of this presentation will be the projects and appropriate technologies available to students of Materials Engineering.
- Eaton, Jessica L** Counseling Ohio Rm. 1:30 - 3:00  
*Real Solutions*  
 The Eta Chapter at Youngstown State University has put together a Public Service Announcement that will air on local TV stations and Youngstown State University's public radio station. The purpose of the PSA is to advocate for the counseling profession by educating the public about what counseling is and how to go about obtaining counseling services. The PSA is short and simple. It describes what counseling is and who counselors are in a straightforward and creative way. The poster part of the presentation will be in power point slides with the following information: U.S. prevalence rates of mental health diagnoses, a description of what counseling is and why someone might seek counseling, an explanation of confidentiality, common diagnoses and mental health issues in our local area and finally a brief highlight of the services offered by the Community Counseling Clinic on the YSU campus. We believe that this PSA will help to clarify and give a better understanding of what counseling is in a creative and exciting way.
- Eisermann, Kurtis** Biology Ohio Rm. 8:30 - 10:00  
*Generation of a Single Chain Variable Fragment (scFv) Specific for S. aureus Type 5 Using Phage Display Technology*  
 A scFv specific for Staphylococcus aureus (S. aureus) Type 5 capsular polysaccharide (CP) will be produced. Hybridomas specific for type 5 S. aureus were grown and total RNA was isolated. cDNA was synthesized and amplified by PCR. Mouse IgM light chain primers (with Sac I and Hind III restriction sites) and heavy chain primers (with Xho I and Spe I restriction sites) were used to PCR antibody cDNA and the resulting DNA was purified. Restriction digests of purified plasmid pSCL and PCR products were ligated together, which produced a band about 450 base pairs in length. Sequence analysis will be performed and the resulting gene products will then be amplified and made into a scFv using a peptide linker fragment. The scFv will be amplified, cloned into a phagemid vector, and transformed into competent E.coli. Helper phage infection should yield recombinant phage expressing the scFv fused to phage g3p (pIII). These recombinant antibodies have the potential of being used to treat S. aureus infections.
- Emery, William D** Geological and Environmental Sciences Jones Rm. 11:30 - 11:45  
*Mapping the Bathymetry of Pigeon Creek Delta, San Salvador, Bahamas*  
 The Pigeon Tidal Estuary is a major feature on the Island of San Salvador, the Bahamas. The estuary covers an area of approximately seven square miles and fills during high tides and subsequently drains during the intervening low tides. The discharge of water from draining transports a tremendous amount of sediment that is deposited as a large submerged delta inside of Snow Bay at the mouth of the estuary. The location of the delta on the eastern side of the island makes it particularly susceptible to reworking and displacement by tropical storms and hurricanes. The project has several intended outcomes; 1) characterize the morphology of the delta by creating a bathymetric map using a high density grid of GPS position coordinates and bathymetric soundings and 2) determine the volume of displaced/added sand from the delta by comparing the bathymetric map to preexisting maps.
- Esarey, Tyne F** Communications Room 2068 4:00 - 4:15  
*Nursing Home Resident Ethnography*  
 Ethnography is a detailed study of a few individuals with the goal of understanding a certain group of people. It is to help understand the individual's reasoning, behavior, and other actions. I have chosen to do an ethnography based on my major. I will be interviewing a few nursing home residents and telling their story. The ethnography will include their story and their views of living in a nursing home facility.

**Eshenbaugh, Eric D**

Electrical and Computer Engineering

Gallery 4:15 - 4:30

*Solar Tracking*

This Solar tracking project is for our senior design capstone class, which will apply the background information we have learned collectively as a group over the past four years. We hope this will give us a look into real world electrical engineering practices and help us further our growth as engineers. This project will required us to not only work as a team, but will also call into our planning, budgeting, organization, and time management skills. Solar energy can have a very large impact on our environment, which is a very important idea to keep in mind when designing a project. It can be very helpful in reducing the fossil fuels and non renewable resources that are used on a daily basis. There is no waste from solar power. Nothing is let into the air, and nothing harmful to the environment is released as a byproduct due to solar energy consumption. Our goal is to successfully complete the project with as few problems and complications as possible. Our project will consist of lager solar panel controlled by many smaller solar panels. We believe that alternate energy sources will become very important in our future and solar power will be heading the charge. One of the main concerns about the use of solar energy is the cost of building the equipment. Our budget, shown later in the proposal, can show that this can be build at a reasonable cost and in the long run will more than pay for itself due to the high efficiency of solar panels and solar cells. The results of this project will be presented in an oral and written report given at the end of our capstone senior design course. Working together as a team, we hope to accomplish these goals in the given time period.

**Eskay, Sarah B**

Geological and Environmental Sciences

Jones Rm. 11:15 - 11:30

*Sand, Sediment, and Marine Tissue Analysis Using NAA and ICP*

The purpose of this study was to search for metal contaminants in soil, sand or fish samples from the island of San Salvador. Samples of soil, sand and various fish tissue were collected and brought back to YSU for metal analysis using Neutron Activation Analysis and Inductively Coupled Plasma. Both techniques test for elemental content although sample preparation and analysis is different for each method. Only soil and sand samples were originally collected in March of 2005 and manganese was identified in samples that came from several dump sites. There were also several suspect peaks of interest in the spectrum from last year that could not be positively identified from Pigeon Creek Estuary. This year a new detector was purchased for NAA and a second test method (ICP) will be used in order to identify possible metal content in the dump sites as well as Pigeon Creek Estuary. In addition, samples of fish and mollusks were collected this year in order to identify any bioaccumulation of metals in the local food chain. The search for metal contamination in the food chain is motivated by the accumulation of debris found on the island as well as contaminants from other sources in the ocean.

**Eskay, Sarah B**

Biology

Ohio Rm. 8:30 - 10:00

*An Examination of the Water Quality of Cattaraugus Creek, New York.*

The purpose of this study was to evaluate the water quality of Cattaraugus Creek in New York. A comparative study during high and low flow, along with differences in water quality in each branch, was conducted through out the three river branches: Combined Main, and South Branch. The Main and South Branches converge to make up the Combined Branch. Data previously taken from last year will also be used to compare the branches on a year to year variance. Using an YSI 6600 Sonde Probe, the water quality parameters taken were temperature, specific conductivity, pH, turbidity, dissolved oxygen, and chlorophyll. Nitrate and Phosphate nutrient tests were also conducted using standard methods, along with Fecal Coliform counts. All the data was collected and analyzed by using Microsoft Excel and statistical differences by using SPSS. Calculations for the transects of the river, including the stream bed and river banks, were taken using a level, laser, measuring tape, and meter stick. We were able to calculate the depth at a certain width. Based on the ANOVA results, fluctuations in statistical difference in the water quality for each individual branch, as well as a difference between day to day and year to year data, and low and high flow data of the river were observed.

**Evans, Joel M**

Marketing

Pugsley Rm. 4:00 - 4:15

*A Short Study Tour: What Works and What Doesn't?*

January 5-15, 2006, a group of students traveled to London as part of Youngstown State University's Business Study Tour. After being involved in this study tour, we will present what makes a short (10-14 day) study tour successful, and what problems may arise during an overseas study tour. Also, the feasibility of money spent to education gained in the short time spent studying. This presentation will also compare the relationship and differences between undergraduate and graduate study tours. We will describe what advantages or disadvantages there are when integrating the two different groups. We will also compare some educational benefits of a study tour to a classroom education. We will describe how a short study tour can substitute for a semester abroad with comparable educational benefits.

**Fenstermaker, Fred C**

Geological and Environmental Sciences

Jones Rm. 11:45 - 12:00

*Salt Water Encroachment in the Cockburn Town Aquifer, San Salvador, Bahamas*

Many of the islands in the bahamas suffer from poor and even unhealthy water quality. As the well fields pump freshwater from shallow aquifers, the aquifer is recharged with saline water that travels through the subsurface from the ocean. The saline water, is a natural contaminant that may render the water produced from the field unfit for human consumption. Our research focuses on the Cockburn Town well field on the Bahamain island of San Salvador. We propose to study the long term effects of over-production at the wellfield on the island of San Salvador by measuring salinity levels and comparing the findings to data collected over several years. By understanding and monitoring the problem we hope to predict future well quality and offer a viable solution to the problem of high salinity levels. The presented results are based on salinity profile measurements performed in March 2006 on approximately sixty wells in the Cockburn Town water well field.

**Fortner, Meghan J**

Counseling

Ohio Rm. 1:30 - 3:00

*Real Solutions*

The Eta Chapter at Youngstown State University has put together a Public Service Announcement that will air on local TV stations and Youngstown State University's public radio station. The purpose of the PSA is to advocate for the counseling profession by educating the public about what counseling is and how to go about obtaining counseling services. The PSA is short and simple. It describes what counseling is and who counselors are in a straightforward and creative way. The poster part of the presentation will be in power point slides with the following information: U.S. prevalence rates of mental health diagnoses, a description of what counseling is and why someone might seek counseling, an explanation of confidentiality, common diagnoses and mental health issues in our local area and finally a brief highlight of the services offered by the Community Counseling Clinic on the YSU campus. We believe that this PSA will help to clarify and give a better understanding of what counseling is in a creative and exciting way.

- Fox, Kristin** Teacher Education Jones Rm. 4:30 - 4:45  
*Rhythm and Rhyme: Poetry Across the Middle School Curriculum*  
 This presentation will explore the various ways that teachers can use poetry with Middle level students in the content areas. Poetry is known to be an inspiration for reading, writing, and language acquisition for middle level students. This presentation looks at how poetry can enhance content areas such as math, science, social studies, music, and art. The presenters will demonstrate motivational activities for reading and writing poetry using popular children's authors' works as a springboard for original student compositions. Poetry has the potential to increase students' interest in their content areas and to help them retain content information.
- Fuchs, Joanna M** Dana School of Music Bresnahan Rm. 10:30 - 10:45  
*Critique and Parody in Bartok's Concerto for Orchestra*  
 Béla Bartók's Concerto for Orchestra is considered one of his most successful compositions. Within the concerto, lies different themes and motivic material based on the folkloric studies Bartók conducted throughout his life. One of the most interesting features of the concerto is a quotation from Shostakovich's Leningrad Symphony in the fourth movement. The Leningrad Symphony received a high reception especially among American society. When Bartók first heard the Leningrad, he was not pleased with the positive reception from American listeners. His opinion about the work is expressed musically through his strategic use of glissandos, etc. The fourth movement interruption has been characterized a parody. One explanation for the interruption in the fourth movement is that fact that Bartók is actually critiquing and mocking American listeners. But only viewing the interruption as a parody it leaves certain questions unanswered. In my paper, I shall analyze the source of the quote and Bartók's musical treatment of this material within his work. Drawing upon evidence found in the autograph manuscripts and the finished work, I shall demonstrate that the interruption is also critiquing American listeners and that it is linked to his time in America. There musical structures point to a different meaning for this quotation, one that transcends both works and to the American audiences. Based on this evidence, I shall argue, Bartók used the quotation from the Leningrad Symphony as a critique of that work in particular, but also of the American society.
- Gall, Bryan D** Electrical and Computer Engineering Gallery 4:30 - 4:45  
*Task Driven Autonomous Robot Configured for Competitive Performance*  
 Robotics is an increasingly growing field in industry for countless applications including the manufacturing of products such as automobiles or the exploration of areas where humans can not traverse themselves. An autonomous robot is presented in order to emulate real-world projects and applications that use robotic control. The robot will be designed and constructed to accomplish the goals of the 2006 Youngstown State University Robotics Competition. This endeavor encapsulates all of the knowledge acquired through the four years of study within the Bachelor of Electrical and Computer Engineering Degree. The project consists of research, design, implementation, construction, programming, and testing in an effort to apply the team's collective knowledge in the fields of electronics and problem solving. The results of the project will be propagated through the team's presentations at the 2006 QUEST: A Forum for Student Scholarship as well as the aforementioned Youngstown State University Robotics Competition. After the competition, the autonomous robot will be adapted for more practical, industrial applications.
- Gallagher, Erin E** Psychology Humphrey Rm. 3:30 - 3:45  
*Female Prejudice against Women in the Field of Photography*  
 Women are still prejudiced against women in the professional field of photography. My experiment is based on the study done by P. Goldberg (1967) in which he studied whether women rated more highly the works of female authors or male authors, when in fact the participants were presented the exact same articles. The study consistently found that women rated the female authors lower than the male authors. My study will test approximately thirty women from Youngstown State University using an independent group's simple t-test. They will be given questionnaires in Debartolo Hall. The participants will be presented with a photograph with one of three names underneath the photo (male, female, or unknown). The students are then going to answer a questionnaire concerning the professional nature of the photographer. All data will be kept confidential, and only Dr. Thomas and Erin Gallagher will have access to this data.
- Gerhardstein, Paul J** Electrical and Computer Engineering Gallery 11:00 - 11:15  
*Home Automation*  
 We plan to design a home automation/cyber security system. To begin this project, we will build a model house and automate devices such as lights, locks, and the garage door. The general idea of the project will be to interface a Visual basic.NET form to a Phidget, which will in turn control the items of choice. Phidget is the interface we will use. We plan to use deadbolts as locks and standard lights. The Phidget will be wired directly to 24 volt relays, which will control the switching operations of the lights and locks. For our garage door, we are going to design a "pulley system" and make the door out of wood which will also be controlled by a Phidget and powered by a motor. The automation will make the room secure and convenient. The PC will give commands to our Phidget, which will then control our devices such as "Lights On, Lights Off." If there is extra time, we can easily build on this project by adding components and tasks such as video surveillance, sensors and internet/network access. We have also not ruled out the possibility of trying to implement our design on an actual room within the engineering building.

**Ghioldi, Anthony M**

Mechanical Engineering

Gallery 11:45 - 12:00

*YSU Super Mileage Vehicle Design*

When developing a super mileage vehicle, many different design characteristics need to be taken into consideration. Such design aspects include the aerodynamics and material used for the body, the material of the frame, and most importantly the overall efficiency of the engine, while at the same time being cost effective. These design characteristics all must be taken into consideration due mainly to the limitation of the resources available. Fuel consumption, or the use of the world's limited natural resources, has become one of society's largest concerns. This very aspect has led to innovative design modifications for more efficient engines. These engines have allowed for development of vehicles to conserve fuel. The vehicle's engine efficiency is directly affected by various aspects of the engine along with the body of the vehicle. When designing a super mileage vehicle, which in our case is a three-wheeled vehicle, each aspect of design must be considered. Characteristics concerning the vehicle design included weight, aerodynamics, and optimum engine performance. The report will illustrate various analysis of the aerodynamics of the body of the vehicle including drag coefficients, weight analysis before and after all modifications, and also engine performance before and after modifications. The majority of the design focused on optimizing the engine by the following methods: Tuning the gear ratios to provide maximum output using basic kinematics, designing an appropriate exhaust length for maximum power using exhaust wave analysis, and obtaining proper air to fuel ratios for maximum performance. These aspects will be tuned specifically for the speed range the vehicle will operate at during competition. As an end result, maintaining a higher fuel economy and tuning a more efficient engine will obtain a more resourceful vehicle. The findings will be presented for future reference and provide a starting point for future teams that choose to further develop this project.

**Gibbs, Scott E**

Electrical and Computer Engineering

Gallery 4:00 - 4:15

*Solar Power Unit*

Our design project will be working with solar panels to help save on energy costs in the future. What we will be doing is using Plexiglas to make a small contained area to which we can show how a house heats. After the house is constructed, we will lay the solar panel on top of the house which will draw our power. Once these solar panels start drawing power from the light source, this power will go to a battery that will get charged up and store the power. Then, after the power is transported to the battery, we will have an A/D converter that will switch over the power. Also, we are going to have to have some relays in line to boost our power up to be able to run our heater. Next, we will run the wires to our heater which will be located inside the house. Once this is all wired up and set up, we will have a 68HC11 microprocessor inside the house with the heater to control the temperature. The processor will have a temperature sensor connected to it to be able to tell the heater to turn on when wanted. So, after the project is completely finished, we will be able to control the temperature from a computer for the Plexiglas house which we have constructed. This, after completion, will bring a new concept in home heating that will save everyone thousands of dollars.

**Goclano, Brianne J**

English

Bresnahan Rm. 2:45 - 3:00

*The Truth About Alcoholism*

The causes and effects of alcohol abuse have been debated for many years. The reason that I am interested on the subject of alcohol use and abuse, is that I have personally dealt with it for many years. My mother has now been sober for ten years, but before ten years ago, and long before, she was an active alcoholic. I have seen what alcohol abuse cannot only do to the person who is abusing it, but everyone that that person comes in contact with, especially their family. Having seen first hand what the abuse of alcohol can do, I wanted to research some of the Scientifics behind alcohol abuse, and some of the medical effects. Alcohol abuse is related to a disease called alcoholism. Alcoholism is a primary, chronic disease with genetic, psychological, and environmental factors influencing its' development and manifestations. (American Council on Alcoholism, 2005) Alcoholism is a disease, which means it is an involuntary disability. This disease can be identified by four symptoms. (NIAAA, 2004) The first symptom is having a craving, or a strong need to drink. The second symptom is loss of control, or the inability to limit your drinking. The third symptom is physical dependence, which is demonstrated through withdrawal when you stop drinking alcohol; withdrawal symptoms include nausea, sweating, shakiness, anxiety. The fourth symptom is tolerance, or the need to drink more to feel a high. Alcoholism is a horrible disease that is very difficult to control.

**Gohlke, David C**

Physics and Astronomy

Coffelt Rm. 11:45 - 12:00

*YSU Miniball Gamma Ray Detector System*

The decay of some nuclei lead to the release of multiple, near-instantaneous gamma rays. These coincident decays can be detected using the YSU Miniball, a portable seven-detector system used by the YSU Isomer Project. The YSU Miniball was used for tests of a hafnium isomer at SPring-8 in Japan. The data that was collected is being analyzed to find if emission rates are enhanced by the presence of synchrotron radiation. This analysis includes characterization of the system, organization of the data by computer, and a statistical comparison of data with the radiation beam on and off.

**Gohlke, David C**

Mathematics and Statistics

Ohio Rm. 8:30 - 10:00

*Mathematical Analysis of Bacterial Growth in the Presence of Toxins*

Last summer, biomathematical research was carried out for SURE (Summer Undergraduate Research Experience), a research opportunity subsidized by the NSF, at Youngstown State University. During this ten-week program based on the application of mathematical techniques to biological research, the influence of certain chemicals on the growth (or death) of bacteria was analyzed. The specific objective of the research was to explore via growth curve analysis the tendency of the amino acid cysteine to endow certain strains of bacteria with resistance to selenite, which is highly toxic in high concentrations. *Stenotrophomas maltophilia* grown in the presence of appreciable concentrations of selenite and without cysteine exhibited exponential death; the same strain grown in the presence of both cysteine and selenite, although it exhibited stunted growth, was not eradicated.

**Golubic, Dennis A**

Mechanical Engineering

Gallery 11:45 - 12:00

*YSU Super Mileage Vehicle Design*

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**Gore, Shamone R**

Biology

Ohio Rm. 10:30 - 12:00

*Effect of Ovarian Hormones on the Ventricular Mass of Male and Female Spontaneously Hypertensive Rats*

Hypertension is a condition of elevated blood pressure, that if left untreated, can lead to kidney disease, heart disease, and stroke. With untreated hypertension, comes an enlarged heart, which is called ventricular hypertrophy. Clinical studies have shown that ventricular function and potentially hypertrophy is expressed differently in males and females. Data from this lab has shown that the ventricular/body weight ratio (VT/BW) is greater in female Spontaneously Hypertensive Rats (SHR) than in males. In this study we examine the influence of ovarian hormones and water content on the ventricular mass. We propose that these hormones can influence the ventricle muscle mass and consequently the VT/BW ratio. Hearts were harvested from male, female and ovariectomized (OVX) SHR at 3 ages: 3 months, 6 months and 18 months. The ventricles were isolated and the VT/BW calculated. The tissue was then dried at 32 C and weighed daily until tissue weight was stable for 2 consecutive readings. The percent water content of the ventricle was calculated and the mean determined for each group. The VT/BW of females was greater than males at 6 month and 18 month ( $p < .05$ ). Ovariectomy reduced the VT/BW of females at 3 and 6 months such that it was significantly less than males ( $p < .05$ ). The percent water content in males and females was the same at all ages. However, in ovariectomized females at 3 and 6 months the percent water content was significantly less when compared to age matched animals ( $p < .05$ ). Ventricular mass of males was greater than females at all age groups ( $p < .05$ ) and ventricular mass of OVX females was not significantly different from intact females. However, when ventricular mass was corrected for water content, the dehydrated ventricular mass of OVX females was greater than intact females ( $p < .05$ ) and close to the value of age matched males. In summary, these results indicate that ovarian hormones regulate ventricular mass in females and may account for observed differences in cardiac hypertrophy of males and females.

**Greier, William A**

Industrial and Systems Engineering

Ohio Rm. 1:30 - 3:00

*Just-In-Time Manufacturing and Healthcare. Threat to U.S.?*

The just-in-time manufacturing system was first established and perfected by the Toyota Motors Corp. of Japan in the 1970's to compete with local and international markets. It greatly improved corporate performance in terms of better quality, faster delivery, lower cost, higher productivity, and increased profitability. The method behind JIT, also known as "lean manufacturing" or "kanban system", is based upon three main principles: not sending defective products to the proceeding process, having the subsequent process pull directly from the previous process, and producing only the quantity in which was withdrawn. Just-in-time manufacturing, or JIT, has become more and more popular across the U.S. market as well. This system is working well to increase profits in most industries, however, it also imposes pitfalls particularly when it comes to the healthcare division. JIT has allowed the healthcare industry to become efficient, too efficient, according to some experts who fear the threat it imposes to our country in the event of an illness pandemic. With supply chains running thin on everything from medications, vaccines, to breathing masks, a small outbreak of the flu virus or other illness could send our country into a state of emergency. When should a just-in-time scenario turn into a "just-in-case"?

**Gromen, Paul J**

Geography

Jones Rm. 2:30 - 2:45

*Modeling the YSU Campus in 3-D Using GIS*

This presentation will cover the steps and methods undertaken to create an interactive 3-D computer model of the YSU campus using Geographic Information Systems, or GIS. Topics covered will include data collection, field methods, 2-D input and 3-D extrusion in ESRI's ArcGIS software, and finally 3-D rendering of buildings in @Last Software's SketchUp program. Applications of the model will also be discussed, including its use to visually represent possible future additions to the YSU campus, and the possible extension of the project to include the city of Youngstown's future plans.

- Grove, Becky I** Mechanical Engineering Gallery 8:45 - 9:00  
*Design of an Automated Induction Brazer*  
 For manufacturers, optimization is the ultimate goal. This optimization must be reached on a certain set of levels including production rate, efficiency, production cost and environmental impact. Current technology for the production of any type of valve body calls for high production cost and potentially dangerous environmental side effects. Thus, it has become necessary to determine an alternative method to the furnace method in use. The manufacturing of a particular valve body has been redeveloped. The valve body was composed of a brass body with two protruding copper tubes. These tubes were connected to the body using an inert atmosphere brazing technique involving an induction coil as the heat source. The inert atmosphere minimized the amount of oxidation to the part. In addition, the part was brazed with no flux material present. The use of induction coils, inert atmosphere, and no flux aided in the optimization of minimal surface discoloration and eliminated the necessity of post-braze cleaning. The process had a constant part flow through the induction coils. In order to aid in this constant flow, the valve bodies and copper tubes were introduced into the system press fit. Once in operation, this machine operated at a rate of approximately four parts per minute. Also, the parts, though heated to the necessary temperature for the brazing material to melt, were cooled to a removal temperature that allowed for operational safety standards to be met. This paper reveals the final design concept and provides the derivation process of all of its components. Multiple induction coil designs, methods of transferring the part, computer modeled cooling techniques, inert atmospheres and mechanisms of controlling the inert atmosphere are described in this study. Each possibility is carefully considered and advantages and disadvantages are examined.
- Grumley, Thomas G** Electrical and Computer Engineering Gallery 1:45 - 2:00  
*Electronic Controller for Water Temperature and Level*  
 A sophisticated controller will be desired to control the water level and temperature of a bathtub. The controller is built using digital and analog knowledge along with circuit design and programming. In order to control the water level, a strip of sensors will be used with the program C++. The temperature of the bath water is controlled by a microprocessor.
- Haas, William D** Electrical and Computer Engineering Gallery 10:30 - 10:45  
*Acoustic Flow Sensor*  
 The goal of this project is to develop a cost effective way to measure the flow of bulk materials at General Electric's Niles/Mahoning Glass Plant. The manufacturing facility had been using Doppler flow sensing devices, but they had proven ineffective and costly over time. The replacement system/sensor had to be integrated into the facilities existing control system and sensor locations. The sensor has to be able to withstand all possible variations of the environment due to some being installed outdoors. The sensor also has to be able to withstand major physical shocks to the system, because once a plug in the pipe occurs, the facilities maintenance staff uses a sledge hammer to rap the material free. The group's final requirement was that the design must remain below \$3000.00; this is the effective price for a replacement sensor of the existing system.
- Haney, Richard P** Industrial and System Engineering Ohio Rm. 1:30 - 3:00  
*Productivity Analysis of Patriot Seating Manufacturing Process*  
 Student teams from the Industrial and System Engineering programs at Youngstown State University participated in a field study at Patriot Seating in Austintown, Ohio. Working under the envelope of the Industrial Engineering Student Consulting Clinic (IESCC) an analysis was performed on work measurement. Results from the analysis led to student learning, management insight, and have strengthened the company and university relationship. Techniques applied included time and motion studies using both classic stop watch and more advanced computer driven video techniques. The methods used in this study are: Time Study, MOST Analysis, and Therbligs Analysis. Also, MTM-1 and MTM-2 were considered in this process. Work Sampling will be applied to this study at a later time which will help determine if inefficiencies exist due to the distribution of work load among the employees.
- Hanuschak, Jennifer L** History Bresnahan Rm. 11:00 - 11:15  
*The Evolution of Icon Painting in Russia*  
 This presentation discusses the history of Russia's traditional art form of icon painting and how it reflects the cultural changes of the country, from its beginnings in the Byzantine tradition, to those commissioned by the last tsar, Nicolas II, in the early twentieth-century. Changes in both national and international politics, as well as in Western art, influenced the traditional icon. Some of the most significant artists of this art form, and their works, will be discussed including, Theophanes the Greek, Andrei Rublev (the most famous painter of Russian icons), Dionisii, Mikhail Nesterov and Viktor Vasnetsov. The major schools of Russian icon painting will also be introduced and discussed, according to their artistic differences.
- Hartman, Molly R** Human Ecology Pugsley Rm. 1:45 - 2:00  
*College Students and the Internet*  
 This project will attempt to discover the perception of skill possessed by college students when it comes to navigating and glean information from the Internet. It will also attempt to discover how students are spending their time online. The results of this research will not only identify the answers to these questions, but will also identify if students feel that Goal 2 of Youngstown State University's General Education Goals, "Acquire, process and present quantitative information using the most appropriate technologies, including computers" is being carried out effectively. A sample of students in the Human Ecology department will receive surveys, asking them to answer questions regarding their frequency in going online, how they specifically use that time, how they use the Internet to gather information, and their age, class ranking, and major field of study.

- Hassan, Mohammad N** Electrical and Computer Engineering Gallery 3:30 - 3:45  
*Autonomous Robot with Application in YSU IEEE Hardware Competition*  
 Undergraduate student research is conducted by a group of four senior electrical engineering undergraduate students enrolled in the Capstone Design course. It reflects obstacles students face and want to overcome, simulating a design project in industry in which engineers need to design, supervise, build, and test a project on a given timeline and budget. An autonomous robot is being designed and built with application as a competition robot in the IEEE YSU Hardware Competition, where we will communicate and compete with other teams, which helps enhance our work as a team, but each member's interdependence as well. The robotics competition encompasses aspects of automation, control systems, programming, and robotics providing optimal learning for the entire group. Division of labor among algorithm design, progress reports, robot structural design, programming aspects and assembly is done having in mind each team member's personal goals, and the goal with the desired outcome of the team as a whole. The robot must be fully independent, self-propelled, using electric motors and wheels, with the ability to steer, sweep/recover and sort/deposit balls as one of the primary functions, which will be controlled by a complex programmed microcontroller unit. Planning and organization is a very important part of our project, therefore a full project timeline along with the budget balancing, driven by logic of economy to get the best out of the least amount of money invested, were developed. This research helps us gain valuable practical knowledge and experience in project design and work in future engineering career opportunities.
- Heffner, Ned T** Industrial & Systems Engineering Ohio Rm. 1:30 - 3:00  
*RFID (Radio Frequency Identification)*  
 RFID (Radio Frequency Identification) promises to revolutionize material handling in general, a topic well rooted in Industrial Engineering. It has steadily been gaining acceptance in the service industry and inventory management, most notably Wal-Mart has begun mandating that its suppliers to use RFID tags on inventory pallets. Two barriers to the widespread acceptance of RFID, however, have been cost of individual tags (\$0.20+ per according to The RFID Journal) and the general change-over to the new technology. While technological advancement and economy of scale will predictably render RFID technology commonplace, the prominence of its early employment in light industry is somewhat counterintuitive given that traceable items in heavy industry tend to be of higher relative cost, and heavy industry in general is able to apply capital to new technologies more readily. Strategies for approaching the issue will include discussion of: the possibility of automatic identification, the theory of RFID, a comparison with bar-code, the issues surrounding the slow acceptance of RFID (especially in heavy industry), the limitations with metal products (specifically low frequency blockage), its applications, RFID standards (ISO/QS/FCC etc.), and its leading vendors.
- Heflick, Nathan A** Psychology Humphrey Rm. 4:30 - 4:45  
*We Love Too: The Effects of Homosexual Love Letters on Attitudes Toward Homosexuality*  
 This study is examining the effects of lesbian and gay male love letters on attitudes toward supporting them, having sympathy for them, believing their love is genuine, and believing they are a threat to society. Attitudes are being measured by a combination of original questions and Herek's (1984) Attitudes toward Gays and Lesbians Scale. To date, it has been found that exposure to a gay male love letter, when combined with previously agreeing the love letter is genuine and admirable, (while under the disguise of a heterosexual letter) increased support for gay males only among females. Further analysis revealed that these effects were particularly strong for sympathy.
- Herriott, Scott W** Mechanical Engineering Gallery 9:15 - 9:30  
*Permanent Magnet Motor*  
 The rate of consumption of our planet's fossil fuels has led to dangerous amounts of pollution and shortages of irreplaceable natural resources. Through the constant improvement of energy delivery systems, the world may be able to maintain its production rates while consuming fewer fossil fuels. This analysis provided data that showed that the permanent magnet motor had the potential to remedy the world's power consumption problem. The analysis also showed the potential for mass production of the magnet motor. The efficiency was also analyzed, with respect to the existing magnet motor prototype. The original magnet motor was revised to eliminate design flaws. Excess energy lost through vibrations was reduced through changes in the housing material, housing design, and additional damping. Materials used for the motor were standardized for ease of production as well as cost effectiveness. The magnetic cogs in the prototype were also analyzed. New magnetic materials were considered with the potential of increased power output. The analysis of the prototype was intended to create a fully operational permanent magnet motor. With the new design, the prototype design problems were addressed and solved. These problems included mechanical vibrations, standardization, cost effectiveness and efficiency. Through the development of a practical permanent magnet motor, there is the potential to create a more efficient power delivery system.
- Hershey, Kristen** Teacher Education Jones Rm. 4:30 - 4:45  
*Rhythm and Rhyme: Poetry Across the Middle School Curriculum*  
 This presentation will explore the various ways that teachers can use poetry with Middle level students in the content areas. Poetry is known to be an inspiration for reading, writing, and language acquisition for middle level students. This presentation looks at how poetry can enhance content areas such as math, science, social studies, music, and art. The presenters will demonstrate motivational activities for reading and writing poetry using popular children's authors' works as a springboard for original student compositions. Poetry has the potential to increase students' interest in their content areas and to help them retain content information.

**Hnida, John E**

Geological and Environmental Sciences

Pugsley Rm. 10:30 - 10:45

*Arsenic in Ohio Aquifers*

For centuries mankind has recognized the extremely toxic effects of arsenic on the human body. The detrimental health effects of arsenic even at low concentrations are now being recognized as a serious public health problem (Hopenhayn-Rich et al., 1996). Arsenic in public drinking water supplies is believed to be one of the leading contributors to the cancer rate worldwide (Smith et. al, 1992). There are numerous sources for arsenic in drinking water supplies, but by far the largest source is actually nature itself, as arsenic is the twentieth most common element in the earth's crust. As part of the Safe Drinking Water Act of 1974 every public drinking water supply is required to be periodically tested for the allowable Maximum Contaminant Level (MCL) of contaminants, including arsenic. In January of 2006, the United States Environmental Protection Agency (USEPA) adopted the same levels as the World Health Organization and reduced the MCL of arsenic from 50 ug/L to a safer level of 10 ug/L. Rudimentary maps of the locations of the public water supply wells and arsenic contaminant level information are available from various government agencies such as the USEPA and Ohio Environmental Protection Agency (OHEPA), but lack the analysis capabilities offered after organized within a GIS format. Geographic Information Systems (GIS) is a powerful computer program allowing for storage, sorting and analysis of spatially explicit data. GIS will be used to identify and study the naturally occurring arsenic concentrations of the deep glacial aquifers, which have been recognized for having the potential to contain unacceptable levels of arsenic, throughout a section of Geauga, Portage, Stark and Summit counties in Ohio using the data that is available from the Ohio EPA, the USEPA and Ohio Department of Natural Resources (ODNR).

**Hoch, Cortney L**

Chemistry

Ohio Rm. 8:30 - 10:00

*Novel Coupling Reactions Involving Ferrocene Acid Fluoride*

Ferrocenyl acid fluoride is a newly developed coupling reagent that takes place of ferrocenyl acid chloride because of its stability and ease of preparation. Ferrocenyl acid fluoride was prepared and thoroughly characterized using <sup>1</sup>H NMR, mass spectrometry and single crystal X-ray crystallography. Coupling reactions between ferrocenyl acid fluoride and ferrocenemethanol, as well as papra-ferrocenylaniline were then attempted in the presence of DMAP. Single crystals of the diferrocenylaniline were not obtained. Characterization of the resulting carboxylic acid and some of the starting materials via the above techniques is presented.

**Holowach, Benjamin**

Electrical and Computer Engineering

Gallery 4:45 - 5:00

*The Scalable Self-Contained Temperature-Controlled Enclosure*

Noticing the need for a temperature controlled environment in many industrial situations, a product design was chosen that could be scaled to fit many situations and provide various temperatures. This design is of an enclosure which could read its own internal temperature, communicate with a cooling unit (or heating unit where necessary), and have it operate to maintain the temperature within a predetermined range. The device will be able to accurately detect the temperature within the enclosure using National Semiconductors' LM235H temperature sensors. These are analog devices (they take continuous readings) which will be mounted within the containment. They will then read the internal temperature and send an analog signal to be read and transformed into a digital signal by a Motorola M68HC11 microcontroller, which will output the temperature on a liquid crystal display (LCD). The microcontroller will then compare this signal to an optimum temperature for the enclosure. If the temperature is higher than the predetermined optimum, it will output a DC voltage to be amplified and sent to an attached Allen Bradley Micrologix 1000 Programmable Logic Controller (PLC) input. When this input is read as high, the PLC will then send the necessary voltage to a cooling unit mounted within the enclosure. As the temperature drops below the optimum, the analog sensors will inform the microcontroller to stop sending a signal to the PLC, which will deactivate the cooling unit. The containment will be approximately three feet wide by three feet tall by two feet deep. It will be constructed out of 1/4" thick Plexiglas. The front and back of the enclosure will hinge open and latch closed to allow easy access to its contents. Also, the mounted devices within the enclosure will be sealed with caulking to help maintain the internal temperature. The device will be able to accurately detect the temperature within the enclosure using National Semiconductors' LM235H temperature sensors. These are analog devices (they take continuous readings) which will be mounted within the containment. They will then read the internal temperature and send an analog signal to be read and transformed into a digital signal by a Motorola M68HC11 microcontroller, which will output the temperature on a liquid crystal display (LCD). The microcontroller will then compare this signal to an optimum temperature for the enclosure. If the temperature is higher than the predetermined optimum, it will output a DC voltage to be amplified and sent to an attached Allen Bradley Micrologix 1000 Programmable Logic Controller (PLC) input. When this input is read as high, the PLC will then send the necessary voltage to a cooling unit mounted within the enclosure. As the temperature drops below the optimum, the analog sensors will inform the microcontroller to stop sending a signal to the PLC, which will deactivate the cooling unit. The containment will be approximately three feet wide by three feet tall by two feet deep. It will be constructed out of 1/4" thick Plexiglas. The front and back of the enclosure will hinge open and latch closed to allow easy access to its contents. Also, the mounted devices within the enclosure will be sealed with caulking to help maintain the internal temperature.

**Holt, Amanda R**

Human Ecology

Ohio Rm. 1:30 - 3:00

*The Effect of Fish Oil Supplements on Arthritis Related Pain*

Omega-3 fatty acids found naturally in nuts, seeds, soy, and fish, as well as in therapeutic doses in fish oil supplements, have been shown to decrease inflammatory response. This intervention study will investigate the effect of fish oil supplements in decreasing inflammatory-based arthritis-related pain. Subjects recruited for the study reported regularly experiencing arthritis-related pain and sought alternative treatment. Eligible subjects were asked to sign an Informed Consent form before baseline data was collected. Data collection instruments include the Fish Oil Arthritis (FOA) questionnaire, S06 pain scale, and the food frequency assessment. Subjects were instructed to take one 1000mg fish oil supplement capsule per day for twenty-one consecutive days. Data collection instruments will be administered weekly for the study period. Analysis of the dietary data will be conducted using Nutritionist Pro software, and statistical analyses using SPSS version 12.0. Anticipated results include reduction in self-reported joint pain and fewer limitations on activities of daily living following the three-week protocol.

**Horvath, Mikhenan M**

Biology

Ohio Rm. 10:30 - 12:00

*The Effects of Aging on Relaxation in Aortic Smooth Muscle: Role of Myosin Phosphatase and Rho Kinase*

It is well documented that the risk of hypertension and other vascular disease increases with age. Furthermore, it is known that the myosin phosphatase and Rho kinase enzymes are integral in regulating  $Ca^{2+}$ -sensitivity in vascular smooth muscle cells. Therefore, the goals of this study were to evaluate the roles of myosin phosphatase and Rho kinase in regulating relaxation and to test whether these enzymes are involved in age-related changes in vascular smooth muscle. The aortas of male rats, ages 6 months and 2 years, were isolated, attached to a force transducer, and placed in water-jacketed tissue bath chambers. All of the tissues were contracted with norepinephrine (NE) and then treated with either Calyculin A, a myosin phosphatase inhibitor, or Y-27632, a Rho kinase inhibitor. The tissues treated with Calyculin A were relaxed with sodium nitroprusside (SNP), whereas Y-27632 alone induced relaxation in that group. Total relaxation and the rate of relaxation were compared between aged and young tissues for each treatment group. Calyculin A significantly reduced the total percent relaxation in both young and aged tissues compared to their controls. In the control groups, the young tissue relaxed at a significantly greater rate than the aged tissue. Calyculin A treatment significantly reduced the rate of relaxation in young tissue but not in aged tissue. Both young and aged tissues treated with Y-27632 relaxed completely, although the young tissue relaxed at a significantly greater rate than the aged tissue. Our results indicate that there are changes in vascular smooth muscle as the tissue ages, which involve the myosin phosphatase and Rho kinase enzyme pathways. Data indicate that as the tissue ages, the effectiveness of myosin phosphatase decreases. Age-related changes in the Rho kinase pathway inhibited the rate of relaxation, without affecting total relaxation. Taken together, these results suggest that age-related changes in vascular smooth muscle may be linked to changes in specific enzyme pathways that regulate the activity of this muscle. Whether these changes are ultimately linked to the development of vascular diseases such as hypertension remains to be determined.

**Hosseinijad, Bijan**

Electrical and Computer Engineering

Gallery 3:30 - 3:45

*Autonomous Robot with Application in YSU IEEE Hardware Competition*

Undergraduate student research is conducted by a group of four senior electrical engineering undergraduate students enrolled in the Capstone Design course. It reflects obstacles students face and want to overcome, simulating a design project in industry in which engineers need to design, supervise, build, and test a project on a given timeline and budget. An autonomous robot is being designed and built with application as a competition robot in the IEEE YSU Hardware Competition, where we will communicate and compete with other teams, which helps enhance our work as a team, but each member's interdependence as well. The robotics competition encompasses aspects of automation, control systems, programming, and robotics providing optimal learning for the entire group. Division of labor among algorithm design, progress reports, robot structural design, programming aspects and assembly is done having in mind each team member's personal goals, and the goal with the desired outcome of the team as a whole. The robot must be fully independent, self-propelled, using electric motors and wheels, with the ability to steer, sweep/recover and sort/deposit balls as one of the primary functions, which will be controlled by a complex programmed microcontroller unit. Planning and organization is a very important part of our project, therefore a full project timeline along with the budget balancing, driven by logic of economy to get the best out of the least amount of money invested, were developed. This research helps us gain valuable practical knowledge and experience in project design and work in future engineering career opportunities.

**Hritz, Christopher R**

Industrial and Systems Engineering

Ohio Rm. 1:30 - 3:00

*GE Ravenna Lamp Plant: Utilizing Buffers in a Manufacturing Setting*

Students from the Youngstown State University department of Industrial and Systems Engineering helped to improve production at the GE Ravenna Lamp Plant in Ravenna, Ohio, by utilizing a buffer in one of their processes. Through the use of many tools learned throughout their coursework, these students were able to provide GE with the opportunity to realize over \$200,000 in additional revenue annually. Students used control charts, simulation and queueing theory, among many other methods to prove that the implementation of their project was an absolute success.

**Hritz, Christopher M**

Biology

Ohio Rm. 8:30 - 10:00

*Testing of MV-II-065 for Prevention of Capsule Production in Staphylococcus aureus*

Antibiotic resistant bacteria are becoming a very big problem in healthcare. One type of antibiotic resistant bacteria, Staphylococcus aureus, is currently a big healthcare problem, but it is also understood well enough to formulate an alternative treatment method. Possessing a carbohydrate capsule that makes it harmful to humans, it fails to become a problem without it. By using drugs that stop the growth of this capsule, it may be possible to treat the bacteria without administering outdated antibiotics that the bacteria are resistant to. Dr. Norris and Monica Vicarel (Department of Chemistry at Youngstown State University) have developed MV-II-065, a drug that may achieve this goal of preventing capsule growth in S. aureus. To test the efficacy of this drug, the bacteria were grown in various concentrations of MV-II-065 overnight, treated with the chemical formalin to kill the bacteria, and treated with trypsin to remove a protein that interferes with antibody binding. The bacteria were then incubated with antibodies that bind to the capsule. Another antibody was added that binds to the first antibody. This contained an enzyme that would change the color of the solution following the addition of the chemical TMB. This color was then measured with light, which told us if the antibodies bound or not, and ultimately the success of the drug. By testing MV-II-065 we may be able to find a solution to the growing problems caused by Staphylococcus aureus.

- Hromyak, Dustin** Mechanical Engineering Gallery 9:00 - 9:15  
*Human Powered Vehicle*  
 Human Powered Vehicles (HPV's) are aerodynamic, highly engineered vehicles that may be used on land, in the water, or the air. Although vehicles operated by human power are not in high demand in this age of computers, the engineering and design elements of such vehicles are of importance for engineers. This study illustrates the design and testing processes for a three wheeled, single rider HPV similar to a recumbent bike. The main goal of this project was to successfully engineer a HPV with focus on: elegance and ingenuity of design, safety, practicality of design, and presentation. The goal was to strip the existing HPV of nearly all components, leaving only the frame, front pedals, rear wheel, and rear derailleur. The entire steering system, front wheels and hubs, drive train, brake system, frontal fairing, and seat will all be redesigned to maximize efficiency, safety, and ease of use. The performance of the HPV was rigorously tested in a series of competition events sponsored by the American Society of Mechanical Engineers (ASME): 1) Design Event, 2) Sprint Event, and 3) Endurance Event. The design event allowed the judges to consider the HPV's physical design, while weighing in a formal written report and an oral presentation given by the team. There was an emphasis on originality and soundness of design. Also considered in the design were the safety aspects, such as braking and turning radius requirements. The sprint event tested the vehicle's straightaway speed along a 100 meter flat course. The endurance event tested the vehicle's ability to race on a grand prix style road course of approximately 65 kilometers in length. The performance of our vehicle was a reflection of our overall design abilities including computer simulation, use of applicable calculations, and quality of fabrication.
- Hromyak, Amber M** Sociology and Anthropology Humphrey Rm. 3:45 - 4:00  
*Gendered Offices: Women and Their Decision to Run for Higher Public Office*  
 Our presentation focuses on the topic of gendered offices and why women do not run for certain offices. The research focuses on the lack of female candidates for public office, and the effects of the existence of a family and traditional female gender roles on a woman's decision to run. Our presentation includes an introduction to the topic of women in public office and examines our research, including what offices women typically run for in Mahoning County. A review of current theories and literature is discussed, as well as our data collection, variables, data analysis, and presentation of the results. Finally, a dissemination of the results is presented.
- Hughes, Cameron** Computer Science and Information Systems Humphrey Rm. 10:30 - 10:45  
*Inductive Logic Programming for Classification of Interrogative Sentences Over Restricted Domains*  
 Inductive Logic Programming (ILP) is an approach to machine learning where relations are induced from examples. Logic is used as the hypothesis language and the primary artifact of learning is a set of predicate logic formulas also known as a logic program. Because the primary artifact of learning is a logic program, ILP is often described as the intersection between machine learning and logic programming. One of the primary advantages of using ILP for machine learning is that ILP provides a very general way of specifying apriori knowledge or domain knowledge. In addition, ILP focuses more on the learning of relations as opposed to attribute-value learning. The support for recursive structures in an ILP context is of particular utility in learning the relations. In this paper, our goal is to use ILP to learn sentence frame grammars to be used in interrogative sentence processing. A sentence frame is one of the simplest techniques in natural language processing for capturing grammatical description. The grammatical description that we focus on in this paper is the interrogative sentence.
- Hughes, Tracey** Computer Science and Information Systems Humphrey Rm. 10:30 - 10:45  
*Inductive Logic Programming for Classification of Interrogative Sentences Over Restricted Domains*  
 Inductive Logic Programming (ILP) is an approach to machine learning where relations are induced from examples. Logic is used as the hypothesis language and the primary artifact of learning is a set of predicate logic formulas also known as a logic program. Because the primary artifact of learning is a logic program, ILP is often described as the intersection between machine learning and logic programming. One of the primary advantages of using ILP for machine learning is that ILP provides a very general way of specifying apriori knowledge or domain knowledge. In addition, ILP focuses more on the learning of relations as opposed to attribute-value learning. The support for recursive structures in an ILP context is of particular utility in learning the relations. In this paper, our goal is to use ILP to learn sentence frame grammars to be used in interrogative sentence processing. A sentence frame is one of the simplest techniques in natural language processing for capturing grammatical description. The grammatical description that we focus on in this paper is the interrogative sentence.
- Hughes, Stephanie S** Criminal Justice Room 2068 1:30 - 1:45  
*Corporate Criminals and White-Collar Criminality*  
 The author of this paper wishes to discuss white-collar crimes and the punishment that is handed down to the offenders who commit them. The author plans to do this by first looking at the history of white-collar crimes and what kind of crimes fit into this category, including some scenarios to help define what some well-known white-collar crimes are. Next, the author is going to give some arguments for and against the punishments handed down to the corporate criminal. The author is also going to give examples of some corporate criminals that have been caught and/or tried for their criminal deeds. Finally, the author wishes to conclude by sharing her opinion of corporate criminals and their white-collar crimes and how she feels they should be dealt with.
- Humble, Stephanie L** Psychology Humphrey Rm. 2:00 - 2:15  
*Nothing More Than Feelings: Results of Emotional Suppression*  
 Emotional suppression may or may not affect a person's awareness of his or her emotions. My experiment will involve thirty males and females who volunteer to participate in a suppression study. The experiment will be held in Debartolo Hall. Suppression participants (N=10) will be instructed to hide their emotions while viewing a humorous and sad film; while the participants (N=10) will simply watch each film. The humorous film is a segment of the film Dumb and Dumber, and the sad film is a segment of the film Crash. Subsequently; participants will view each film, following the same instructions (i.e., to hide or not to hide their emotions). Finally participants will rate their emotions on a Likert scale questionnaire. Data will be kept anonymous, and Dr. Gittis and I will be the only ones will access to this data. The data will be utilized to attempt to answer the question whether or not suppression has an affect on emotional responding.

- Humphrey, Brittny N** Chemistry Ohio Rm. 8:30 - 10:00  
*Synthesis and Characterization of Ferrocenyl Polymers Using Atom Transfer Radical Polymerization*  
 The proposed research project involved making a one-step synthesis of 2-ferrocenylethyl alcohol, which in turn was used to make 2-ferrocenylethyl acrylate or 2-ferrocenylethyl methylmethacrylate. These iron monomers are used in Atom Transfer Radical Polymerization reactions.
- Hunter, Lindsay A** Biology Ohio Rm. 10:30 - 12:00  
*Analysis of Mitochondrial DNA Replication in Mutant and Wildtype Strains of Saccharomyces cerevisiae*  
 Mitochondrial genomes vary greatly in structure and size from organism to organism. There also appears to be diversity in their replication mechanisms. Some human neuromuscular diseases are caused by mitochondrial DNA (mtDNA) mutations that may also influence replication. *Saccharomyces cerevisiae*, otherwise known as baker's yeast, is a model organism commonly used to study mtDNA replication. This eukaryote is relatively easy to grow and is also a facultative anaerobe; therefore losing its mtDNA does not have detrimental effects on its survival. In its wildtype form, called rho+, it has ~85,700 bp of mtDNA. Subjecting these genomes to massive deletions results in respiration-deficient strains called rho- mutants. Previous studies on mtDNA replication have primarily used rho- mutants. There is some concern that these strains do not replicate in the same manner as the wildtype strains, and therefore do not accurately represent the mechanism of mtDNA replication. We examined this phenomenon using a modified version of Fangman and Brewer's neutral/neutral 2-D gel electrophoresis.
- Jasenc, Ashley N** Biology Ohio Rm. 8:30 - 10:00  
*Selenite Resistance of E. coli Strain HB101 (pOR1) in the Presence of L-cysteine*  
 The Y-12 plant in Oak Ridge, TN has made an important contribution to national defense in the past 60 years. During World War II it processed uranium to make the first atomic bomb. Also, during the Cold War large amounts of mercury were used to process lithium for the production of hydrogen bombs and nearly 920,000 kg were spilled into the surrounding environment. The bacterium *Stenotrophomonas maltophilia* Oak Ridge strain O2 (*S. maltophilia* ORO2) was isolated from the Polar Creek near the Y-12 plant. This strain grew in the presence of toxic levels of heavy metals, including selenite, a derivative of selenium commonly found in soils in the western United States. A 100 kb plasmid, pOR1, from *S. maltophilia* ORO2 conferred resistance to selenite when it was transferred to the common experimental bacterium *E. coli* strain HB101. Established growth curves showed that both the *S. maltophilia* ORO2 and *E. coli* HB101 (pOR1) strains require L-cysteine for selenite resistance. Cells of the *E. coli* HB101(pOR1) strain were cultured in M-9 minimal salts medium in the presence and absence of L-cysteine and selenite. At specific time points, before and after the addition of selenite, cells were harvested for protein analysis by two-dimensional gel electrophoresis (2DGE). Protein maps are being created to determine protein expression due to selenite. Future work includes determination of the amino acid sequence and identity of induced proteins under selenite sensitive and resistant conditions.
- John, Russell R** Biology Ohio Rm. 10:30 - 12:00  
*Analysis of Competition Between Gametophytes of Onoclea sensibilis and Matteuccia struthiopteris*  
 Isolated spores from the sensitive fern (*Onoclea sensibilis*) and the ostrich fern (*Matteuccia struthiopteris*) were independently germinated in culture for observation of normal growth patterns. Germination of spores of homosporous ferns occurs in an asymmetrical division resulting in two cells with divergent differentiative paths. The small rhizoid initial formed specializes as an anchoring and absorbing organ, while the larger protonema initial supplies chloroplasts and is the forerunner of the mature gametophyte. In addition to typical growth observations, percent germination will be calculated. Both ferns are in the family Dryopteridaceae, and can be found growing in close proximity to one another in the natural environment. I will investigate the effects of competition between the gametophytes of the two species when introduced together and germinated in culture. Future experimentation may examine the effects on the proteins involved in germination during competition.
- Kall, Elizabeth** Teacher Education Jones Rm. 4:30 - 4:45  
*Rhythm and Rhyme: Poetry Across the Middle School Curriculum*  
 This presentation will explore the various ways that teachers can use poetry with middle level students in the content areas. Poetry is known to be an inspiration for reading, writing, and language acquisition for middle level students. This presentation looks at how poetry can enhance content areas such as math, science, social studies, music, and art. The presenters will demonstrate motivational activities for reading and writing poetry using popular children's authors' works as a springboard for original student compositions. Poetry has the potential to increase students' interest in their content areas and to help them retain content information.
- Karnofel, William S** Chemistry Ohio Rm. 8:30 - 10:00  
*Novel Coupling Reactions Involving Ferrocene Acid Fluoride*  
 Ferrocenyl acid fluoride is a newly developed coupling reagent that takes place of ferrocenyl acid chloride because of its stability and ease of preparation. Ferrocenyl acid fluoride was prepared and thoroughly characterized using <sup>1</sup>H NMR, mass spectrometry and single crystal X-ray crystallography. Coupling reactions between ferrocenyl acid fluoride and ferrocenemethanol, as well as para-ferrocenylniline were then attempted in the presence of DMAP. Single crystals of the diferrocenylniline were not obtained. Characterization of the resulting carboxylic acid and some of the starting materials via the above techniques is presented.
- Kasper, Catherine G** Biology Ohio Rm. 8:30 - 10:00  
*Retigabine and Its Effects on Action Potentials*  
 Epilepsy is the most common neurological disorder. Epileptic seizures are caused by abnormal hyperexcitable neurons, which spontaneously produce action potentials, resulting in seizure activity. Treatment of epilepsy focuses on reducing seizures by dampening the activity of these hyperexcitable neurons. Many current antiepileptic drugs act through enhancing the inhibitory GABAergic system (Gamma-AminoButyric Acid) of the brain. However, many of these have numerous side effects or lose potency with prolonged use. Neurons have a number of ion channels such as sodium, potassium, and chloride channels which control the level of excitability by opening and closing. The M-channel is a voltage gated potassium channel that is activated by neuronal depolarization. When open, it acts to resist additional depolarization of the cell and thus dampens action potential firing. Retigabine is an antiepileptic drug currently in human clinical trials. It appears to be capable of controlling the symptoms of epilepsy by dampening neuronal excitability. Retigabine's mechanism of action appears to be through the direct activation of the M-channel. Electrophysiological recordings from isolated bull frog neurons demonstrate that the opening of the M-channel by Retigabine hyperpolarizes neurons and greatly reduces action potential firing. The findings thus support the use of Retigabine as an anti-epileptic drug to dampen hyperexcitable neurons and reduce seizure activity.

**Katz, Scott E**

Mechanical Engineering

Gallery 9:00 - 9:15

*Human Powered Vehicle*

Human Powered Vehicles (HPV's) are aerodynamic, highly engineered vehicles that may be used on land, in the water, or the air. Although vehicles operated by human power are not in high demand in this age of computers, the engineering and design elements of such vehicles are of importance for engineers. This study illustrates the design and testing processes for a three wheeled, single rider HPV similar to a recumbent bike. The main goal of this project was to successfully engineer a HPV with focus on: elegance and ingenuity of design, safety, practicality of design, and presentation. The goal was to strip the existing HPV of nearly all components, leaving only the frame, front pedals, rear wheel, and rear derailleur. The entire steering system, front wheels and hubs, drive train, brake system, frontal fairing, and seat will all be redesigned to maximize efficiency, safety, and ease of use. The performance of the HPV was rigorously tested in a series of competition events sponsored by the American Society of Mechanical Engineers (ASME): 1) Design Event, 2) Sprint Event, and 3) Endurance Event. The design event allowed the judges to consider the HPV's physical design, while weighing in a formal written report and an oral presentation given by the team. There was an emphasis on originality and soundness of design. Also considered in the design were the safety aspects, such as braking and turning radius requirements. The sprint event tested the vehicle's straightaway speed along a 100 meter flat course. The endurance event tested the vehicle's ability to race on a grand prix style road course of approximately 65 kilometers in length. The performance of our vehicle was a reflection of our overall design abilities including computer simulation, use of applicable calculations, and quality of fabrication.

**Kaur, Harleen**

Biology

Ohio Rm. 8:30 - 10:00

*Retigabine and Its Effects on Action Potentials*

Epilepsy is the most common neurological disorder. Epileptic seizures are caused by abnormal hyperexcitable neurons, which spontaneously produce action potentials, resulting in seizure activity. Treatment of epilepsy focuses on reducing seizures by dampening the activity of these hyperexcitable neurons. Many current antiepileptic drugs act through enhancing the inhibitory GABAergic system (Gamma-AminoButyric Acid) of the brain. However, many of these have numerous side effects or lose potency with prolonged use. Neurons have a number of ion channels such as sodium, potassium, and chloride channels which control the level of excitability by opening and closing. The M-channel is a voltage gated potassium channel that is activated by neuronal depolarization. When open, it acts to resist additional depolarization of the cell and thus dampens action potential firing. Retigabine is an antiepileptic drug currently in human clinical trials. It appears to be capable of controlling the symptoms of epilepsy by dampening neuronal excitability. Retigabine's mechanism of action appears to be through the direct activation of the M-channel. Electrophysiological recordings from isolated bull frog neurons demonstrate that the opening of the M-channel by Retigabine hyperpolarizes neurons and greatly reduces action potential firing. The findings thus support the use of Retigabine as an anti-epileptic drug to dampen hyperexcitable neurons and reduce seizure activity.

**Kicovic, Snowflake**

Physics and Astronomy

Coffelt Rm. 11:30 - 11:45

*SiC Schottky Diodes with Epitaxial ZrB2 Contacts*

Silicon carbide Schottky diodes have considerable potential in applications requiring high power, high frequency, and high temperature electronic devices, which include power generation systems, communication systems, and space exploration systems. This project will involve fabrication of SiC Schottky diodes with much improved characteristics compared to normal. The Ohmic contact comprising of Ti/Ni/Ti will be deposited on the back side of the n-type SiC sample using DC magnetron sputtering. ZrB2 Schottky contacts will be deposited on the front side of the samples. During this process, the sample will be held at 700oC. This process will result in epitaxial growth of the ZrB2/SiC contact. ZrB2 was chosen as the Schottky contact because it has a hexagonal crystal structure and a lattice constant of about 0.3 nm, similar to SiC. This matching crystal structure is believed to result in Schottky diodes with improved electrical characteristics. These results will be compared to ZrB2 Schottky diodes that were fabricated with Schottky contacts deposited at room temperature.

**Kiepper, Sarah L**

Criminal Justice

Bresnahan Rm. 2:30 - 2:45

*From Binge Drinking to Suicide: Alcohol as a Growing Infectious Disease*

Alcohol use and abuse is a heavy problem that our society is forced to carry. Ten percent of all people who consume alcohol develop an alcohol-use problem (Doweiko, 2006, p. 82). Domestic violence, homicide, rape, vehicular accidents and suicide are enhanced by adding alcohol to the equation. Alcohol is infecting youth, who are beginning to drink at a younger age, while a percentage of adults drink more and more—"by some estimates just 10% of those who drink alcohol in the U.S. consume 60% of all alcohol ingested, and the top 30% of drinkers consume 90% of all the alcohol ingested" (Kilbourne, 2002; Doweiko, 2006, p. 72). What is it about alcohol that there is such a great desire to use? There is a problem with alcohol that few recognize and fewer still know what to look for. Are the consequences for drinking equal to the act committed? Ohio has upped the DUI and DWI laws showing that drinking while driving can cost you more than just financially. Alcohol is now recognized as a disease by more than those in the medical profession. There are a plethora of support groups for those with the disease and those who suffer because someone they love is an alcoholic. Alcohol is recognized as a problem, from our college campuses to our homes, from our workplaces to our recreation places. Programs such as MADD, have made an impression on society regarding alcohol, but studies show that DARE is not impactful in attempting to deter children from using (Fuller, 2006). Alcohol is injurious to the health of society. It is necessary to recognize the problem of alcohol as a growing one and commit to addressing the infectious disease and the problems it creates.

**Krezczowski, Jonathan**

Mechanical Engineering

Gallery 11:15 - 11:30

*Racing Go-Kart*

Racing go karts have been around since the 1950's but have just recently began to progress into a sport of its own. Today, these highly modified, fast and agile karts are used for training tools for professional racers and as a hobby for the recreational weekend warrior. The kart being built for this particular project is a road racing kart consisting of an electric start 125cc two-stroke engine producing roughly 28 horsepower with a top speed near 85mph and a 0-60 time equivalent to that of most modern sports cars, roughly 5 seconds. The engine and components will be mounted to a 4130 Chrome-moly rigid frame. The completed kart will then be tested and tuned until the group is satisfied and raced in a local karting series. A number of different tests and analysis will be performed on the kart. Stress analysis will be performed on the chassis. The kart frame will be drawn using the SolidWorks software available and analyzed with the Algor FEM PRO application. Modifications to the frame may take place based on the stress analysis results

- Krupko, Catherine** Teacher Education Jones Rm. 4:15 - 4:30  
*Multiple Intelligences and Young Gifted Children*  
 This project explores Howard Gardner's Theory of Multiple Intelligences (MI) and its importance in the education of young children. MI proposes that every individual has strengths in at least one of the identified intelligences. The purpose of this project is to provide sample units of instruction that exemplify the MI theory and their impact on student achievement. Sample unit plans will be presented with student work samples from the successful implementation in a classroom.
- Kudelko, Kristen N** Health Professions Pugsley Rm. 2:00 - 2:15  
*Health Disparities*  
 Health Disparities The purpose of this presentation is to describe a mock conference, which had to be planned, conducted and evaluated by the students as a requirement of the HSC 3702 Foundations of Health Education: Methods and Material class. This project fulfilled several of the course competencies, which include; lesson planning, presentation skills, effective use of visual aids (PowerPoint), development of continuing education for health educators, the ability to use creditable internet-based data sources and the opportunity for a better understanding of cultural competence. This project also enabled Community Health majors to meet multiple and complex criteria that allowed to reach the quality that is required to present at a real conference. The Health Disparities mock conference was held on October 10, 12, and 17, 2005. There were 14 presenters. The topics discussed were Health Disparities related to: Access to quality of care, Immunizations rates for adult and children, Asthma, Cancer, Cardiovascular Disease, Diabetes, HIV/AIDS, Infant mortality, mental health, rural health, Syphilis, TB, Viral Hepatitis, and Cultural Competence. To make this mock conference as realistic as possible, each of the presentations was critiqued by the members of the audience (fellow students of the class). Each member of the class was required to review the evaluation of his/her presentation, and write a reflective paper about their strengths in the presentation, to focus on what needed improvement in their presentation and apply this by coming up with a personal improvement plan. The project also required students to create a handout which included a learning activity. The purpose of creating the handout/activity was to increase the audiences understanding and comprehension of each Health Disparity topic. This too was evaluated by the presenter's fellow students. Each of the course competencies was achieved by this project. The lesson plan, PowerPoint, handout/activity, evaluation and reflection are documents that the students may choose to include in their professional
- Kudelko, Kristen N** Health Professions Pugsley Rm. 2:15 - 2:30  
*Hurricane Relief Project*  
 Eta Sigma Gamma, The Health Education National Honorary, planned, conducted and evaluated a fundraiser to assist in the efforts of providing aid to hurricane Katrina victims. The goal was to earn \$1,084, the distance in miles from Youngstown State University to New Orleans. We used social marketing theory four P's and techniques in planning the event to maximize donations. The Product: Providing appropriate tangible and intangible incentives increases target group participation. The tangible incentive was Mardi Gras beads, appropriate because of their popularity with college students. The intangible incentive was the opportunity for student to sign their name to a posted entitled "I support hurricane relief for Katrina victims". Price: beads were sold for \$1.00 a strand to make them affordable to just about everyone. This low price also enabled students to buy more than one strand if they chose to. Place: the event was held in Kilcawley, on the Wick Ave bridge, and in the lobby of Cushwa Hall in both mornings and afternoons. Promotion mix: table display decorated with Mardi Gras colored table cloths, large poster which displayed: a map with the distance from Youngstown to New Orleans highlighted; pictures and facts about the hurricane and its victims, as well as Mardi Gras masks and other easily recognizable symbols of the New Orleans area. Personal selling techniques used: the twelve Eta Sigma Gamma members did not stand behind a table, but rather walked up to passersby and encouraged them to donate to this cause. They also wore and held multiple strands of beads while promoting the cause. Mardi Gras-themed posters were displayed around campus before and during this event. The goal for the project was exceeded. \$1,100 was donated to the Red Cross.
- Kudelko, Kristen N** Health Professions Pugsley Rm. 2:30 - 2:45  
*World AIDS Day*  
 Quest 2006 World AIDS Day Project Members of the YSU chapter of Eta Sigma Gamma, the National Health Education Honorary, and planned, conducted and evaluated the World AIDS Day Education Project, which was conducted December 1, 2006. The campaign was planned based on health education theory and the National Health Education Standards. The project consisted of several activities. A poster display in Kilcawley Center Arcade, was staffed from which verbal information, print literature, condoms and bottled water with project logo and HIV/AIDS resource information labels were distributed. An educational games was conducted; it was a "Wheel of Fortune" type game in which participants tested and increased their knowledge about HIV/AIDS facts and prevention, and tickets for a raffle for large, donated prizes. To be eligible to participate in the World AIDS Day program we required our members to study basic AIDS and HIV facts, and pass a quiz on these facts with 90% mastery. From this project, community and school health majors learned how to design interactive and fun learning activities, and how to document participant learning. We also refreshed our knowledge of local and national HIV and AIDS statistics and prevention. The majors also increased their skill in effective teamwork, collaboration with other campus programs and community agencies. They also participated in public health advocacy and used multiple communication channels. Consumers learned or had reinforced HIV/AIDS facts and prevention methods.
- Kusluch, Jaclyn S** Physics and Astronomy Coffelt Rm. 11:15 - 11:30  
*Searching for UV Sources in the Tidal Tails of the M81 Galaxy Group*  
 Stars have normally been thought to form within the confines of gas clouds inside galaxies. Interactions between galaxies result in gas and stars being torn, via tidal forces, from the involved galaxies, left on their own in intergalactic space. The nearest group of interacting galaxies is the M81 galaxy group, located four Mpc away. This region contains gaseous material left over from the galactic interactions which occurred about 300 million years ago. This research is designed to seek stars that have formed in this tidal debris. To search for these stars, I have compared ultraviolet data of the M81 group taken with the GALEX satellite to that with optical data taken of the same area using the Canada-France-Hawaii Telescope. Any newly-formed stars are expected to emit copious amounts of both optical and UV light. I show that there appear to be clumps of star formation outside the known galaxies in the group; some of these stars are not old enough to have formed within the galaxy and then have traveled to their present location. Therefore, they must have formed outside of M81, in intergalactic space.

**Kwallek, Angela M**  
*Voices of Steel*

Political Science

Room 2068 10:45 - 11:00

With a history largely built upon a relation with the steel industry, the Mahoning Valley and its environs saw many grow rich and also bore witness to the subsequent decline of prosperity. Inherent to documentation of this time are the personal stories of the individuals who made Northeast Ohio, a part of the rust belt, what it was. In relation to steel, the examination of Youngstown and its surrounding area has prominently focused on the workers and the contributions of the larger steel producers, while the smaller finishing plants have been mostly ignored. In collecting oral data from retired employees of the smaller finishing plant of Thomas Steel, seven perspectives were recorded and then transcribed on such issues as the present generation's state of sympathy toward the working class, the disassociation of the modern worker with the blue collar identity, and the future of unions within the United States. From this project, a valuable preservation was conducted of the stories and viewpoints of just some of the workers who still proudly call themselves blue-collar.

**Latimer, Eric S**

Mechanical Engineering

Gallery 9:30 - 9:45

*TJT 3000 Mini Gas Turbine*

In a gas turbine, a pressurized gas spins the turbine. The engine produces its own pressurized gas, and it does this by burning a fuel such as propane, natural gas, kerosene, or jet fuel. The heat that comes from burning the fuel expands air and the high-speed rush of this hot air spins the turbine. Gas turbines have three major parts: compressor, combustion area, and turbine. The compressor takes the air from the inlet and compresses it to a much higher pressure. The combustion area takes in the high pressure air, mixes fuel, and ignites it to create an even higher pressure generating high velocity. The final stage is the turbine. The air from the combustion area is forced through the turbine. This causes the turbine to spin very quickly and extract the energy. To confirm the Brayton Cycle, temperature and pressure probes must be placed in the proper locations to follow the ideal cycle. Thermocouples were inserted at four different positions. Pitot tubes will also be inserted at four different positions. With these readings the entropy change was calculated. With the same reading the efficiency of the compressor and turbine were also calculated.

**Law, Matthew G**

Mechanical Engineering

Gallery 8:30 - 8:45

*Design and Fabrication of a Lunar Buggy*

2006 marks Youngstown State University's second consecutive year participating in the Great Moonbuggy Race in Huntsville, Alabama. The previous year's team was unable to finish the competition; however drastic design implementations and changes allowed this year's team to earn a top five finish in the event. Minimal budget and familiarity with the competition were overcome to compete against some well-funded, seasonal participants in the competition. This report outlines the key engineering and technical aspects of the group's success. YSU's design was unique in that it featured back-to-back seating of its two riders as opposed to the more common side-to-side arrangements that most schools used. In keeping with the rules of the competition, there was one man rider and one woman rider. Also, the buggy needed to be carried to a starting line that was twenty feet away by the two riders. Therefore, the weight of the vehicle was kept to a minimum. In further cooperation with the rules of the competition, the vehicle was carried to the starting line in a folded form that was able to fit into a four foot cube. At the starting line the moonbuggy was unfolded into a final form that allowed the riders to race over a simulated moon environment featuring craters, rocks, lava ridges and lunar soil. The time it took for the buggy to be unfolded and the course to be completed served as the basis for placing in the event. This year's team started from scratch with new ideas. The entire project was completed at YSU, including CAD work, fabrication, and testing. Along the way the universities engineering software, machine shop and labs were utilized in completing the project.

**Licata, Tim J**

Civil Engineering

Jones Rm. 11:30 - 11:45

*Mapping the Bathymetry of Pigeon Creek Delta, San Salvador, Bahamas*

The Pigeon Tidal Estuary is a major feature on the Island of San Salvador, the Bahamas. The estuary covers an area of approximately seven square miles and fills during high tides and subsequently drains during the intervening low tides. The discharge of water from draining transports a tremendous amount of sediment that is deposited as a large submerged delta inside of Snow Bay at the mouth of the estuary. The location of the delta on the eastern side of the island makes it particularly susceptible to reworking and displacement by tropical storms and hurricanes. The project has several intended outcomes: 1) characterize the morphology of the delta by creating a bathymetric map using a high density grid of GPS position coordinates and bathymetric soundings and 2) determine the volume of displaced/added sand from the delta by comparing the bathymetric map to preexisting maps.

**Lipe, Shaun M**

Electrical and Computer Engineering

Gallery 4:00 - 4:15

*Solar Power Unit*

Our design project will be working with solar panels to help save on energy costs in the future. What we will be doing is using Plexiglas to make a small contained area to which we can show how a house heats. After the house is constructed, we will lay the solar panel on top of the house which will draw our power. Once these solar panels start drawing power from the light source, this power will go to a battery that will get charged up and store the power. Then, after the power is transported to the battery, we will have an A/D converter that will switch over the power. Also, we are going to have to have some relays in line to boost our power up to be able to run our heater. Next, we will run the wires to our heater which will be located inside the house. Once this is all wired up and set up, we will have a 68HC11 microprocessor inside the house with the heater to control the temperature. The processor will have a temperature sensor connected to it to be able to tell the heater to turn on when wanted. So, after the project is completely finished, we will be able to control the temperature from a computer for the Plexiglas house which we have constructed. This, after completion, will bring a new concept in home heating that will save everyone thousands of dollars.

**Litschel, Eric A**

Dana School of Music

Bresnahan Rm. 10:45 - 11:00

*Mahler's Fifth Symphony: The Concept of Durchbruch as Formal Category*

The unique quality of Gustav Mahler's music transcends all established modes of objective analysis, whose tools and procedures do not penetrate the music past constructed formal parameters. Ultimately, such analyses fail in deciphering the latent symbolism within the music. My research focuses primarily upon Mahler's Fifth Symphony. The symbolism of this work can be found in Mahler's large-scale setting of related musical episodes. Mahler employs these musical episodes as formal categories that fulfill specific functions throughout the musical process. Formal categories of Mahler's Fifth Symphony do not conform entirely to traditional structures of the symphonic genre, nor do they align themselves with a prescribed program external to the musical text. Instead, they affirm by necessity the music's intrinsic symbolism. The concept of breakthrough (Durchbruch) is central to my consideration of the Fifth. I adopt the concept of Durchbruch from Theodor W. Adorno's monograph on the composer, "Mahler: a Musical Physiognomy". I extend Adorno's notion of Durchbruch to Mahler's cyclical treatment of musical episodes in the Fifth Symphony.

- Loper, Jamey C** Counseling Ohio Rm. 1:30 - 3:00  
*Real Solutions*  
 The Eta Chapter at Youngstown State University has put together a Public Service Announcement that will air on local TV stations and Youngstown State University's public radio station. The purpose of the PSA is to advocate for the counseling profession by educating the public about what counseling is and how to go about obtaining counseling services. The PSA is short and simple. It describes what counseling is and who counselors are in a straightforward and creative way. The poster part of the presentation will be in power point slides with the following information: U.S. prevalence rates of mental health diagnoses, a description of what counseling is and why someone might seek counseling, an explanation of confidentiality, common diagnoses and mental health issues in our local area and finally a brief highlight of the services offered by the Community Counseling Clinic on the YSU campus. We believe that this PSA will help to clarify and give a better understanding of what counseling is in a creative and exciting way.
- Loychik, Laura A** Counseling Jones Rm. 3:45 - 4:00  
*Do's and Don'ts for Teachers from a Student's Perspective*  
 The purpose of this presentation is to present data from selected sentence stems completed by six classes of YSU undergraduate students (196) during the fall and spring semesters of the 2005-2006 school year. During the first day of classes, students anonymously completed an informal inventory given by either Dr. Schaiper or Ms. Loychik. The sentence stems were created by Dr. Schaiper. Data was analyzed by Laura Loychik and Dr. Schaiper. Student responses to the following sentence stems will be presented: 1) Above all, for me to learn well, the teacher must \_\_\_ and \_\_\_. 2) I can't stand it when a teacher or professor \_\_\_ and \_\_\_. 3) When other students in class \_\_\_ I get angry and disgusted. 4) I benefit very much when a professor is willing to \_\_\_ and \_\_\_. The most frequent responses to each of the four sentence stems will be discussed. Implications for improvement of instruction will be provided.
- Loychik, Laura A** Counseling Ohio Rm. 1:30 - 3:00  
*Real Solutions*  
 The Eta Chapter at Youngstown State University has put together a Public Service Announcement that will air on local TV stations and Youngstown State University's public radio station. The purpose of the PSA is to advocate for the counseling profession by educating the public about what counseling is and how to go about obtaining counseling services. The PSA is short and simple. It describes what counseling is and who counselors are in a straightforward and creative way. The poster part of the presentation will be in power point slides with the following information: U.S. prevalence rates of mental health diagnoses, a description of what counseling is and why someone might seek counseling, an explanation of confidentiality, common diagnoses and mental health issues in our local area and finally a brief highlight of the services offered by the Community Counseling Clinic on the YSU campus. We believe that this PSA will help to clarify and give a better understanding of what counseling is in a creative and exciting way.
- Ludt, Sean M** Physics and Astronomy Coffelt Rm. 11:00 - 11:15  
*Ge clover detectors at YSU's X-Ray Effects Laboratories*  
 State-of-the-art nuclear spectroscopy requires advanced detector systems like so-called Ge clovers. Youngstown State University's X-Ray Effects Laboratory has recently acquired two such detectors at a cost of \$140,000 each, supported by the Defense Universities Research Instrumentation Program. This talk will describe initial testing of the clovers, mechanical design of a support structure and implementation of a liquid nitrogen auto-fill system.
- Lynch, Tom J** Electrical and Computer Engineering Gallery 4:15 - 4:30  
*Solar Tracking*  
 This Solar tracking project is for our senior design capstone class, which will apply the background information we have learned collectively as a group over the past four years. We hope this will give us a look into real world electrical engineering practices and help us further our growth as engineers. This project will require us to not only work as a team, but will also call into our planning, budgeting, organization, and time management skills. Solar energy can have a very large impact on our environment, which is a very important idea to keep in mind when designing a project. It can be very helpful in reducing the fossil fuels and non renewable resources that are used on a daily basis. There is no waste from solar power. Nothing is let into the air, and nothing harmful to the environment is released as a byproduct due to solar energy consumption. Our goal is to successfully complete the project with as few problems and complications as possible. Our project will consist of larger solar panel controlled by many smaller solar panels. We believe that alternate energy sources will become very important in our future and solar power will be heading the charge. One of the main concerns about the use of solar energy is the cost of building the equipment. Our budget, shown later in the proposal, can show that this can be build at a reasonable cost and in the long run will more than pay for itself due to the high efficiency of solar panels and solar cells. The results of this project will be presented in an oral and written report given at the end of our capstone senior design course. Working together as a team, we hope to accomplish these goals in the given time period.
- Madden, Rebecca E** Human Ecology Ohio Rm. 1:30 - 3:00  
*The Effect of Fish Oil Supplements on Arthritis-Related Pain*  
 Omega-3 fatty acids found naturally in nuts, seeds, soy, and fish, as well as in therapeutic doses in fish oil supplements, have been shown to decrease inflammatory response. This intervention study will investigate the effect of fish oil supplements in decreasing inflammatory-based arthritis-related pain. Subjects recruited for the study reported regularly experiencing arthritis-related pain and sought alternative treatment. Eligible subjects were asked to sign an Informed Consent form before baseline data was collected. Data collection instruments include the Fish Oil Arthritis (FOA) questionnaire, S06 pain scale, and the food frequency assessment. Subjects were instructed to take one 1000mg fish oil supplement capsule per day for twenty-one consecutive days. Data collection instruments will be administered weekly for the study period. Analysis of the dietary data will be conducted using Nutritionist Pro software, and statistical analyses using SPSS version 12.0. Anticipated results include reduction in self-reported joint pain and fewer limitations on activities of daily living following the three-week protocol.

**Maillis, Nicholas E**

Electrical and Computer Engineering

Gallery 4:45 - 5:00

*The Scalable Self-Contained Temperature-Controlled Enclosure*

Noticing the need for a temperature controlled environment in many industrial situations, a product design was chosen that could be scaled to fit many situations and provide various temperatures. This design is of an enclosure which could read its own internal temperature, communicate with a cooling unit (or heating unit where necessary), and have it operate to maintain the temperature within a predetermined range. The device will be able to accurately detect the temperature within the enclosure using National Semiconductors' LM235H temperature sensors. These are analog devices (they take continuous readings) which will be mounted within the containment. They will then read the internal temperature and send an analog signal to be read and transformed into a digital signal by a Motorola M68HC11 microcontroller, which will output the temperature on a liquid crystal display (LCD). The microcontroller will then compare this signal to an optimum temperature for the enclosure. If the temperature is higher than the predetermined optimum, it will output a DC voltage to be amplified and sent to an attached Allen Bradley Micrologix 1000 Programmable Logic Controller (PLC) input. When this input is read as high, the PLC will then send the necessary voltage to a cooling unit mounted within the enclosure. As the temperature drops below the optimum, the analog sensors will inform the microcontroller to stop sending a signal to the PLC, which will deactivate the cooling unit. The containment will be approximately three feet wide by three feet tall by two feet deep. It will be constructed out of ¼" thick Plexiglas. The front and back of the enclosure will hinge open and latch closed to allow easy access to its contents. Also, the mounted devices within the enclosure will be sealed with caulking to help maintain the internal temperature. The device will be able to accurately detect the temperature within the enclosure using National Semiconductors' LM235H temperature sensors. These are analog devices (they take continuous readings) which will be mounted within the containment. They will then read the internal temperature and send an analog signal to be read and transformed into a digital signal by a Motorola M68HC11 microcontroller, which will output the temperature on a liquid crystal display (LCD). The microcontroller will then compare this signal to an optimum temperature for the enclosure. If the temperature is higher than the predetermined optimum, it will output a DC voltage to be amplified and sent to an attached Allen Bradley Micrologix 1000 Programmable Logic Controller (PLC) input. When this input is read as high, the PLC will then send the necessary voltage to a cooling unit mounted within the enclosure. As the temperature drops below the optimum, the analog sensors will inform the microcontroller to stop sending a signal to the PLC, which will deactivate the cooling unit. The containment will be approximately three feet wide by three feet tall by two feet deep. It will be constructed out of ¼" thick Plexiglas. The front and back of the enclosure will hinge open and latch closed to allow easy access to its contents. Also, the mounted devices within the enclosure will be sealed with caulking to help maintain the internal temperature.

**Martin, Pamela A**

Physics and Astronomy

Coffelt Rm. 10:30 - 10:45

*Characterization of ZrB<sub>2</sub> Schottky Contacts on n-type 4H SiC*

Current trends in technology push for faster and smaller processors to support devices such as computers and cellular phones. In particular, the wide band gap semiconductor SiC has become increasingly attractive for use in high power, high frequency, and high temperature conditions. The properties of SiC make it much more useful than traditional semiconductors like Si. Obtaining thermally stable Schottky contacts on wide band gap semiconductors is the essential step in making them viable for use in manufactured devices, thus making possible even further reduction in size and increase in speed and durability of electronic devices utilizing them. These contacts are important for use as voltage clamps, and in addition are important for use in building other devices, such as MOSFETS and power amplifiers. We have fabricated ZrB<sub>2</sub> Schottky diodes on 4H n-type SiC. The Schottky contacts were patterned through a standard photolithography process, and the metal deposited by magnetron sputtering in Argon ambient under a pressure of about 2 mTorr. The current-voltage properties of the contact were characterized after deposition and at successive anneals (RTP) from temperatures of 200C-600C in increments of 100C and lasting 20 minutes. Our findings indicated that ZrB<sub>2</sub> is a good contact onto n-SiC through the 500C anneal, but that the properties became much degraded during the 600C anneal. The barrier height and ideality factor of the contacts were calculated at each anneal. In addition, calculations of zero bias barrier height and series resistance were made. The numerical results of these calculations, as well as analysis, will be presented, and we will examine possible reasons for the degradation of the contacts after the 600oC anneal.

**Martin, John D**

Mechanical Engineering

Gallery 11:15 - 11:30

*Racing Go-Kart*

Racing go karts have been around since the 1950's but have just recently began to progress into a sport of its own. Today, these highly modified, fast and agile karts are used for training tools for professional racers and as a hobby for the recreational weekend warrior. The kart being built for this particular project is a road racing kart consisting of an electric start 125cc two-stroke engine producing roughly 28 horsepower with a top speed near 85mph and a 0-60 time equivalent to that of most modern sports cars, roughly 5 seconds. The engine and components will be mounted to a 4130 Chrome-moly rigid frame. The completed kart will then be tested and tuned until the group is satisfied and raced in a local karting series. A number of different tests and analysis will be performed on the kart. Stress analysis will be performed on the chassis. The kart frame will be drawn using the SolidWorks software available and analyzed with the Algor FEM PRO application. Modifications to the frame may take place based on the stress analysis results

**Martin, David R**

Mathematics and Statistics

Ohio Rm. 10:30 - 12:00

*Mathematical Analysis of Bacterial Growth in the Presence of Toxins*

Last summer, biomathematical research was carried out for SURE (Summer Undergraduate Research Experience), a research opportunity subsidized by the NSF, at Youngstown State University. During this ten-week program based on the application of mathematical techniques to biological research, the influence of certain chemicals on the growth (or death) of bacteria was analyzed. The specific objective of the research was to explore via growth curve analysis the tendency of the amino acid cysteine to endow certain strains of bacteria with resistance to selenite, which is highly toxic in high concentrations. *Stenotrophomas maltophilia* grown in the presence of appreciable concentrations of selenite and without cysteine exhibited exponential death; the same strain grown in the presence of both cysteine and selenite, although it exhibited stunted growth, was not eradicated.

- Martin, David** Chemistry Ohio Rm. 8:30 - 10:00  
*Conformational Analysis Using 1H-1H Coupling Constants*  
 One of the main goals in the second semester of Organic Chemistry (Chemistry 3720) is for students to become familiar with the tools used by Organic chemists to work out the structures of their molecules. The main technique employed is Nuclear Magnetic Resonance spectroscopy (NMR), which gives detailed information about the types of atoms present in molecules, as well as how those atoms are connected. One of the most useful pieces of information to be taken from NMR spectra is the coupling constant, which is a measure of the communication between adjacent atoms such as hydrogen. The relative size of these coupling constants gives information on molecular structure and conformation, which is vital to understanding the interactions of organic molecules with biological systems. This presentation will feature the analysis of coupling constant data from carbohydrate research samples and will discuss the relative conformations of these molecules.
- Maschek, Lynda J** Human Ecology Ohio Rm. 1:30 - 3:00  
*Patterns of Supplement Usage Among Youngstown State University College Students*  
 The American dietary supplement industry grosses 17.1 billion dollars per year with performance enhancing, weight loss, and nutritional supplements, being the most common forms used. This study will investigate supplement usage among Youngstown State University students who frequent the on-campus fitness facilities. Male and female students, (n=100), aged 18-35 years will be recruited from the Andrews Health and Wellness Center and Stambaugh Fitness Center. Students who agree to participate will be asked to sign an Informed Consent form and complete a self-administered questionnaire. The questionnaire will collect information on demographic data, frequency and intensity of exercise, supplement selection, and usage and dietary pattern. Statistical analysis will be completed using SPSS Version 12.0 to identify traits in usage. Gender and athletics-based trends are anticipated.
- Maust, Mat** Chemistry Ohio Rm. 8:30 - 10:00  
*Towards Mimics of the Aminosugars Found in the Capsular Polysaccharides of S. aureus types 5 and 8*  
 The protective capsular polysaccharides that coat *S. aureus* types 5 and 8 contain the rare aminosugars N-acetyl-D-mannosamine uronic acid, N-acetyl-D-fucosamine, and N-acetyl-L-fucosamine. We are interested in producing analogs of these sugars that may be capable of disrupting the biosynthesis of the individual sugars and the construction of the capsular polysaccharide. An approach to N-acetyl-L-fucosamine from L-rhamnose will be presented along with our efforts on mimics of each of the enantiomeric fucosamines.
- McCale, Jammie L** Mechanical Engineering Gallery 8:45 - 9:00  
*Design of an Automated Induction Brazier*  
 For manufacturers, optimization is the ultimate goal. This optimization must be reached on a certain set of levels including production rate, efficiency, production cost, and environmental impact. Current technology for the production of any type of valve body calls for high production cost and potentially dangerous environmental side effects. Thus, it has become necessary to determine an alternative method to the furnace method in use. The manufacturing of a particular valve body has been redeveloped. The valve body was composed of a brass body with two protruding copper tubes. These tubes were connected to the body using an inert atmosphere brazing technique involving an induction coil as the heat source. The inert atmosphere minimized the amount of oxidation to the part. In addition, the part was brazed with no flux material present. The use of induction coils, inert atmosphere, and no flux aided in the optimization of minimal surface discoloration and eliminated the necessity of post-braze cleaning. The process had a constant part flow through the induction coils. In order to aid in this constant flow, the valve bodies and copper tubes were introduced into the system press fit. Once in operation, this machine operated at a rate of approximately four parts per minute. Also, the parts, though heated to the necessary temperature for the brazing material to melt, were cooled to a removal temperature that allowed for operational safety standards to be met. This paper reveals the final design concept and provides the derivation process of all of its components. Multiple induction coil designs, methods of transferring the part, computer modeled cooling techniques, inert atmospheres and mechanisms of controlling the inert atmosphere are described in this study. Each possibility is carefully considered and advantages and disadvantages are examined.
- McClelland, Jeff** English Bresnahan Rm. 2:00 - 2:15  
*Can I Buy You a Drink? Communication Between Individuals Inside and Outside Separate Relationships*  
 If cliché pick-up lines were professional sports players, "Can I buy you a drink?" would be a first-round Hall of Fame inductee, a unanimous election, along with "Come here often?" and "What's your sign?" It's a tried and true, if not somewhat laughable, method of meeting other people through the common bonds of alcoholism and the desire for companionship. Whether this line is still effective is questionable, but the fact is, at one point it was, and many were charmed by its unassuming, casual manner. In the 21st century, even after decades of practice and listening to smooth talk, couples, both in dating and marriage situations, still cite communication problems as some of their biggest sources of frustration. How far apart is this communication gap between the sexes, and how many does it affect? A survey created and conducted between March and May of 2005 set out to find the answers. To clarify the subject of this exploration, there is apparently no lack of research on how men and women communicate when they are in a relationship together, whether that is defined by marriage, dating, or cohabitating individuals. As interesting as communication between married couples must be, the purpose of the paper is to focus instead on communication between men and women when they are in marriage or dating relationships, but not with each other. That is, the situations examined involve one or both of the communicating man and woman, having no physical relationship with each other, but with separate people.



- Milam, Patricia M** Allied Health Room 2068 3:30 - 3:45  
*Career Satisfaction of Registered Dental Hygienists in Ohio (Cuyahoga County)*  
 Dental hygiene is an ever-changing field. As new research and evidenced-based decision making broadens knowledge, job descriptions also change. Previous studies have demonstrated that Registered Dental Hygienists (RDH) are satisfied with their careers but have concerns with their scope of practice. The purpose of this study is to measure career & scope of practice satisfaction of RDH's who reside in Cuyahoga County. Hypotheses: RDH's in Cuyahoga County are satisfied with their careers. RDH's in Cuyahoga County are dissatisfied with the scope of practice in Ohio. Methods: A 12 question survey was mailed to a systematic random sample of 250 hygienists in Cuyahoga County. They were asked to identify their level of satisfaction with career and scope of practice. Other questions included area of practice, education, employment, professional membership and scope of practice perception. Results: A response rate of 52% was achieved. N=130. The first hypothesis regarding career satisfaction was supported. Over 75% of the respondents were either mostly or thoroughly satisfied. The 2nd hypothesis concerning scope of practice satisfaction was not supported. Only 5.4%, (n=7) were dissatisfied. Additionally Cuyahoga County hygienists disagreed with a national study saying Ohio had a scope of practice that was limiting in nature. The majority of respondents 49.2%, (n=64) believed Ohio had a Satisfactory scope of practice environment in which to practice dental hygiene. Conclusion: While Cuyahoga County hygienists are satisfied with both career and scope of practice, some concerns exist. Job availability, lack of benefits and autonomy in practice plus inability to administer local anesthesia were mentioned by those dissatisfied. Further studies on a state wide basis are in order. Keywords : Dental Hygienist, Career Satisfaction, Scope of Practice
- Minadeo, Scott R** Mechanical Engineering Gallery 11:15 - 11:30  
*Racing Go-Kart*  
 Racing go karts have been around since the 1950's but have just recently began to progress into a sport of its own. Today, these highly modified, fast and agile karts are used for training tools for professional racers and as a hobby for the recreational weekend warrior. The kart being built for this particular project is a road racing kart consisting of an electric start 125cc two-stroke engine producing roughly 28 horsepower with a top speed near 85mph and a 0-60 time equivalent to that of most modern sports cars, roughly 5 seconds. The engine and components will be mounted to a 4130 Chrome-moly rigid frame. The completed kart will then be tested and tuned until the group is satisfied and raced in a local karting series. A number of different tests and analysis will be performed on the kart. Stress analysis will be performed on the chassis. The kart frame will be drawn using the SolidWorks software available and analyzed with the Algor FEM PRO application. Modifications to the frame may take place based on the stress analysis results
- Moore, Katie A** Health Professions Pugsley Rm. 2:00 - 2:15  
*Health Disparities*  
 Health Disparities The purpose of this presentation is to describe a mock conference, which had to be planned, conducted and evaluated by the students as a requirement of the HSC 3702 Foundations of Health Education: Methods and Material class. This project fulfilled several of the course competencies, which include; lesson planning, presentation skills, effective use of visual aids (PowerPoint), development of continuing education for health educators, the ability to use creditable internet-based data sources and the opportunity for a better understanding of cultural competence. This project also enabled Community Health majors to meet multiple and complex criteria that allowed to reach the quality that is required to present at a real conference. The Health Disparities mock conference was held on October 10, 12, and 17, 2005. There were 14 presenters. The topics discussed were Health Disparities related to: Access to quality of care, Immunizations rates for adult and children, Asthma, Cancer, Cardiovascular Disease, Diabetes, HIV/AIDS, Infant mortality, mental health, rural health, Syphilis, TB, Viral Hepatitis, and Cultural Competence. To make this mock conference as realistic as possible, each of the presentations was critiqued by the members of the audience (fellow students of the class). Each member of the class was required to review the evaluation of his/her presentation, and write a reflective paper about their strengths in the presentation, to focus on what needed improvement in their presentation and apply this by coming up with a personal improvement plan. The project also required students to create a handout which included a learning activity. The purpose of creating the handout/activity was to increase the audiences understanding and comprehension of each Health Disparity topic. This too was evaluated by the presenter's fellow students. Each of the course competencies was achieved by this project. The lesson plan, PowerPoint, handout/activity, evaluation and reflection are documents that the students may choose to include in their professional
- Moore, Katie A** Health Professions Pugsley Rm. 2:15 - 2:30  
*Hurricane Relief Project*  
 Eta Sigma Gamma, The Health Education National Honorary, planned, conducted and evaluated a fundraiser to assist in the efforts of providing aid to hurricane Katrina victims. The goal was to earn \$1,084, the distance in miles from Youngstown State University to New Orleans. We used social marketing theory four P's and techniques in planning the event to maximize donations. The Product: Providing appropriate tangible and intangible incentives increases target group participation. The tangible incentive was Mardi Gras beads, appropriate because of their popularity with college students. The intangible incentive was the opportunity for student to sign their name to a posted entitled "I support hurricane relief for Katrina victims". Price: beads were sold for \$1.00 a strand to make them affordable to just about everyone. This low price also enabled students to buy more than one strand if they chose to. Place: the event was held in Kilcawley, on the Wick Ave bridge, and in the lobby of Cushwa Hall in both mornings and afternoons. Promotion mix: table display decorated with Mardi Gras colored table cloths, large poster which displayed: a map with the distance from Youngstown to New Orleans highlighted; pictures and facts about the hurricane and its victims, as well as Mardi Gras masks and other easily recognizable symbols of the New Orleans area. Personal selling techniques used: the twelve Eta Sigma Gamma members did not stand behind a table, but rather walked up to passersby and encouraged them to donate to this cause. They also wore and held multiple strands of beads while promoting the cause. Mardi Gras-themed posters were displayed around campus before and during this event. The goal for the project was exceeded. \$1,100 was donated to the Red Cross.

- Moore, Katie A** Health Professions Pugsley Rm. 2:30 - 2:45  
*World AIDS Day*  
 Quest 2006 World AIDS Day Project Members of the YSU chapter of Eta Sigma Gamma, the National Health Education Honorary, and planned, conducted and evaluated the World AIDS Day Education Project, which was conducted December 1, 2006. The campaign was planned based on health education theory and the National Health Education Standards. The project consisted of several activities. A poster display in Kilcawley Center Arcade, was staffed from which verbal information, print literature, condoms and bottled water with project logo and HIV/AIDS resource information labels were distributed. An educational game was conducted; it was a "Wheel of Fortune" type game in which participants tested and increased their knowledge about HIV/AIDS facts and prevention, and tickets for a raffle for large, donated prizes. To be eligible to participate in the World AIDS Day program we required our members to study basic AIDS and HIV facts, and pass a quiz on these facts with 90% mastery. From this project, community and school health majors learned how to design interactive and fun learning activities, and how to document participant learning. We also refreshed our knowledge of local and national HIV and AIDS statistics and prevention. The majors also increased their skill in effective teamwork, collaboration with other campus programs and community agencies. They also participated in public health advocacy and used multiple communication channels. Consumers learned or had reinforced HIV/AIDS facts and prevention methods.
- Moser, Heather M** Teacher Education Jones Rm. 3:30 - 3:45  
*A Primer on Child Abuse for Teacher Candidates*  
 Both knowledge and perceptions of child abuse have changed dramatically in the last several decades. It is likely that in the average class of thirty students, there are one or more students who have experienced something that professionals would define as abuse. What should teachers know about child abuse? What special needs do children who have survived abuse exhibit, and how can teachers meet them in the context of a classroom? What tools are available for teachers to help them understand the complex effects of abuse? How do teachers negotiate the reality of children's lives, their relationships to the families of their students, their communities, and their status as legally mandated reporters of abuse? In the deluge of skills, competencies, and requirements that teacher candidates must master before being licensed, there is little time to discuss this critical issue. How well do Teacher Education programs prepare future educators for the realities they will face in the classroom, and what can be done to better prepare them for these challenges? This project attempts to build a simple introduction to issues related to child abuse for teacher candidates to be presented prior to their student teaching.
- Moser, Julie E** Human Ecology Ohio Rm. 1:30 - 3:00  
*The Effect of Fish Oil Supplements on Arthritis Related Pain*  
 Omega-3 fatty acids found naturally in nuts, seeds, soy, and fish, as well as in therapeutic doses in fish oil supplements, have been shown to decrease inflammatory response. This intervention study will investigate the effect of fish oil supplements in decreasing inflammatory-based arthritis-related pain. Subjects recruited for the study reported regularly experiencing arthritis-related pain and sought alternative treatment. Eligible subjects were asked to sign an Informed Consent form before baseline data was collected. Data collection instruments include the Fish Oil Arthritis (FOA) questionnaire, S06 pain scale, and the food frequency assessment. Subjects were instructed to take one 1000mg fish oil supplement capsule per day for twenty-one consecutive days. Data collection instruments will be administered weekly for the study period. Analysis of the dietary data will be conducted using Nutritionist Pro software, and statistical analyses using SPSS version 12.0. Anticipated results include reduction in self-reported joint pain and fewer limitations on activities of daily living following the three-week protocol.
- Munguia, Will G** Electrical and Computer Engineering Gallery 3:45 - 4:00  
*Multi-Signal Wireless Telemetry Module*  
 Our goal is to design and implement a multi-signal wireless telemetry module. This module will acquire visual, audio, and temperature data from it's surrounding environment. The data will be filtered, encoded, and transmitted to a remote terminal using sensors, transceivers, and signal multiplexing. At the remote terminal, the received data will be filtered, decoded, and sent to its appropriate destination (i.e. speaker, monitor, and computer.) The standalone module will also have the ability to be retrofit to various mobile and stationary objects.
- Nakley, Leah M** Chemical Engineering Gallery 2:15 - 2:30  
*Materials Engineering at Youngstown State - Part II*  
 The revitalization of Materials Engineering at Youngstown State University is not only significant for the College of Engineering & Technology, but for the entire campus and local community as well. Equipment such as the scanning-electron microscope (SEM), the energy-dispersive x-ray spectrometer (EDS), the three-dimensional printer (3DP) and powerful materials characterization software enable students to become involved in advanced research in the exciting field of materials engineering. Research of this magnitude is tied to industry participation, as there is local demand for the testing and analysis of industrial engineered materials. Under the direction of Dean Cynthia Hirtzel, students complete and continue to work on projects related to materials engineering. This includes the testing and evaluation of engineered materials, materials characterization analysis, and failure analysis. The basis of this presentation will be the projects and appropriate technologies available to students of Materials Engineering.

**Naples, Andrew G**

Mechanical Engineering

Gallery 8:45 - 9:00

*Design of an Automated Induction Brazier*

For manufacturers, optimization is the ultimate goal. This optimization must be reached on a certain set of levels including production rate, efficiency, production cost and environmental impact. Current technology for the production of any type of valve body calls for high production cost and potentially dangerous environmental side effects. Thus, it has become necessary to determine an alternative method to the furnace method in use. The manufacturing of a particular valve body has been redeveloped. The valve body was composed of a brass body with two protruding copper tubes. These tubes were connected to the body using an inert atmosphere brazing technique involving an induction coil as the heat source. The inert atmosphere minimized the amount of oxidation to the part. In addition, the part was brazed with no flux material present. The use of induction coils, inert atmosphere, and no flux aided in the optimization of minimal surface discoloration and eliminated the necessity of post-braze cleaning. The process had a constant part flow through the induction coils. In order to aid in this constant flow, the valve bodies and copper tubes were introduced into the system press fit. Once in operation, this machine operated at a rate of approximately four parts per minute. Also, the parts, though heated to the necessary temperature for the brazing material to melt, were cooled to a removal temperature that allowed for operational safety standards to be met. This paper reveals the final design concept and provides the derivation process of all of its components. Multiple induction coil designs, methods of transferring the part, computer modeled cooling techniques, inert atmospheres and mechanisms of controlling the inert atmosphere are described in this study. Each possibility is carefully considered and advantages and disadvantages are examined.

**Nawaz, Amjid**

Biology

Ohio Rm. 8:30 - 10:00

*Screening of Various Metal Resistance Bacteria from East Fork Poplar Creek*

The Y-12 plant in Oakridge, TN has played a vital role in national defense. During the processing of uranium and lithium to make the atomic and hydrogen bombs for World War II and the Cold War, mercury and other heavy metals wastes were released into the East Fork Poplar Creek and the surrounding area. *Strenotrophomas maltophilia* Oakridge strain O2 (*S. maltophilia* ORO2), which was isolated from the East Fork Poplar Creek, grew in the presence of toxic levels of zinc, copper, platinum, mercury, gold, cadmium, lead, silver, chromium, and selenium. Nine hundred aerobic bacterial colonies were isolated from soil contaminated with 96 ppm mercury, while one thousand six hundred other colonies were isolated from a downstream site contaminated with 2 ppm mercury. The metal resistance colonies are presently being studied. The minimal inhibitory concentrations (MICs) of the metal sensitive *E. coli* HB101 strain have been determined for the various metal salts: Cu (450  $\mu$ M), Cr (350  $\mu$ M), Pb (350  $\mu$ M), Hg (10  $\mu$ M), Se (2mM), Zn (600  $\mu$ M), and Cd (30  $\mu$ M). The MICs of the metal salts will be used in replica plating experiments to screen the isolates for resistance to mercury, copper, zinc, lead, cadmium, chromate, and selenium. In addition, the genes that confer the metal resistances in *S. maltophilia* ORO2 will be amplified using the polymerase chain reaction (PCR), and these genes will be used to identify similar genes in other isolates in Southern blotting experiments. Future work will determine the identity of the isolated bacterial colonies by sequence analysis of PCR amplified 16s ribosomal DNA. Studying the mechanisms of how bacteria survive in high metal concentrations may be useful in understanding the role toxic levels of metals play in human cells and cleaning up the environment.

**Newman, April M**

Geological and Environmental Sciences

Jones Rm. 11:00 - 11:15

*Comparative Water Chemistry Analysis of Pigeon Creek and an Adjacent Hypersaline Lake, San Salvador, Bahamas*

An investigation of transmissivity of groundwater between a closed lake and Pigeon Creek was conducted on San Salvador Island in the Bahamas as part of the ENST 6999 Topics course at Youngstown State University. A human-constructed road provides a barrier between the hypersaline, closed lake and the northern end of Pigeon Creek, which is a lagoon that is connected to the open ocean. The study measured water surface levels and water chemistry in the lake and Pigeon Creek at high and low tides to determine if there was tidal influenced groundwater flow between the two bodies of water. The level of the water surface in northern Pigeon Creek fluctuated 10-15 centimeters between low and high tide during the study while no fluctuation of the level of the water surface in the hypersaline lake was observed. Trends in pH, electrical conductivity, salinity, and dissolved oxygen measurements collected from water in Pigeon Creek and the lake were not correlative between the two bodies of water. The lack of change in the level of the water surface in the lake during tidal fluctuations in Pigeon Creek demonstrates that the water level in the lake is not tidal influenced. The lack of tidal influence in the closed lake coupled with the differing trends for water chemistry measurements between the lake and Pigeon Creek suggest that groundwater flow between the two bodies of water is on a longer time scale than the tidal cycle.

**Newman, April M**

Biology

Ohio Rm. 8:30 - 10:00

*Quantitative Study of Aquatic Invertebrate Health in the Polluted Buffalo River, NY*

Industrial pollution is much to blame for the current condition of the Buffalo River, New York, one of 42 Great Lakes "Areas of Concern". The Federal Water Pollution Control Agency in 1965 classified the Buffalo River, considered biologically "dead" at the time, one of the three most polluted rivers in the United States. Our study presents an assessment and guidance project in anticipation of active habitat restoration of this river, and also updates a long-term data set on benthic (bottom-dwelling) invertebrate community health. Replicated bottom grab samples were collected on four separate dates in 2003-04 for enumeration of benthic invertebrates at ten near-shore and six navigation channel sites. Our efforts were focused mainly upon the Chironomidae (aquatic midges), which are an important and speciose group of pollution tolerant organisms. Studies from the 1960s through the 1990's had shown steadily increasing abundance and generic richness of the biota at these study sites. Unfortunately, trends from our study show that invertebrate community richness has not improved, and may actually have declined over the last decade. If the recovery of the Buffalo River has essentially leveled off, active remediation may be needed to further improve the condition of this river.

**Nims, Clinton M**

Middle Childhood Education

Jones Rm. 12:00 - 12:15

*Depositional Patterns and Coastal Change at Sandy Point, San Salvador, Bahamas*

Sandy Point is a prominent landform located at the southwestern corner of San Salvador. It has formed as a result of the combination of long shore drift along the southern and western shores of the island and intense wave refraction at the point. Investigations performed in March 2003 through 2005 indicate that sediment accumulates rapidly at the point and dramatically shifts position in response to major storms. The 2003 investigation produced an average calculated progradation rate of approximately 10 feet per year over the past 33 years. The 2004 and 2005 investigations showed a dramatic shifts of sand. In order to further define the rate of sediment accumulation and movement of the deposits, a GPS survey of the low tide shoreline and bounding sand dune line was performed. In addition, eight beach profiles were constructed from the tide line to the bounding sand dunes. The resulting shoreline position will be plotted on the existing 1971 topographic map of the island and compared to the established shoreline position of the map and determinations from 2003 through 2005. In addition, the proposed research will estimate the total carbonate sand production. These measurements in combination with map area determinations will be used to calculate sand volume.

- Nock, Shannon** Teacher Education Jones Rm. 4:30 - 4:45  
*Rhythmn and Rhyme: Poetry Across the Middle School Curriculum*  
 This presentation will explore the various ways that teachers can use poetry with Middle level students in the content areas. Poetry is known to be an inspiration for reading, writing, and language acquisition for middle level students. This presentation looks at how poetry can enhance content areas such as math, science, social studies, music, and art. The presenters will demonstrate motivational activities for reading and writing poetry using popular children's authors' works as a springboard for original student compositions. Poetry has the potential to increase students' interest in their content areas and to help them retain content information.
- Orr, Doug S** Biology Ohio Rm. 8:30 - 10:00  
*Purification of the Capsular Polysaccharide from Type 5 Staphylococcus aureus by a DEAE-Sephacel and Size Exclusion Column*  
 Staphylococcus aureus (S. aureus) type 5 and type 8 are gram positive bacteria that are commonly found in both hospitalized patients and community infections. The outside layer of the cell wall of S. aureus is composed of carbohydrates in the form of a capsule (Lowy 1998). The capsular polysaccharide (CP) assists the bacteria by adhering to host tissue and avoiding destruction by the immune system (Cunnion, et al. 2002). Since the primary defense of S. aureus is the CP, our objective is to produce monoclonal antibodies against this capsule. The capsular polysaccharide was purified to test for antibody binding. The whole bacteria was degraded by a series of reagents before the carbohydrate extract was ready to be passed over a DEAE-Sephacel column (separates the carbohydrate based on the charge). A tetrazolium red test confirmed the presence of carbohydrate in the sample, whereas the teichoic acid test determined if there were phosphates still present. The sample was then passed through a size exclusion column to separate the carbohydrate based on size, and then re-tested with the tetrazolium red and the teichoic acid tests. The sample was determined to be a purified capsular carbohydrate.
- Paden, Laura L** Human Ecology Ohio Rm. 1:30 - 3:00  
*The Effect of Fish Oil Supplements on Arthritis Related Pain*  
 Omega-3 fatty acids found naturally in nuts, seeds, soy, and fish, as well as in therapeutic doses in fish oil supplements, have been shown to decrease inflammatory response. This intervention study will investigate the effect of fish oil supplements in decreasing inflammatory-based arthritis-related pain. Subjects recruited for the study reported regularly experiencing arthritis-related pain and sought alternative treatment. Eligible subjects were asked to sign an Informed Consent form before baseline data was collected. Data collection instruments include the Fish Oil Arthritis (FOA) questionnaire, S06 pain scale, and the food frequency assessment. Subjects were instructed to take one 1000mg fish oil supplement capsule per day for twenty-one consecutive days. Data collection instruments will be administered weekly for the study period. Analysis of the dietary data will be conducted using Nutritionist Pro software, and statistical analyses using SPSS version 12.0. Anticipated results include reduction in self-reported joint pain and fewer limitations on activities of daily living following the three-week protocol.
- Pasquale, Anthony J** Industrial and System Engineering Ohio Rm. 1:30 - 3:00  
*Productivity Analysis of Patriot Seating Manufacturing Process*  
 Student teams from the Industrial and System Engineering programs at Youngstown State University participated in a field study at Patriot Seating in Austintown, Ohio. Working under the envelope of the Industrial Engineering Student Consulting Clinic (IESCC) an analysis was performed on work measurement. Results from the analysis led to student learning, management insight, and have strengthened the company and university relationship. Techniques applied included time and motion studies using both classic stop watch and more advanced computer driven video techniques. The methods used in this study are: Time Study, MOST Analysis, and Therbligs Analysis. Also, MTM-1 and MTM-2 were considered in this process. Work Sampling will be applied to this study at a later time which will help determine if inefficiencies exist due to the distribution of work load among the employees.
- Pasquinelli, Angela m** Human Ecology Ohio Rm. 1:30 - 3:00  
*Patterns of Supplement Usage Among Youngstown State University College Students*  
 The American dietary supplement industry grosses 17.1 billion dollars per year with performance enhancing, weight loss, and nutritional supplements, being the most common forms used. This study will investigate supplement usage among Youngstown State University students who frequent the on-campus fitness facilities. Male and female students, (n=100), aged 18-35 years will be recruited from the Andrews Health and Wellness Center and Stambaugh Fitness Center. Students who agree to participate will be asked to sign an Informed Consent form and complete a self-administered questionnaire. The questionnaire will collect information on demographic data, frequency and intensity of exercise, supplement selection, and usage and dietary pattern. Statistical analysis will be completed using SPSS Version 12.0 to identify traits in usage. Gender and athletics-based trends are anticipated.
- Patil, Rupali S** Computer Science and Information Systems Humphrey Rm. 11:30 - 11:45  
*Spam Detection and Identification*  
 Data Mining is the process of analyzing data to identify patterns or relationships. These patterns are not easily detectable. Data Mining makes use of various algorithms to dig down into the data and find useful patterns, hence the name data "mining". E-mail spam involves sending identical or nearly identical messages to thousands (or millions) of recipients; without their permission. The difference between legitimate mail and illegitimate mail is not clear enough for the currently used filters. The relation between the two can be found out using data mining techniques. By looking at the spam mails and legitimate mails we can find out the differences between them and determine rules which characterize a "spam" mail. This problem is categorized as classification task. Various data mining techniques are being experimented to build a powerful spam filter like statistical approach – making use of statistical procedures; behavior based spam filtering – offline data mining analysis system, learning systems – supervised learning, (document) density based spam filtering as well as real time spam filtering for the advancement of data mining. These techniques have taken spam filtering as a challenge and if successful will end the spam nightmare. There are several other methods used to classify various data objects into class decision trees, model evaluation, rule-based classifier, nearest neighbor classification, Bayesian Classification. This paper deals with the evaluation of various methods and their effectiveness in determining spam mail from legitimate mail. Also, the basic data mining techniques such as data visualization are used to tackle this problem better.

**Paul, Ryan M** Mechanical Engineering Gallery 2:15 - 2:30

*Materials Engineering at Youngstown State - Part II*

The revitalization of Materials Engineering at Youngstown State University is not only significant for the College of Engineering & Technology, but for the entire campus and local community as well. Equipment such as the scanning-electron microscope (SEM), the energy-dispersive x-ray spectrometer (EDS), the three-dimensional printer (3DP) and powerful materials characterization software enable students to become involved in advanced research in the exciting field of materials engineering. Research of this magnitude is tied to industry participation, as there is local demand for the testing and analysis of industrial engineered materials. Under the direction of Dean Cynthia Hirtzel, students complete and continue to work on projects related to materials engineering. This includes the testing and evaluation of engineered materials, materials characterization analysis, and failure analysis. The basis of this presentation will be the projects and appropriate technologies available to students of Materials Engineering.

**Paul, Ryan M** Mechanical Engineering Gallery 2:30 - 2:45

*Microstructural and Chemical Characterization of Unique Refractory Materials Produced via Chemical Transformation*

Ordinary refractory materials used in industrial processing containment and protection applications currently fail due to: 1) chemical reactions between the materials being processed, 2) mechanical degradation of the refractory material by the process environment and 3) temperature limitations on the use of a particular refractory material. Subsequently, industry is constantly searching for new materials that address these limitations. A refractory production technique refined and commercialized by Fireline TCON, Inc., involving the use of controlled chemical transformation, offers the potential to produce novel refractory materials with greater service lives in harsh industrial production environments, such as molten metal processing. Current materials produced by this TCON process demonstrate promising erosion and corrosion resistance in certain industrial processing environments. These materials, however, possess limited high-temperature strength and thermal shock resistance. In order to maximize the potential value and assist in the commercialization of TCON materials, there is a need to analyze alternative compositions that will increase the properties of high-temperature strength and thermal shock resistance. The necessary analysis will include: scanning-electron microscopy (SEM), energy dispersive x-ray spectrometry (EDS), and materialographic examination of fracture surfaces to visualize the displacement reactions. Furthermore, light microscopy coupled with digital image analysis capabilities will further the understanding of the chemical reactions that occur. The analysis can then be correlated with both ambient and elevated temperature properties.

**Pfeil, Erin K** Biology Pugsley Rm. 11:00 - 11:15

*Statistical Modeling of Downed Dead Wood in a Riparian Forest*

The generation of downed dead wood (DDW) is an important process in forest ecosystems, as it recycles carbon and key nutrients, promotes habitat diversity, and creates canopy gaps utilized by light requiring species. Downed wood can be generated by disturbances such as wind, fire, or disease, or through the aging and death of individual trees. Our study quantified DDW within the old-growth riparian ecosystem of Zoar Valley gorge, NY and also investigated whether canyon walls provided protection from episodic wind disturbances. Data was collected from forty-one 30 x 30 meter quadrats, located on ten terraces within the gorge, cataloguing volume, species (if possible), decay class, and compass orientation of DDW pieces >15 cm in diameter. To find whether DDW was uniformly distributed or oriented, Kolmogorov-Smirnov goodness of fit tests were performed. Total DDW volume on terraces ranged up to 145 m<sup>3</sup>/ha, typical of the high volumes seen in old growth forests. American Beech (*Fagus grandifolia*) and Sugar Maple (*Acer saccharum*) were the two most abundant species collected as DDW. Prevalence of downed American Beech may be due to the effects of beech bark disease, an invasive pathogenic fungus. As much as half of this species' wood volume was fallen and dead. Five out of ten of the terraces analyzed displayed DDW orientation with prevailing winds, suggesting an influence greater than expected.

**Pisciuneri, Patrick H** Mechanical Engineering Gallery 8:30 - 8:45

*Design and Fabrication of a Lunar Buggy*

2006 marks Youngstown State University's second consecutive year participating in the Great Moonbuggy Race in Huntsville, Alabama. The previous year's team was unable to finish the competition; however drastic design implementations and changes allowed this year's team to earn a top five finish in the event. Minimal budget and familiarity with the competition were overcome to compete against some well-funded, seasonal participants in the competition. This report outlines the key engineering and technical aspects of the group's success. YSU's design was unique in that it featured back-to-back seating of its two riders as opposed to the more common side-to-side arrangements that most schools used. In keeping with the rules of the competition, there was one man rider and one woman rider. Also, the buggy needed to be carried to a starting line that was twenty feet away by the two riders. Therefore, the weight of the vehicle was kept to a minimum. In further cooperation with the rules of the competition, the vehicle was carried to the starting line in a folded form that was able to fit into a four foot cube. At the starting line the moonbuggy was unfolded into a final form that allowed the riders to race over a simulated moon environment featuring craters, rocks, lava ridges and lunar soil. The time it took for the buggy to be unfolded and the course to be completed served as the basis for placing in the event. This year's team started from scratch with new ideas. The entire project was completed at YSU, including CAD work, fabrication, and testing. Along the way the universities engineering software, machine shop and labs were utilized in completing the project.

**Pitoscia, William J** Civil Engineering Jones Rm. 12:00 - 12:15

*Depositional Patterns and Coastal Change at Sandy Point, San Salvador, Bahamas*

Sandy Point is a prominent landform located at the southwestern corner of San Salvador. It has formed as a result of the combination of long shore drift along the southern and western shores of the island and intense wave refraction at the point. Investigations performed in March 2003 through 2005 indicate that sediment accumulates rapidly at the point and dramatically shifts position in response to major storms. The 2003 investigation produced an average calculated progradation rate of approximately 10 feet per year over the past 33 years. The 2004 and 2005 investigations showed a dramatic shifts of sand. In order to further define the rate of sediment accumulation and movement of the deposits, a GPS survey of the low tide shoreline and bounding sand dune line was performed. In addition, eight beach profiles were constructed from the tide line to the bounding sand dunes. The resulting shoreline position will be plotted on the existing 1971 topographic map of the island and compared to the established shoreline position of the map and determinations from 2003 through 2005. In addition, the proposed research will estimate the total carbonate sand production. These measurements in combination with map area determinations will be used to calculate sand volume.

**Pittman, Thomas W**

English

Bresnahan Rm. 4:00 - 4:15

*Supercharging "the Middle": Empowering 1539 Teaching Assistants*

Since they are being adequately compensated during their first semester, each graduate assistant (GA) must attend each of his or her assigned 1539 classes as a full-time teaching assistant rather than just once per week as a lab assistant. According to YSU's Handbook for Graduate Assistants and Graduate Assistants/Interns, GAs are expected to devote twenty hours per week, sixteen weeks per semester to "assistantship duties." During their first semester, however, GAs attend three hours of 1550 mentoring, spend one hour as a 1539 "lab assistant," plus nine hours of academic classes of their own as they work on their individual Master's degrees, leaving seven "duty" hours of contractual responsibility. Last spring Dr. Erin Harvey, coordinator of YSU's Writing Center, and Cynthia Vigliotti, instructor for the 2005 summer semester's sole 1539 "Introduction to College Writing" class, agreed to allow a graduate/teaching assistant (GA/TA) to attend each 1539 class rather than for just one-hour per week, as had been the custom for decades. The results of this paradigm were significant. Reinforcing this classroom dynamic proved to be beneficial to the students, to the instructor and to the GA whose experience will prove useful in his own future classrooms. The 1539 course prepares students who are ill-equipped to engage the required 1550 and 1551, Writing I and II respectively, General Education Requirement (GER) English courses for all majors. While the completion of 1539 is necessary for these students to make the natural progression to the obligatory 1550 and 1551 courses, these lower level English courses do not count toward a student's completed hours for his or her GERs and subsequent undergraduate degree. If students perform poorly at the onset of the course, they are unable to drop the class without withdrawing completely from the university. These consequences are unforgiving, not only for the affected students, but also for the university whose enrollment ultimately drops and whose coffers shrink because non-students obviously are non-paying students.

**Popio, Louise M**

Computer Science and Information Systems

Ohio Rm. 1:30 - 3:00

*The Distance Learning Development Process*

This research project will focus on the processes needed for two different distance learning delivery systems in the area of information technology and computer information systems: the hybrid system (using a course management system such as WebCT to complement an existing course) versus a face-to-face delivery system utilizing VTEL (or equivalent equipment) for synchronous delivery. This study will analyze differences in communication tools and in preparation procedures. Surveys will be taken of existing distance learning programs in departments of Information Technology and Computer Information Systems. Challenges encountered by departments that use technology to teach technology-related areas will be studied. Special challenges are encountered in the distance learning classroom when equipment is required to deliver the course content. For example, in a class teaching PC configuration and maintenance, where students are required to assemble and disassemble PCs, a special technique would need to be delivered to offer this course at a distance. Similarly, if one were teaching a course in Visual Basic programming, thus requiring lab time for part of the course, the distance learning environment would need to incorporate the use of computers and software to deliver the course content. This study will consider the specific needs of the CSIS department to determine the applicability of using different distance learning mechanisms in delivering CSIS classes and the methods of implementing those mechanisms.

**Presnar, Christopher A**

Electrical and Computer Engineering

Gallery 4:30 - 4:45

*Task Driven Autonomous Robot Configured for Competitive Performance*

Robotics is an increasingly growing field in industry for countless applications including the manufacturing of products such as automobiles or the exploration of areas where humans can not traverse themselves. An autonomous robot is presented in order to emulate real-world projects and applications that use robotic control. The robot will be designed and constructed to accomplish the goals of the 2006 Youngstown State University Robotics Competition. This endeavor encapsulates all of the knowledge acquired through the four years of study within the Bachelor of Electrical and Computer Engineering Degree. The project consists of research, design, implementation, construction, programming, and testing in an effort to apply the team's collective knowledge in the fields of electronics and problem solving. The results of the project will be propagated through the team's presentations at the 2006 QUEST: A Forum for Student Scholarship as well as the aforementioned Youngstown State University Robotics Competition. After the competition, the autonomous robot will be adapted for more practical, industrial applications.

**Provencher, Melodie A**

Sociology and Anthropology

Humphrey Rm. 4:00 - 4:15

*Student Attitudes about Writing: The Research and the Literature*

What attitudes and beliefs do students bring to the composition classroom, and what are the sources of those beliefs? Are attitudes related to family background, social class, gender, previous writing experiences, or are they linked to cultural myths about writing? How does attitude impact performance? Composition researchers have been asking questions like these for over forty years, but student attitudes and their sources have not been studied side-by-side, and actual writing ability has only rarely been studied in relation to attitudes and beliefs. In a survey of 117 first-year and 329 upper-level university students in 1995, Davida Charney, John Newman, and Mike Palmquist related specific student attitudes about knowledge and beliefs about writing to overall writing ability, but they did not explore the sources of student attitudes and beliefs, nor did they delve into the backgrounds of their respondents. Other researchers, like Perry Gilmore, have focused on the attitudes and classroom behaviors of students from specific socio-economic groups, but have not related attitudes and beliefs to writing performance. In this study, I will bring together the findings of past researchers on these three key issues: implicit attitudes about writing, the sources of those attitudes, and the influence of attitude on writing performance. Consolidating the findings from composition studies and sociological research from the past will help to inform future research on these same issues at YSU.

- Quarcco, Samuel K** Mathematics and Statistics Humphrey Rm. 11:00 - 11:15  
*Nomograms and Data Visualization*  
 All areas of learning from data - statistics, machine learning, and data mining, can benefit immensely from data visualization. Visualization provides a front line of attack in the analysis of data, revealing intricate structure that cannot be absorbed in any other way. Through visualization of data, we are able to discover the flow and pattern of the data distribution, which helps us in building model which results in making valid inferences on our data. Building models for estimations and predictions of feature value is about solving mathematical problems (equations) with one or more parameters (variables). Through data visualization (graphing), relations between parameters or physical quantities can be determine in such a way that the value of an unknown quantity can be determined given the values of the other related quantities. One such tool that is used in data visualization is a nomogram. A nomogram, by definition, is a graphical calculating device, i.e. a two dimensional diagram designed to allow graphical approximation of a computation. Applications of nomograms can be found anywhere from physics (monitoring relative centrifugal force) to medical science (dosage for certain conditions). In fact, it is documented that D'Ocagne invented the technique to aid engineers in the process of constructing. Uses of the nomogram are still being found today, with its most recent being in the subject of data analysis thru data visualization.
- Quiring, Christopher A** Mechanical Engineering Gallery 11:15 - 11:30  
*Racing Go-Kart*  
 Racing go karts have been around since the 1950's but have just recently began to progress into a sport of its own. Today, these highly modified, fast and agile karts are used for training tools for professional racers and as a hobby for the recreational weekend warrior. The kart being built for this particular project is a road racing kart consisting of an electric start 125cc two-stroke engine producing roughly 28 horsepower with a top speed near 85mph and a 0-60 time equivalent to that of most modern sports cars, roughly 5 seconds. The engine and components will be mounted to a 4130 Chrome-moly rigid frame. The completed kart will then be tested and tuned until the group is satisfied and raced in a local karting series. A number of different tests and analysis will be performed on the kart. Stress analysis will be performed on the chassis. The kart frame will be drawn using the SolidWorks software available and analyzed with the Algor FEM PRO application. Modifications to the frame may take place based on the stress analysis results
- Reinert, Jason M** Electrical and Computer Engineering Gallery 2:00 - 2:15  
*Left-Handed Metamaterials and Amphoteric Crystals to Produce Negative Refraction*  
 An electromagnetic field simulation code was used to model, investigate, and experiment with the concept of negative refraction. Two materials were used to create this effect: left-handed metamaterials and amphoteric crystals. Each material has unique properties that allow this effect to occur. These properties will be compared, and the possible uses of these materials will be discussed.
- Reinert, Jason M** Electrical and Computer Engineering Gallery 10:45 - 11:00  
*Design of an Autonomous Robot for Object Collection and Sorting*  
 The main objective for this project is to design an autonomous robot. It must possess the capability to follow a given course. The robot must also lift and sort assorted steel, plastic, and brass balls from the course and place them into a receptacle. The robot will compete against other robots in a robotics competition presented by Youngstown State University.
- Rettos, Emmanuel N** Mechanical Engineering Gallery 8:30 - 8:45  
*Design and Fabrication of a Lunar Buggy*  
 2006 marks Youngstown State University's second consecutive year participating in the Great Moonbuggy Race in Huntsville, Alabama. The previous year's team was unable to finish the competition; however drastic design implementations and changes allowed this year's team to earn a top five finish in the event. Minimal budget and familiarity with the competition were overcome to compete against some well-funded, seasonal participants in the competition. This report outlines the key engineering and technical aspects of the group's success. YSU's design was unique in that it featured back-to-back seating of its two riders as opposed to the more common side-to-side arrangements that most schools used. In keeping with the rules of the competition, there was one man rider and one woman rider. Also, the buggy needed to be carried to a starting line that was twenty feet away by the two riders. Therefore, the weight of the vehicle was kept to a minimum. In further cooperation with the rules of the competition, the vehicle was carried to the starting line in a folded form that was able to fit into a four foot cube. At the starting line the moonbuggy was unfolded into a final form that allowed the riders to race over a simulated moon environment featuring craters, rocks, lava ridges and lunar soil. The time it took for the buggy to be unfolded and the course to be completed served as the basis for placing in the event. This year's team started from scratch with new ideas. The entire project was completed at YSU, including CAD work, fabrication, and testing. Along the way the universities engineering software, machine shop and labs were utilized in completing the project.
- Riker, Derek L** Biology Ohio Rm. 8:30 - 10:00  
*Determining Specificity of Monoclonal Antibody Against Staphylococcus aureus Capsule*  
 Staphylococcus aureus is a disease causing bacteria that is of great importance to the medical field. It causes death to most of its victims although it is rapidly becoming antibiotic resistant. We have produced a monoclonal antibody that binds to type 5 S. aureus capsule, but will not bind to the capsule of type 8 bacteria. The capsule of the type 5 (T5) S. aureus is a protective carbohydrate layer surrounding the bacterium that prevents white blood cells from killing the bacteria. In these studies, formalin killed T5 bacteria will be treated with protease K in order to destroy any protein that might be present if the carbohydrate was not completely purified. The T5 bacteria will also be treated with periodate, which will destroy the carbohydrate. The untreated bacterium or bacterium treated with periodate or protease K will then be used in an ELISA assay to determine if the monoclonal antibody still binds to the bacterium. This will demonstrate that there is indeed specificity of the antibody binding to only the capsule of the T5 bacteria and not to any contaminating proteins.
- Risi, Rob** Chemistry Ohio Rm. 8:30 - 10:00  
*Synthesis and Reactions of Novel Azidodeoxy and Diazosugars*  
 We are interested in the synthesis of novel heterocyclic compounds from azidodeoxy sugars and diazosugars and have studied a number of systems derived mainly from furanose scaffolds. Cycloaddition and Staudinger reactions on the azides produce interesting derivatives while metal-catalyzed decomposition of the diazosugars leads to insertion chemistry, including the formation of novel dimeric ethers. Attempted synthesis of glycosyl O-linked diazoesters has resulted in a novel one-pot synthesis of glycosyl azides. We will present results from a number of furanose systems, including X-Ray crystal structures of some of the products.



- Ruminski, Jarret E** History Coffelt Rm. 3:45 - 4:00  
*Survival and Rebellion: Smuggling in the Warsaw Ghetto*  
 Smuggling is mentioned in nearly every book and article about the Jewish ghettos established by the Nazis during World War II, but there have been few independent studies centered on the acts of smuggling that were so vital to survival in the ghettos. This presentation deals specifically with smuggling in the Warsaw Ghetto in Poland. Nazi food rations for Jewish ghetto residents were so low that starvation was inevitable. To curb the starvation rates, both Jews and non-Jews smuggled food and supplies into the ghetto at a constant rate from the establishment of the ghetto in 1939, to its razing in 1943. Smuggling was not just a necessary means of survival; it was also a subtle, yet constant form of resistance to the Nazi occupiers. Despite the best German efforts to stop smuggling through use of deadly force, often gunning down children in cold blood, the smuggling never ceased. Indeed, the more smugglers the Nazis killed, the more the smuggling increased. Smuggling effectively foiled the Nazi plan to annihilate the Jews in the ghetto through a steady process of starvation and disease. There were "professional" smugglers, who organized intricate smuggling rings, bribed Jewish and German officials, and often made a tidy profit. More common were the "amateur" smugglers, many of whom were children, who brought food, clothing, and general supplies into the ghetto, risking their lives in the process. Food and supplies were smuggled into the ghetto by any means possible, including over and through ghetto walls, across roof tops, through sewer systems, and on incoming trucks. Smuggling abated the starvation of thousands of ghetto residents, and in the process was a consistent act of resistance to the Nazi forces by groups of people who found themselves in the direst of circumstances.
- Saborse, Matt J** Foreign Languages Bresnahan Rm. 3:45 - 4:00  
*L'Inno di Mameli: Imparare l'italiano tramite musica*  
 This PowerPoint presentation is in Italian. I will present a lesson that would be taught to fourth year students of Italian. This particular lesson uses the Italian National Anthem (L'inno di Mameli) to teach vocabulary, grammar, culture, and history. The first two slides are below. Slide 1: Il testo della prima strofa Fratelli d'Italia, L'Italia s'è desta; Dell'elmo di Scipio S'è cinta la testa. Dov'è la Vittoria? Le porga la chioma; Ché schiava di Roma Iddio la creò. Stringiamci a corte! Siam pronti alla morte; L'Italia chiamò. Slide 2: Vocabolario Trovate il significato delle seguenti parole. L'inno – Destarsi – Elmo – Cingere – Porgere – Chioma – Schiava – Iddio – Ritornello Stringere – Corte –
- Sacui, Iulia** Chemistry Ohio Rm. 8:30 - 10:00  
*Synthesis and Reactions of Novel Azidodeoxy and Diazosugars*  
 We are interested in the synthesis of novel heterocyclic compounds from azidodeoxy sugars and diazosugars and have studied a number of systems derived mainly from furanose scaffolds. Cycloaddition and Staudinger reactions on the azides produce interesting derivatives while metal-catalyzed decomposition of the diazosugars leads to insertion chemistry, including the formation of novel dimeric ethers. Attempted synthesis of glycosyl O-linked diazoesters has resulted in a novel one-pot synthesis of glycosyl azides. We will present results from a number of furanose systems, including X-Ray crystal structures of some of the products.
- Scholes, Justin** Mechanical Engineering Gallery 9:30 - 9:45  
*TJT 3000 Mini Gas Turbine*  
 In a gas turbine, a pressurized gas spins the turbine. The engine produces its own pressurized gas, and it does this by burning a fuel such as propane, natural gas, kerosene, or jet fuel. The heat that comes from burning the fuel expands air and the high-speed rush of this hot air spins the turbine. Gas turbines have three major parts: compressor, combustion area, and turbine. The compressor takes the air from the inlet and compresses it to a much higher pressure. The combustion area takes in the high pressure air, mixes fuel, and ignites it to create an even higher pressure generating high velocity. The final stage is the turbine. The air from the combustion area is forced through the turbine. This causes the turbine to spin very quickly and extract the energy. To confirm the Brayton Cycle, temperature and pressure probes must be placed in the proper locations to follow the ideal cycle. Thermocouples were inserted at four different positions. Pitot tubes will also be inserted at four different positions. With these readings the entropy change was calculated. With the same reading the efficiency of the compressor and turbine were also calculated.
- Schubert, Karen M** English Bresnahan Rm. 3:30 - 3:45  
*Guiding the Process: an Editor's Handbook for the Penguin Review*  
 Having served on the staff of YSU's art and literary magazine for three years, once as editor-in-chief, I have gained some insights into what makes both a successful journal and a meaningful experience for the editor and staff. Since most editors are undergraduates new to the process, they need quick tools and support to maximize their year with the Penguin Review. The fun of the Penguin Review is that each year's staff has artistic and editorial discretion, so that each issue is a culmination of their tastes, their year's submissions, and the printing conventions and technologies of their time. However, these must be understood; editorial policies need to be set early in the year, and student staff members need quick training on what qualities make a piece of art or writing that is worthy of publishing. Often last year's editor has graduated and is no longer available for day-to-day advice. I have written a handbook offering guidance on crucial aspects of the editing process such as building a cohesive staff, holding productive meetings, raising awareness of the Penguin Review on campus, soliciting and judging works in various genres of art and writing, and the nuts and bolts of fundraising, layout and printing. My handbook includes a timeline to understand when tasks must be done and in what order. My aim is to produce a document that will guide future editors through the exciting and fulfilling process of publishing a journal that represents the creative energy at YSU.
- Sevi, Ryan** Electrical and Computer Engineering Gallery 11:00 - 11:15  
*Home Automation*  
 We plan to design a home automation/cyber security system. To begin this project, we will build a model house and automate devices such as lights, locks, and the garage door. The general idea of the project will be to interface a Visual basic.NET form to a Phidget, which will in turn control the items of choice. Phidget is the interface we will use. We plan to use deadbolts as locks and standard lights. The Phidget will be wired directly to 24 volt relays, which will control the switching operations of the lights and locks. For our garage door, we are going to design a "pulley system" and make the door out of wood which will also be controlled by a Phidget and powered by a motor. The automation will make the room secure and convenient. The PC will give commands to our Phidget, which will then control our devices such as "Lights On, Lights Off." If there is extra time, we can easily build on this project by adding components and tasks such as video surveillance, sensors and internet/network access. We have also not ruled out the possibility of trying to implement our design on an actual room within the engineering building.

- Shaffer, Bethany K** English Bresnahan Rm. 2:00 - 2:15  
*Can I Buy You a Drink? Communication Between Individuals Inside and Outside Separate Relationships*  
 If cliché pick-up lines were professional sports players, “Can I buy you a drink?” would be a first-round Hall of Fame inductee, a unanimous election, along with “Come here often?” and “What’s your sign?” It’s a tried and true, if not somewhat laughable, method of meeting other people through the common bonds of alcoholism and the desire for companionship. Whether this line is still effective is questionable, but the fact is, at one point it was, and many were charmed by its unassuming, casual manner. In the 21st century, even after decades of practice and listening to smooth talk, couples, both in dating and marriage situations, still cite communication problems as some of their biggest sources of frustration. How far apart is this communication gap between the sexes, and how many does it affect? A survey created and conducted between March and May of 2005 set out to find the answers. To clarify the subject of this exploration, there is apparently no lack of research on how men and women communicate when they are in a relationship together, whether that is defined by marriage, dating, or cohabitating individuals. As interesting as communication between married couples must be, the purpose of the paper is to focus instead on communication between men and women when they are in marriage or dating relationships, but not with each other. That is, the situations examined involve one or both of the communicating man and woman, having no physical relationship with each other, but with separate people.
- Shook, Kendra** Chemistry Ohio Rm. 8:30 - 10:00  
*Conformational Analysis Using 1H-1H Coupling Constants*  
 One of the main goals in the second semester of Organic Chemistry (Chemistry 3720) is for students to become familiar with the tools used by Organic chemists to work out the structures of their molecules. The main technique employed is Nuclear Magnetic Resonance spectroscopy (NMR), which gives detailed information about the types of atoms present in molecules, as well as how those atoms are connected. One of the most useful pieces of information to be taken from NMR spectra is the coupling constant, which is a measure of the communication between adjacent atoms such as hydrogen. The relative size of these coupling constants gives information on molecular structure and conformation, which is vital to understanding the interactions of organic molecules with biological systems. This presentation will feature the analysis of coupling constant data from carbohydrate research samples and will discuss the relative conformations of these molecules.
- Shreve, Matthew A** Mathematics and Statistics Humphrey Rm. 11:00 - 11:15  
*Nomograms and Data Visualization*  
 All areas of learning from data - statistics, machine learning, and data mining, can benefit immensely from data visualization. Visualization provides a front line of attack in the analysis of data, revealing intricate structure that cannot be absorbed in any other way. Through visualization of data, we are able to discover the flow and pattern of the data distribution, which helps us in building model which results in making valid inferences on our data. Building models for estimations and predictions of feature value is about solving mathematical problems (equations) with one or more parameters (variables). Through data visualization (graphing), relations between parameters or physical quantities can be determine in such a way that the value of an unknown quantity can be determined given the values of the other related quantities. One such tool that is used in data visualization is a nomogram. A nomogram, by definition, is a graphical calculating device, i.e. a two dimensional diagram designed to allow graphical approximation of a computation. Applications of nomograms can be found anywhere from physics (monitoring relative centrifugal force) to medical science (dosage for certain conditions). In fact, it is documented that D’Ocagne invented the technique to aid engineers in the process of constructing. Uses of the nomogram are still being found today, with its most recent being in the subject of data analysis thru data visualization.
- Smith, Molly M** Sociology and Anthropology Humphrey Rm. 3:45 - 4:00  
*Gendered Offices: Women and Their Decision to Run for Higher Public Office*  
 Our presentation focuses on the topic of gendered offices and why women do not run for certain offices. The research focuses on the lack of female candidates for public office, and the effects of the existence of a family and traditional female gender roles on a woman's decision to run. Our presentation includes an introduction to the topic of women in public office and examines our research, including what offices women typically run for in Mahoning County. A review of current theories and literature is discussed, as well as our data collection, variables, data analysis, and presentation of the results. Finally, a dissemination of the results is presented.
- Smith, Debbie A** Chemistry Jones Rm. 11:15 - 11:30  
*Sand, Sediment, and Marine Tissue Analysis Using NAA and ICP*  
 The purpose of this study was to search for metal contaminants in soil, sand or fish samples from the island of San Salvador. Samples of soil, sand and various fish tissue were collected and brought back to YSU for metal analysis using Neutron Activation Analysis and Inductively Coupled Plasma. Both techniques test for elemental content although sample preparation and analysis is different for each method. Only soil and sand samples were originally collected in March of 2005 and manganese was identified in samples that came from several dump sites. There were also several suspect peaks of interest in the spectrum from last year that could not be positively identified from Pigeon Creek Estuary. This year a new detector was purchased for NAA and a second test method (ICP) will be used in order to identify possible metal content in the dump sites as well as Pigeon Creek Estuary. In addition, samples of fish and mollusks were collected this year in order to identify any bioaccumulation of metals in the local food chain. The search for metal contamination in the food chain is motivated by the accumulation of debris found on the island as well as contaminants from other sources in the ocean.



- Speece, Jessica c** Geological and Environmental Sciences Jones Rm. 11:15 - 11:30  
*Sand, Sediment, and Marine Tissue Analysis Using NAA and ICP*  
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- Spohn, Daniel R** Computer Science and Information Systems Ohio Rm. 1:30 - 3:00  
*Meta-Learning for Classification*  
 Data Mining is the process of obtaining useful information from dataset, by finding patterns and relationships. Numerous algorithms can be used in data mining to analyze datasets. Different algorithms work better in different situations, depending on the scope, size, and relevance of the data. There is no algorithm that is guaranteed to work on all datasets. Meta-learning is the process of learning how to learn. Meta-learning is data-mining used to blend together multiple data-mining algorithms for a dataset. The goal of this project is to classify datasets using metadata and to determine which algorithms will work the most efficiently and effectively on particular datasets, so that the selection of the best algorithm for a dataset is an easier task. However, even selecting the best method for meta-learning is a complicated task. Fortunately, WEKA, an open-source java data-mining program, has an extension named 'WekaMetal' that is specifically intended for meta-learning. Using WekaMetal we will be able to rank algorithms on their ability to correctly classify datasets.
- Stefanovic, Dusan D** Electrical and Computer Engineering Gallery 3:30 - 3:45  
*Autonomous Robot with Application in YSU IEEE Hardware Competition*  
 Undergraduate student research is conducted by a group of four senior electrical engineering undergraduate students enrolled in the Capstone Design course. It reflects obstacles students face and want to overcome, simulating a design project in industry in which engineers need to design, supervise, build, and test a project on a given timeline and budget. An autonomous robot is being designed and built with application as a competition robot in the IEEE YSU Hardware Competition, where we will communicate and compete with other teams, which helps enhance our work as a team, but each member's interdependence as well. The robotics competition encompasses aspects of automation, control systems, programming, and robotics providing optimal learning for the entire group. Division of labor among algorithm design, progress reports, robot structural design, programming aspects and assembly is done having in mind each team member's personal goals, and the goal with the desired outcome of the team as a whole. The robot must be fully independent, self-propelled, using electric motors and wheels, with the ability to steer, sweep/recover and sort/deposit balls as one of the primary functions, which will be controlled by a complex programmed microcontroller unit. Planning and organization is a very important part of our project, therefore a full project timeline along with the budget balancing, driven by logic of economy to get the best out of the least amount of money invested, were developed. This research helps us gain valuable practical knowledge and experience in project design and work in future engineering career opportunities.
- Stiles-Bodnar, Amber L** Counseling Ohio Rm. 1:30 - 3:00  
*Real Solutions*  
 The Eta Chapter at Youngstown State University has put together a Public Service Announcement that will air on local TV stations and Youngstown State University's public radio station. The purpose of the PSA is to advocate for the counseling profession by educating the public about what counseling is and how to go about obtaining counseling services. The PSA is short and simple. It describes what counseling is and who counselors are in a straightforward and creative way. The poster part of the presentation will be in power point slides with the following information: U.S. prevalence rates of mental health diagnoses, a description of what counseling is and why someone might seek counseling, an explanation of confidentiality, common diagnoses and mental health issues in our local area and finally a brief highlight of the services offered by the Community Counseling Clinic on the YSU campus. We believe that this PSA will help to clarify and give a better understanding of what counseling is in a creative and exciting way.
- Strahler, Craig M** Geography Jones Rm. 2:00 - 2:15  
*Geographic Information Systems (GIS) In Real Estate and Marketing Applications*  
 The potential for a highly intelligent system that is a conglomerate of open global information and in essence bilingual to all filters is emerging. In our opinion, will evolve into amplitude of monstrous data which will conceivably, at this point, be as automation was a few decades ago. Reducing human error from traditional methods (paper planning and compiling) and thus reducing the needs of extra work (overall cost reduction). Our primary example focuses on the methods and procedures of analyzing data spatially in existence with other variables to decipher planning for the real estate industry. It must be noted that our conception in presentation does not try to encompass all potential for the software, for the measure is far too great. However, we will communicate the potential for marketing schemes and maneuvers jointly from a technical perspective. Our slide presentation shows the nature of the planning stages conversely through the results of the software (GIS). A fully rendered example of our structure placement will be given as well. Our overall achievement is to display the importance and versatility of spatial technology within the realm of information technology.

**Studzinski, Stephanie**

English

Bresnahan Rm. 1:30 - 1:45

*Adventures in Children's Literature*

I have written and illustrated a children's book. The story takes the form of a long narrative poem using a writing style that is archaic at times. The narrative has been designed to be read aloud, so that children can gather meaning through sound and illustrations. The text is placed on the pages in such a way as to make it difficult to read the narrative badly; where pauses in the text are more difficult to find. The narrative opens in a somewhat colorful place and progresses through darkness to reach a brightly colored place. The narrative aims to teach children one way to react when afraid and with that a sort of self-reliance. The illustrations are exciting, imaginative, and childish. They are colored as a child might color them; scribbled and strangely blended. Color has been used sparingly to highlight characters and events. I designed all the characters in the book, taking into consideration what children would find exciting and yet familiar. The characters physically evolve as the story progresses; emotion is portrayed through the use of facial expressions, the sound, and meter.

**Suhail, Aamir**

Mathematics and Statistics

Humphrey Rm. 11:00 - 11:15

*Nomograms and Data Visualization*

All areas of learning from data - statistics, machine learning, and data mining, can benefit immensely from data visualization. Visualization provides a front line of attack in the analysis of data, revealing intricate structure that cannot be absorbed in any other way. Through visualization of data, we are able to discover the flow and pattern of the data distribution, which helps us in building model which results in making valid inferences on our data. Building models for estimations and predictions of feature value is about solving mathematical problems (equations) with one or more parameters (variables). Through data visualization (graphing), relations between parameters or physical quantities can be determined in such a way that the value of an unknown quantity can be determined given the values of the other related quantities. One such tool that is used in data visualization is a nomogram. A nomogram, by definition, is a graphical calculating device, i.e. a two dimensional diagram designed to allow graphical approximation of a computation. Applications of nomograms can be found anywhere from physics (monitoring relative centrifugal force) to medical science (dosage for certain conditions). In fact, it is documented that D'Ocagne invented the technique to aid engineers in the process of constructing. Uses of the nomogram are still being found today, with its most recent being in the subject of data analysis thru data visualization.

**Tafini, Erica**

Teacher Education

Jones Rm. 4:30 - 4:45

*Rhythm and Rhyme: Poetry Across the Middle School Curriculum*

This presentation will explore the various ways that teachers can use poetry with Middle level students in the content areas. Poetry is known to be an inspiration for reading, writing, and language acquisition for middle level students. This presentation looks at how poetry can enhance content areas such as math, science, social studies, music, and art. The presenters will demonstrate motivational activities for reading and writing poetry using popular children's authors' works as a springboard for original student compositions. Poetry has the potential to increase students' interest in their content areas and to help them retain content information.

**Tamayo, Michelle C**

Industrial and System Engineering

Ohio Rm. 1:30 - 3:00

*Productivity Analysis of Patriot Seating Manufacturing Process*

Student teams from the Industrial and System Engineering programs at Youngstown State University participated in a field study at Patriot Seating in Austintown, Ohio. Working under the envelope of the Industrial Engineering Student Consulting Clinic (IESCC) an analysis was performed on work measurement. Results from the analysis led to student learning, management insight, and have strengthened the company and university relationship. Techniques applied included time and motion studies using both classic stop watch and more advanced computer driven video techniques. The methods used in this study are: Time Study, MOST Analysis, and Therbligs Analysis. Also, MTM-1 and MTM-2 were considered in this process. Work Sampling will be applied to this study at a later time which will help determine if inefficiencies exist due to the distribution of work load among the employees.

**Tangudu, Vidya**

Computer Science and Information Systems

Ohio Rm. 1:30 - 3:00

*COGNOS: The On-Demand Business Intelligence Tool*

Business Intelligence is the process of enhancing data into information and then into knowledge. It was introduced for the first time in the early 90's, and since then, it has been used by many companies to help analyze data in order to help their decision-making and improve the business performance. One common business intelligence tool is a data warehouse, a logical collection of information gathered from operational databases. A data warehouse contains historical information that enables business analysis and decision-making tasks performance over time. The efficient data analysis processing and reporting can be done by using the Online Analytical Processing (OLAP), which refers to the software and applications that provide users with the ability to store and access data in multi-dimensional cubes. OLAP provides multidimensional summarized views of business data and is used for reporting, analysis, modeling, and planning for optimizing the business. Since data warehousing fails to top-down enforcing the company strategy, a new approach to business intelligence is introduced. It is called the Business Performance Management (BFM). It contains data warehousing and requires a component to monitor the time-critical operational processes to help a better decision making. Cognos is considered to be the best business intelligence software on the market today. There are more and more customers applying it to their business performance management. In this paper, we try to build a qualitative, effective, sensible and time-effective usage of a Data Cube, which enables fast online e analysis of large data repositories, which is attractive in many applications. Although there are several kinds of cube-based OLAP products, Cognos is effective and efficient in the exploration of large data cube due to the huge computational space as well as huge observation space in the data cube.

**Thiemar, Martin**

Mechanical Engineering

Gallery 8:45 - 9:00

*Design of an Automated Induction Brazing*

For manufacturers, optimization is the ultimate goal. This optimization must be reached on a certain set of levels including production rate, efficiency, production cost and environmental impact. Current technology for the production of any type of valve body calls for high production cost and potentially dangerous environmental side effects. Thus, it has become necessary to determine an alternative method to the furnace method in use. The manufacturing of a particular valve body has been redeveloped. The valve body was composed of a brass body with two protruding copper tubes. These tubes were connected to the body using an inert atmosphere brazing technique involving an induction coil as the heat source. The inert atmosphere minimized the amount of oxidation to the part. In addition, the part was brazed with no flux material present. The use of induction coils, inert atmosphere, and no flux aided in the optimization of minimal surface discoloration and eliminated the necessity of post-braze cleaning. The process had a constant part flow through the induction coils. In order to aid in this constant flow, the valve bodies and copper tubes were introduced into the system press fit. Once in operation, this machine operated at a rate of approximately four parts per minute. Also, the parts, though heated to the necessary temperature for the brazing material to melt, were cooled to a removal temperature that allowed for operational safety standards to be met. This paper reveals the final design concept and provides the derivation process of all of its components. Multiple induction coil designs, methods of transferring the part, computer modeled cooling techniques, inert atmospheres and mechanisms of controlling the inert atmosphere are described in this study. Each possibility is carefully considered and advantages and disadvantages are examined.

**Timko, Stephen A**

Electrical and Computer Engineering

Gallery 3:30 - 3:45

*Autonomous Robot with Application in YSU IEEE Hardware Competition*

Undergraduate student research is conducted by a group of four senior electrical engineering undergraduate students enrolled in the Capstone Design course. It reflects obstacles students face and want to overcome, simulating a design project in industry in which engineers need to design, supervise, build, and test a project on a given timeline and budget. An autonomous robot is being designed and built with application as a competition robot in the IEEE YSU Hardware Competition, where we will communicate and compete with other teams, which helps enhance our work as a team, but each member's interdependence as well. The robotics competition encompasses aspects of automation, control systems, programming, and robotics providing optimal learning for the entire group. Division of labor among algorithm design, progress reports, robot structural design, programming aspects and assembly is done having in mind each team member's personal goals, and the goal with the desired outcome of the team as a whole. The robot must be fully independent, self-propelled, using electric motors and wheels, with the ability to steer, sweep/recover and sort/deposit balls as one of the primary functions, which will be controlled by a complex programmed microcontroller unit. Planning and organization is a very important part of our project, therefore a full project timeline along with the budget balancing, driven by logic of economy to get the best out of the least amount of money invested, were developed. This research helps us gain valuable practical knowledge and experience in project design and work in future engineering career opportunities.

**Treعه, Erin M**

Chemistry

Ohio Rm. 8:30 - 10:00

*Protein Profiles of the Yeast and Mold Phases of *Penicillium marneffeii**

*Penicillium marneffeii* is a dimorphic fungus and a significant pathogen of immune compromised patients, especially in Southeast Asia. Like other *Penicillium* species grown at 25 C, *P. marneffeii* exhibits a multinuclear mold morphology typical of the genus. However, unlike other species, incubation of *P. marneffeii* at 37 C causes the fungus to undergo phase transition with concomitant coupling of nuclear and cellular division to form uninucleate, single-celled yeasts. These yeasts characterize the in vivo form of *P. marneffeii* and are capable of thriving within the intracellular environment of macrophages. Hence, dimorphism in *P. marneffeii* not only represents a unique model in which to study cellular development, but also understanding this process may provide insights into the underlying molecular mechanisms of pathogenesis. Presumably, dimorphism is a consequence of differential protein expression in *P. marneffeii*. Therefore, efforts in our laboratory have been directed towards establishing protein profiles of *P. marneffeii* during phase transition. Using two-dimensional gel electrophoresis (2DGE), the proteomes of the mold and the yeast phases of *P. marneffeii* were resolved for those proteins having pI values ranging from 5 to 8. Several proteins unique to the yeast phase were subsequently isolated and identified using mass spectrometry in conjunction with Mascot searches of known databases. Statistical analysis of selected proteins indicated high levels of identities to several known fungal proteins including those involved in the heat-shock response, glycolysis, and the Krebs cycle. Interestingly, one yeast-phase specific protein exhibited very significant homology with known RAN-like proteins from a variety of fungi. RAN is a GTP-binding protein having a vital role in mitosis. The increased expression of this protein may be associated with the coupling of nuclear and cell division during the transition of *P. marneffeii* from a multinuclear mold phase to the uninucleate yeast form. Current efforts are being directed towards developing a broader protein profile of dimorphism in *P. marneffeii* and the potential role of phase-specific proteins in both morphogenesis and pathogenesis of this important fungal agent of disease.

**Ullom, Stephen F**

Electrical and Computer Engineering

Gallery 4:30 - 4:45

*Task Driven Autonomous Robot Configured for Competitive Performance*

Robotics is an increasingly growing field in industry for countless applications including the manufacturing of products such as automobiles or the exploration of areas where humans can not traverse themselves. An autonomous robot is presented in order to emulate real-world projects and applications that use robotic control. The robot will be designed and constructed to accomplish the goals of the 2006 Youngstown State University Robotics Competition. This endeavor encapsulates all of the knowledge acquired through the four years of study within the Bachelor of Electrical and Computer Engineering Degree. The project consists of research, design, implementation, construction, programming, and testing in an effort to apply the team's collective knowledge in the fields of electronics and problem solving. The results of the project will be propagated through the team's presentations at the 2006 QUEST: A Forum for Student Scholarship as well as the aforementioned Youngstown State University Robotics Competition. After the competition, the autonomous robot will be adapted for more practical, industrial applications.

- Valnes, Matthew B** Dana School of Music Bresnahan Rm. 11:30 - 11:45  
*Waiting for This Moment to Arrive: Brad Mehldau's Jazz Arrangement of The Beatles' 'Blackbird'*  
 Much of the music from the 1960's reflected the turbulent political and social circumstances of the time. The Beatles, who were at the forefront of popular music, also tackled these issues. The White Album, recorded in 1968, perhaps most directly faced these political and social situations. One song from this album, "Blackbird," confronted issues of civil rights. The Beatles have remained a powerful musical force, and many artists from diverse genres have covered their music, such as Ray Charles in R&B, and Joshua Redman and Brad Mehldau in jazz. What becomes problematic for effective instrumental covers of popular music is how to convey the message that is often explicitly stated in the lyrics. It is thus the purpose of this paper to examine "Blackbird," both in its lyrical and musical content, and to demonstrate how Brad Mehldau is able to convey the meaning of the piece through purely musical means. It will be demonstrated that this is achieved through the use of pertinent musical structures found in the original "Blackbird," including the use of "blues notes," and the retention of the simple folk-like harmonies of The Beatles' version. Mehldau's cover not only maintains the message of the original "Blackbird," but also becomes an effective vehicle for his own artistic expression.
- Vicarel, Monica** Chemistry Ohio Rm. 8:30 - 10:00  
*Synthesis and Reactions of Novel Azidodeoxy and Diazosugars*  
 We are interested in the synthesis of novel heterocyclic compounds from azidodeoxy sugars and diazosugars and have studied a number of systems derived mainly from furanose scaffolds. Cycloaddition and Staudinger reactions on the azides produce interesting derivatives while metal-catalyzed decomposition of the diazosugars leads to insertion chemistry, including the formation of novel dimeric ethers. Attempted synthesis of glycosyl O-linked diazoesters has resulted in a novel one-pot synthesis of glycosyl azides. We will present results from a number of furanose systems, including X-Ray crystal structures of some of the products.
- Vigarino, Dominic J** Geological and Environmental Sciences Jones Rm. 10:45 - 11:00  
*Sedimentation in Pigeon Creek and an adjacent Hypersaline Lake, San Salvador, Bahamas*  
 Sedimentation was investigated in Pigeon Creek and an adjacent, hypersaline lake on San Salvador Island in the Bahamas as part of the GEOL 3720 Field Investigations in Geology course at Youngstown State University. Sedimentation was studied by collecting and examining sediment cores in Pigeon Creek, which is a lagoon that is connected to the open ocean and a closed, hypersaline lake. Detailed investigation of grain size and type of sediment and shell content in these cores demonstrates an upward change in the type of sedimentation in the northern most portions of Pigeon Creek compared to the central portions of Pigeon Creek. This change in sedimentation likely reflects the construction of a road that cross cut a cove in the northern Pigeon Creek producing the closed lake on the northern side of the road.
- Volpini, Stephanie** Human Ecology Pugsley Rm. 2:45 - 3:00  
*YSU Carpool*  
 In today's changing world of ecologically friendly consumers, we are concerned with the effects of our actions on our environment. Due to our commuter heavy student body, we will propose a systematic transportation idea to enhance sustainability within our YSU community. We have incorporated existing community resources and creative implementation of our own ideas to foster better transportation options for YSU students and faculty.
- Walker, Kim A** Human Ecology Ohio Rm. 1:30 - 3:00  
*The Effect of Fish Oil Supplements on Arthritis-Related Pain*  
 Omega-3 fatty acids found naturally in nuts, seeds, soy, and fish, as well as in therapeutic doses in fish oil supplements, have been shown to decrease inflammatory response. This intervention study will investigate the effect of fish oil supplements in decreasing inflammatory-based arthritis-related pain. Subjects recruited for the study reported regularly experiencing arthritis-related pain and sought alternative treatment. Eligible subjects were asked to sign an Informed Consent form before baseline data was collected. Data collection instruments include the Fish Oil Arthritis (FOA) questionnaire, S06 pain scale, and the food frequency assessment. Subjects were instructed to take one 1000mg fish oil supplement capsule per day for twenty-one consecutive days. Data collection instruments will be administered weekly for the study period. Analysis of the dietary data will be conducted using Nutritionist Pro software, and statistical analyses using SPSS version 12.0. Anticipated results include reduction in self-reported joint pain and fewer limitations on activities of daily living following the three-week protocol.
- Ward, Timothy J** Mechanical Engineering Gallery 11:45 - 12:00  
*YSU Super Mileage Vehicle Design*  
 When developing a super mileage vehicle, many different design characteristics need to be taken into consideration. Such design aspects include the aerodynamics and material used for the body, the material of the frame, and most importantly the overall efficiency of the engine, while at the same time being cost effective. These design characteristics all must be taken into consideration due mainly to the limitation of the resources available. Fuel consumption, or the use of the world's limited natural resources, has become one of society's largest concerns. This very aspect has led to innovative design modifications for more efficient engines. These engines have allowed for development of vehicles to conserve fuel. The vehicle's engine efficiency is directly affected by various aspects of the engine along with the body of the vehicle. When designing a super mileage vehicle, which in our case is a three-wheeled vehicle, each aspect of design must be considered. Characteristics concerning the vehicle design included weight, aerodynamics, and optimum engine performance. The report will illustrate various analysis of the aerodynamics of the body of the vehicle including drag coefficients, weight analysis before and after all modifications, and also engine performance before and after modifications. The majority of the design focused on optimizing the engine by the following methods: Tuning the gear ratios to provide maximum output using basic kinematics, designing an appropriate exhaust length for maximum power using exhaust wave analysis, and obtaining proper air to fuel ratios for maximum performance. These aspects will be tuned specifically for the speed range the vehicle will operate at during competition. As an end result, maintaining a higher fuel economy and tuning a more efficient engine will obtain a more resourceful vehicle. The findings will be presented for future reference and provide a starting point for future teams that choose to further develop this project.

- Waskin, Jessica S** Human Ecology Ohio Rm. 1:30 - 3:00  
*Patterns of Supplement Usage Among Youngstown State University College Students*  
 The American dietary supplement industry grosses 17.1 billion dollars per year with performance enhancing, weight loss, and nutritional supplements, being the most common forms used. This study will investigate supplement usage among Youngstown State University students who frequent the on-campus fitness facilities. Male and female students, (n=100), aged 18-35 years will be recruited from the Andrews Health and Wellness Center and Stambaugh Fitness Center. Students who agree to participate will be asked to sign an Informed Consent form and complete a self-administered questionnaire. The questionnaire will collect information on demographic data, frequency and intensity of exercise, supplement selection, and usage and dietary pattern. Statistical analysis will be completed using SPSS Version 12.0 to identify traits in usage. Gender and athletics-based trends are anticipated.
- Webber, Jamie L** Geography Jones Rm. 2:30 - 2:45  
*Modeling the YSU Campus in 3-D Using GIS*  
 This presentation will cover the steps and methods undertaken to create an interactive 3-D computer model of the YSU campus using Geographic Information Systems, or GIS. Topics covered will include data collection, field methods, 2-D input and 3-D extrusion in ESRI's ArcGIS software, and finally 3-D rendering of buildings in @Last Software's SketchUp program. Applications of the model will also be discussed, including its use to visually represent possible future additions to the YSU campus, and the possible extension of the project to include the city of Youngstown's future plans.
- Westerburg, James R** Mechanical Engineering Gallery 8:30 - 8:45  
*Design and Fabrication of a Lunar Buggy*  
 2006 marks Youngstown State University's second consecutive year participating in the Great Moonbuggy Race in Huntsville, Alabama. The previous year's team was unable to finish the competition; however drastic design implementations and changes allowed this year's team to earn a top five finish in the event. Minimal budget and familiarity with the competition were overcome to compete against some well-funded, seasonal participants in the competition. This report outlines the key engineering and technical aspects of the group's success. YSU's design was unique in that it featured back-to-back seating of its two riders as opposed to the more common side-to-side arrangements that most schools used. In keeping with the rules of the competition, there was one man rider and one woman rider. Also, the buggy needed to be carried to a starting line that was twenty feet away by the two riders. Therefore, the weight of the vehicle was kept to a minimum. In further cooperation with the rules of the competition, the vehicle was carried to the starting line in a folded form that was able to fit into a four foot cube. At the starting line the moonbuggy was unfolded into a final form that allowed the riders to race over a simulated moon environment featuring craters, rocks, lava ridges and lunar soil. The time it took for the buggy to be unfolded and the course to be completed served as the basis for placing in the event. This year's team started from scratch with new ideas. The entire project was completed at YSU, including CAD work, fabrication, and testing. Along the way the universities engineering software, machine shop and labs were utilized in completing the project.
- White, Jasen R** Electrical and Computer Engineering Gallery 10:45 - 11:00  
*Design of an Autonomous Robot for Object Collection and Sorting*  
 The main objective for this project is to design an autonomous robot. It must possess the capability to follow a given course. The robot must also lift and sort assorted steel, plastic, and brass balls from the course and place them into a receptacle. The robot will compete against other robots in a robotics competition presented by Youngstown State University.
- Wibuana, Monica** Computer Science and Information Systems Ohio Rm. 1:30 - 3:00  
*COGNOS: The On-Demand Business Intelligence Tool*  
 Business Intelligence is the process of enhancing data into information and then into knowledge. It was introduced for the first time in the early 90's, and since then, it has been used by many companies to help analyze data in order to help their decision-making and improve the business performance. One common business intelligence tool is a data warehouse, a logical collection of information gathered from operational databases. A data warehouse contains historical information that enables business analysis and decision-making tasks performance over time. The efficient data analysis processing and reporting can be done by using the Online Analytical Processing (OLAP), which refers to the software and applications that provide users with the ability to store and access data in multi-dimensional cubes. OLAP provides multidimensional summarized views of business data and is used for reporting, analysis, modeling, and planning for optimizing the business. Since data warehousing fails to top-down enforcing the company strategy, a new approach to business intelligence is introduced. It is called the Business Performance Management (BFM). It contains data warehousing and requires a component to monitor the time-critical operational processes to help a better decision making. Cognos is considered to be the best business intelligence software on the market today. There are more and more customers applying it to their business performance management. In this paper, we try to build a qualitative, effective, sensible and time-effective usage of a Data Cube, which enables fast online e analysis of large data repositories, which is attractive in many applications. Although there are several kinds of cube-based OLAP products, Cognos is effective and efficient in the exploration of large data cube due to the huge computational space as well as huge observation space in the data cube.
- Williams, Kathryn M** Marketing Pugsley Rm. 3:30 - 3:45  
*10 Days or 10 Weeks: One Person's Perspective of International Programs*  
 This paper provides a description, as well as a personal evaluation, of two different international programs. One program is a ten week summer study abroad session in the south of France, and the other program is a ten day study tour in London, England. Each program has its advantages and disadvantages including preparation, peer groups, expenses, and acquired knowledge. I find the appropriateness of each program changes with the individual student. Having personally experienced the pros and cons of these international programs, I will provide a comparison and an evaluation relative to students and the university.

- Wilson, Joshua D** Electrical and Computer Engineering Gallery 4:45 - 5:00  
*The Scalable Self-Contained Temperature-Controlled Enclosure*  
 Noticing the need for a temperature controlled environment in many industrial situations, a product design was chosen that could be scaled to fit many situations and provide various temperatures. This design is of an enclosure which could read its own internal temperature, communicate with a cooling unit (or heating unit where necessary), and have it operate to maintain the temperature within a predetermined range. The device will be referred to as the Scalable Self-Contained Temperature-Controlled Enclosure. The device will be able to accurately detect the temperature within the enclosure using National Semiconductors' LM235H temperature sensors. These are analog devices (they take continuous readings) which will be mounted within the containment. They will then read the internal temperature and send an analog signal to be read and transformed into a digital signal by a Motorola M68HC11 microcontroller, which will output the temperature on a light-emitting diode (LED) display. The microcontroller will then compare this signal to an optimum temperature for the enclosure. If the temperature is higher than the predetermined optimum, it will output a DC voltage to be amplified and sent to an attached Allen Bradley SLC150 Programmable Logic Controller (PLC) input. When this input is read as high, the PLC will then send the necessary voltage to a cooling unit mounted within the enclosure. As the temperature drops below the optimum, the analog sensors will inform the microcontroller to stop sending a signal to the PLC, which will deactivate the cooling unit. The containment will be approximately three feet wide by three feet tall by two feet deep. It will be constructed out of ¼" thick Plexiglas. The front and back of the enclosure will hinge open and latch closed to allow easy access to its contents. Also, the mounted devices within the enclosure will be sealed with caulking to help maintain the internal temperature. The Programmable Logic Controller and Microcontroller will be furnished by the Electrical Engineering Department at YSU. All other costs were kept to a minimum. Final decisions were based on sufficient quality while still being reasonably priced, in order to get the most out of the items selected.
- Wylam, Shannon M** Human Ecology Pugsley Rm. 2:45 - 3:00  
*YSU Carpool*  
 In today's changing world of ecologically friendly consumers, we are concerned with the effects of our actions on our environment. Due to our commuter heavy student body, we will propose a systematic transportation idea to enhance sustainability within our YSU community. We have incorporated existing community resources and creative implementation of our own ideas to foster better transportation options for YSU students and faculty.
- Wyman, Richard A** Electrical and Computer Engineering Gallery 4:30 - 4:45  
*Task Driven Autonomous Robot Configured for Competitive Performance*  
 Robotics is an increasingly growing field in industry for countless applications including the manufacturing of products such as automobiles or the exploration of areas where humans can not traverse themselves. An autonomous robot is presented in order to emulate real-world projects and applications that use robotic control. The robot will be designed and constructed to accomplish the goals of the 2006 Youngstown State University Robotics Competition. This endeavor encapsulates all of the knowledge acquired through the four years of study within the Bachelor of Electrical and Computer Engineering Degree. The project consists of research, design, implementation, construction, programming, and testing in an effort to apply the team's collective knowledge in the fields of electronics and problem solving. The results of the project will be propagated through the team's presentations at the 2006 QUEST: A Forum for Student Scholarship as well as the aforementioned Youngstown State University Robotics Competition. After the competition, the autonomous robot will be adapted for more practical, industrial applications.
- Yager, Ashley M** Biology Ohio Rm. 10:30 - 12:00  
*Mechanisms that Regulate Relaxation Pathways in Aortic Smooth Muscle*  
 Smooth muscle tissue is found in blood vessels and many major organs of the human body. Smooth muscle contraction and relaxation play pivotal roles in regulating the flow of blood through our blood vessels. During a summer research project, we exposed smooth muscle to different drugs and inhibitors to determine what effect each had on contraction and relaxation. The smooth muscle we used came from the aortic tissue of Long Evans rats and experiments were performed in a solution that mimics the temperature and concentration levels of fluids inside the animal. Although this is a small piece of a larger experiment, hopefully the final results will allow us to see the role smooth muscle tissue plays in hypertension.
- Yager, Ashley** Chemistry Ohio Rm. 8:30 - 10:00  
*Conformational Analysis Using 1H-1H Coupling Constants*  
 One of the main goals in the second semester of Organic Chemistry (Chemistry 3720) is for students to become familiar with the tools used by Organic chemists to work out the structures of their molecules. The main technique employed is Nuclear Magnetic Resonance spectroscopy (NMR), which gives detailed information about the types of atoms present in molecules, as well as how those atoms are connected. One of the most useful pieces of information to be taken from NMR spectra is the coupling constant, which is a measure of the communication between adjacent atoms such as hydrogen. The relative size of these coupling constants gives information on molecular structure and conformation, which is vital to understanding the interactions of organic molecules with biological systems. This presentation will feature the analysis of coupling constant data from carbohydrate research samples and will discuss the relative conformations of these molecules.
- Yorkovich, Jacob B** Mechanical Engineering Gallery 9:15 - 9:30  
*Permanent Magnet Motor*  
 The rate of consumption of our planet's fossil fuels has led to dangerous amounts of pollution and shortages of irreplaceable natural resources. Through the constant improvement of energy delivery systems, the world may be able to maintain its production rates while consuming fewer fossil fuels. This analysis provided data that showed that the permanent magnet motor had the potential to remedy the world's power consumption problem. The analysis also showed the potential for mass production of the magnet motor. The efficiency was also analyzed, with respect to the existing magnet motor prototype. The original magnet motor was revised to eliminate design flaws. Excess energy lost through vibrations was reduced through changes in the housing material, housing design, and additional damping. Materials used for the motor were standardized for ease of production as well as cost effectiveness. The magnetic cogs in the prototype were also analyzed. New magnetic materials were considered with the potential of increased power output. The analysis of the prototype was intended to create a fully operational permanent magnet motor. With the new design, the prototype design problems were addressed and solved. These problems included mechanical vibrations, standardization, cost effectiveness and efficiency. Through the development of a practical permanent magnet motor, there is the potential to create a more efficient power delivery system.

**Young, Matthew R** Electrical and Computer Engineering Gallery 3:45 - 4:00

*Multi-Signal Wireless Telemetry Module*

Our goal is to design and implement a multi-signal wireless telemetry module. This module will acquire visual, audio, and temperature data from its surrounding environment. The data will be filtered, encoded, and transmitted to a remote terminal using sensors, transceivers, and signal multiplexing. At the remote terminal, the received data will be filtered, decoded, and sent to its appropriate destination (i.e. speaker, monitor, and computer.) The standalone module will also have the ability to be retrofit to various mobile and stationary objects.

**Zalewski, Arthur L** Psychology Humphrey Rm. 1:45 - 2:00

*Effects of Priming on Alcohol Expectancies and Physical Attraction*

The present study tested whether priming using alcohol advertisements would activate alcohol expectancies related to physical attraction. We predicted that alcohol cues would activate the expectancy that alcohol intensifies sexual arousal and desire. We predicted that men and women primed with alcohol advertisements would rate opposite sex photographs as more attractive relative to control cues. Undergraduate students at Youngstown State University participated in the study in a computer lab at Youngstown State University. Male and female participants were primed with alcohol advertisements or control advertisements. Following priming, participants viewed photographs of 25 members of the opposite sex. Each photograph was rated on a scale from 1-9 on physical attractiveness. Participants' self-reported expectancies were measured using the Comprehensive Effects of Alcohol Questionnaire and Sexual Effects of Drinking Questionnaire.

**Zaremba, Robert E** Computer Science and Information Systems Jones Rm. 2:45 - 3:00

*Using Support Vector Machines and Meta-Learning Algorithms to Predict Urban Land Use*

This project will use Support Vector Machines (SVM), which is a powerful data-mining technique, in conjunction with meta-learning algorithms to perform classification on spatial data in order to predict the locations of urban areas within larger target areas. The data to be used is taken from various Ohio counties, and is gathered using Geographic Information Systems (GIS); this software is used to measure features of the land that are considered factors in urban development and to return these features in numeric format. This numeric data is then pre-processed and converted into a format that can be used with data-mining techniques. Features that are measured with GIS are analyzed in order to identify the ones that hold the most predictive value regarding urbanization, and several data-sets are developed based on these findings. The data is run through several combinations of SVM implementations and meta-learning algorithms, possibly in conjunction with other classification methods such as Neural Networks (NN) to identify possible classifiers that effectively complement SVM. The results of these experiments are recorded and analyzed in order to identify optimizations that may be useful in similar data mining tasks.