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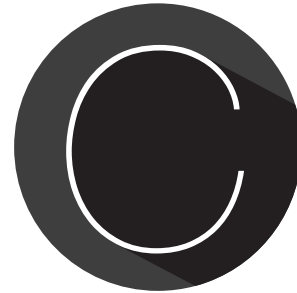
Sciences and
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Creative Works

Student: Samiyah Aloqayli
Student Status: Graduate
Group Members: Charith Ranaweera
Major: Chemistry
Advisor: Dr. Ram Gupta
Title: Hydrothermal Synthesis and Electrochemical Examination of Nanostructured Cobalt Sulfide for High Performance Energy Storage Devices
Time: 8:30-9:30am

1

Abstract:

With increasing world's energy and power demand, there is urgency needed in developing high performance and stable materials for energy applications. Supercapacitors hold great potential in future energy storage devices due to their high-energy performance, ability to have high power density, fast charge-discharge capability and long cyclability. Researchers in recent years have been shown significant progress for the improvement of supercapacitor performance and development of cost effective performing materials for energy storage applications. In this work, we have reported the synthesis of nanostructured cobalt oxide (Co₃O₄) converted into cobalt sulfide (CoS₂) that prepared using a facile hydrothermal method. We have analyzed the obtained nanostructured cobalt sulfide (CoS₂) electrochemically and structurally. The crystallinity and phase purity of the synthesized (CoS₂) nanostructures were evaluated using X-ray diffraction. Morphology and particle size of the synthesized (CoS₂) on nickel foam has been analyzed using scanning electron microscopy (SEM). Electrochemical investigations have carried out systematically on fabricated electrodes. The cyclic voltammograms (CV) of cobalt sulfide electrode showed redox peaks suggesting typical pseudocapacitive behavior. The electrochemical properties of cobalt oxide have been improved significantly after converting to cobalt sulfide, showing specific capacitances of 983 and 7358 mF/cm² at 2 mA/cm², respectively. A supercapacitor device fabricated and the performance of the device was examined at room temperature and elevated temperatures using cyclic voltammetry and galvanostatic charge-discharge. Results showed excellent flexibility and cyclic stability with the maximum specific capacitance of 1,000 mF/cm². Charge storage capacity was increased when the temperature was increased, suggesting improvement in the electrochemical properties of the device at elevated temperatures. Our results indicate that CoS₂ under harsh conditions could be appropriate material for high performance energy storage devices.

Student: Austin Bailey
Student Status: Graduate
Major: Polymer Chemistry
Advisor: Dr. Jody Neef
Title: Use of Decahydrodecaborate as Flame Retardants in Coatings
Time: 8:30-9:30am

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Abstract:

As the need to protect the environment continues to increase, there is a growing demand for non-halogenated flame retardants. Two different decaborate compounds were combined with triphenylphosphine oxide into polyurethane and characterized. The thermal stability and the potential flame retardancy of the new materials were tested via thermogravimetric analysis and cone calorimetry. The cone test provided heat release rates and smoke release rates. Per the results of these tests the combination of the new decaborate, and triphenylphosphine oxide showed potential for flame retardancy at minimal amounts of flame retardant.



Student: James Beach

Student Status: Graduate

Group Members: Tuhina Banerjee, Jyothi Kallu, Ryan Higginbotham,
and Richard Gross

Major: Polymer Chemistry

Advisor: Dr. Santimukul Santra

Title: Combination Therapy of Prostate Cancer Utilizing Functionalized
Iron Oxide Nanoparticles Carrying TNF- α and Lactonic Sophorolipids

Time: 9:30-10:30am

Abstract:

Prostate cancer is one of the most prevalent forms of cancer afflicting men in the United States. In recent years, advances in the field of nanotechnology have allowed for new and innovative ways to treat various types of cancer and various other diseases. Our research focuses on the treatment of the LNCaP line prostate cancer utilizing iron oxide nanoparticles (IONPs) loaded with soluble TNF- α and lactonic sophorolipids (LSLs). TNF- α is a cytokine responsible for apoptosis initiation, while LSLs are naturally-glycolipids shown to alleviate inflammation and improve immune response in certain diseases. We hypothesized that this combination may possess a synergistic effect, displaying greater therapeutic effects than either compound alone. We synthesized polyacrylic acid (PAA)-coated IONPs to serve as a vehicle for these compounds for target-specific delivery. The surface carboxylate groups of the PAA coating can be chemically modified, allowing for binding of ligands to target cell-specific surface receptors or antigens. We conjugated our IONPs with glutamic acid with the aim of targeting the over-expressed glutamate receptors on the surface of the LNCaP cells. This combination therapy showed significant LNCaP cell death within 48 hours of incubation, while healthy cells were unaffected. The therapeutic effects were determined using cytotoxicity, MitoSOX, apoptosis, and migration assays. The results of the combined therapy suggest that these compounds may be a viable alternative to chemotherapeutic drugs in prostate cancer treatment.



Student: Rachel Bechtold
Student Status: Graduate
Major: Biology
Advisor: Dr. Anuradha Ghosh
Title: Bacterial Diversity of an Abandoned Mine Land
Soil in Southeast Kansas
Time: 8:30-9:30am

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Abstract:

Acid mine drainage (AMD) is found near abandoned coal mines in southeast Kansas as a result of mine waste runoff resulting in low pH. Soil bacteria may be used as an indicator of ecosystem health in these human-perturbed areas. The goal of the present study was to assess the microbial diversity of an AMD site. In fall (2015) and summer (2016), soil samples were aseptically collected from five distant sites representing diverse topography. Soil texture and physico-chemical characters were evaluated. A total of 58 morphologically different colonies were characterized using physiological and biochemical tests and were identified at the species level using 16S rRNA gene sequencing. In addition, acidophilic bacterial strains were screened using selective media. Soil pH ranged from 2.5-6.8 and varied concentrations of arsenic, manganese, and iron were detected. Biochemical tests revealed a diverse metabolic potential of the bacterial population. The majority of bacterial species belonged to common soil inhabitant phyla Firmicutes and Proteobacteria. A total of 17 acidophilic bacterial isolates were identified and would be subjected to small-scale bioremediation process using lyophilization complemented with other physico-chemical techniques. A baseline measurement of bacterial diversity as well as soil chemistry of AMD sites in this region, is novel in its kind and the findings will have potential use in remediation of AMD sites and restoration of natural habitat for plants and animals.



Student: Sanket Bhojate
Student Status: Graduate
Group Members: Chungyang Zhang, and Mihail Ionescu
Major: Polymer Chemistry
Advisor: Dr. Ram Gupta
Title: High-quality Polyurethane Foams and Sheets from
Sustainable Natural Resources
Time: 8:30-9:30am

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Abstract:

Bio-polymers from sustainable natural resources serve mankind keeping environmental factors under consideration. Resources such as soybean, castor and orange oil are among highly cultivable agro-resources. Polyols formulated from these oils shows clean-environmental pathway for synthesizing polyurethane foams and sheets. Facile single-step synthesis, with negligible waste as well as byproducts produces 100% qualitative yield for polyurethane foams. Present work displays use of synthesized polyols in developing polyurethane foams and casts. Viscometry, FTIR spectroscopy, GPC and other chemical analysis were done to ensure the quality of the raw materials. Cast sheets and foams were produced by chemical polymerization with di-phenyl methane diisocyanate using different formulations of polyols. Foams and sheets were stable until 200oC. Mercaptenized polyol sheets displayed ultimate tensile stress around 25 MPa. Hence, overall study suggests that these bio-polyols from sustainable resources serves to be very good source for polyurethane foams and sheets.



Student: Sanket Bhoyate
Student Status: Graduate
Major: Polymer Chemistry
Advisor: Dr. Ram Gupta
Title: High Performance Carbon Nanofiber
Supercapacitor Electrode with Tuned Porous Structure
Time: 8:30-9:30am

Abstract:

High performance capacitor devices based on electric double layer capacitor (EDLC) principle has wide advantage of higher range of cyclic stability, rate capability, temperature durability and chemically resistant. Carbon based materials such as graphene, carbon nanotubes, activated carbon and carbon nanofibers are well known supercapacitor materials derived till date. Creating pores within the physical structure has found to improve the EDLC capabilities of the material. Exfoliation of graphene, activation of carbon and activation of nanofibers via various different techniques seem to be too complicated, non-consistent and needs wide range of control parameters. Facile immiscible polymer blend technique followed by thermal treatment is used to create porous carbon nanofibers producing higher surface area of 86 m²/g. X-ray diffraction spectroscopy shows the peak at 26.3° which is for graphitic phase of carbon. Cyclic voltammetry and galvanostatic charge discharge results showed around ~ 350% of capacitance improvement for porous nanofiber to that of pure carbon nanofiber. Temperature dependence study suggested 160% capacitance improvement for the device. Electrochemical impedance spectroscopy suggests the possible reduction in resistance of the material with increasing temperature. Material showed capacitance retention of above 100% for 5000 charge-discharge cycles.



Student: Praveen Kumar Guraja
Student Status: Graduate
Major: Technology
Advisor: Dr. Eli Aba
Title: Teaching and Leadership Website Project
Time: 9:30-10:30am

Abstract:

This research project collected the data that report on Pittsburg State University department of Teaching and Leadership website and its visitors. Pittsburg State University is one of the small universities in the Midwest in the United States. The university has around 7200 students in various programs. Most of the students at the university are undergraduate students. Almost 80% of the population at the university are domestic students from Kansas and neighbor states. To get more students enrolled for every semester the university encourages all the departments at the university to have their own individual websites for each department with program details and guides. Now a days prospective students before considering a college or a program they would like to check the information online. This research understands the importance of it and trying to find in-depth details of what website visitors are looking for. This project concentrates on the department of teaching and leadership. It aims at making the significant data available that is easy to understand and helps in knowing the impact of the website on getting more admissions. The impact of the website on the admissions at the department is investigated based on the data received from the marketing department of the university. The project is done using quantitative analysis using statistical information collected from the Pittsburg State University through google analytics. This project is done using different quality management tools. The primary tools used in the project are a Pareto chart, p-chart, and x bar-R chart. The findings show the special causes that will be investigated and a solution will be provided for improvement. Keywords: website, department, page viewers, quality tools, programs, and university.



Student: Hawra Khlitit
Student Status: Graduate
Major: Biology
Advisor: Dr. Virginia Rider

Title: Dissimilar Effects of DHA and EPA Omega 3 Fatty Acids on the Expression of Pro-Inflammatory Cytokines and Cell Adhesion Molecules in Lung Bronchial Epithelial Cell Lines Infected with Streptococcus Pneumonia.

Time: 9:30-10:30am

Abstract:

Long-chain polyunsaturated fatty acids (n-3 LC-PUFAs) show beneficial treatment effects on chronic inflammatory diseases of the lung, however, the underlying molecular mechanisms are not well understood. I hypothesize that changes in the regulation of pro-inflammatory cytokines, chemokines and I-CAM cell adhesion molecules are central to bacterial lung infections. To test this hypothesis, I investigated the effect of docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) on pro-inflammatory cytokines, chemokines, and I-CAM expression. NL-20 lung epithelial cell lines were treated with 3 mM fatty acid without and with addition of a virulent strain of Streptococcus pneumonia (~1.5 x 10⁸ CFU/ml) for 18 h. Real-time PCR using Taqman assays was employed to determine changes in gene expression in response to treatments. Results indicated that LC-PUFAs have distinct effects on the expression of cytokine, chemokine and cell adhesion molecules that contribute to lung inflammation. DHA treatment decreased the expression of interleukin (IL)-1 and TNF-alpha cytokines and increased IL-8 and IL-6 cytokines relative to uninfected cells. EPA appeared more effective in decreasing IL-6, IL-8 while it had minimum effects in decreasing IL-1 and TNF-alpha cytokines expression. Additionally, I-CAM expression was also downregulated by both fatty acids compared to untreated infected cells. The data were analyzed for significant differences by two-way ANOVA. The result showed significant role ($P \leq 0.05$) of DHA and EPA in reducing Streptococcus pneumonia infection in human epithelial lung tissue by altering and reducing the gene expression of pro-inflammatory cytokines, chemokines, and cell adhesion molecules.



Student: Charith Ranaweera

Student Status: Graduate

Group Members: Sanket Bhoyat and C. Zhang

Major: Polymer Chemistry

Advisor: Dr. Ram Gupta

Title: High Performance Supercapacitor Device Based on Polymer Derived Carbon Nanofiber with Enhanced Capacity at Elevated Temperatures

Time: 9:30-10:30am

Abstract:

Recently, supercapacitors are attracting considerable interest as a promising energy storage device. In this study, we report the high performing supercapacitor based on cobalt oxide embedded carbon nanofibers (CNF@CO) fabricated by electrospinning of cobalt acetate and polyacrylonitrile mixture into carbon nanofibers (CNF) and subsequent pyrolyzed at 800 °C under nitrogen atmosphere. Morphology and electrochemical properties of the fabricated CNF@CO was studied in detail. Embedding of cobalt oxide in to CNF showed a remarkable improvement in the charge storage capacitance, specific capacitance of 360 F/g and 1100 F/g were observed for CNF and CNF@CO, respectively. We studied the effect of electrolyte ion size on charge storage process by performing electrochemical measurements in 3M LiOH, NaOH and KOH electrolytes. It was found that capacitive performance increase with the decreasing hydrogenated ionic radius of the electrolyte. CNF@CO retained ~ 100% of charge storage capacity over 5,000 charge-discharge cycles. In addition, symmetric supercapacitor based on two CNF@CO electrodes showed 200% improvement in charge storage capacity with the temperature increase from 10 to 70 °C. This kind of cobalt oxide embedded carbon nanofibers represents promising candidate for efficient electrode material for energy storage devices.



Student: Zhuo Wang

Student Status: Graduate

Major: Polymer Chemistry

Advisor: Dr. Ram Gupta

Title: New Application of Low-Cost High-Efficient Carbon Coated MoS₂ Material for Supercapacitor

Time: 9:30-10:30am

Abstract:

Due to the increasing concerns about the environment protection and limited fossil stock, it is time to develop materials from renewable resources for energy generation and storage. Among various energy devices, batteries, fuel cells and capacitors are most attractive. Capacitors provide high power density whereas batteries deliver high energy density. Supercapacitors occupy the intermediate zone between the capacitors and batteries. Various materials such as metal oxides, conducting polymers and carbons from various sources have been used for these applications. However, most of these materials often perform low capacitance but high cost, so in this work, we attempted to develop a new material which is carbonized nitrogen doped MoS₂ microsphere for supercapacitor applications. The electrochemical properties of the synthesized MoS₂ material were studied using both cyclic voltammetry and galvanostatic charge-discharge methods. It was observed that synthesized MoS₂ showed a specific capacitance of 299 F/g in 3M KOH at scan rate of 1 mV/s. Our studies indicate that this facile method could be used for the synthesis of nanostructured MoS₂ for supercapacitor applications.



Student: Peyton Burlingame
Student Status: Undergraduate
Major: Mathematics
Advisor: Dr. Leah Childers
Title: Cross Ratio
Time: 10:30-11:30am

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Abstract:

A question posed in the MAA Monthly is the following: "Given four points $A, B, C,$ and D in order on a line in Euclidean space, under what conditions will there be a point P off the line such that the angles $\angle APB, \angle BPC,$ and $\angle CPD$ have equal measure." We will present a partial solution of this question using the cross ratio. The cross ratio plays a central role in projective geometry however can be proved using the Law of Sines. The elements of the proofs are comprised of calculus, algebra, and geometry.



Student: Nayeli Feregrino
Student Status: Undergraduate
Group Members: Aziz Alotaibi, Gage Becker,
Kyle Brown, and Dillon Fleming
Major: Mechanical Engineering Technology
Advisor: Dr. David Miller
Title: Reverse Hyperextension Device
Time: 10:30-11:30am

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Abstract:

The Reverse Hyperextension Device is an exercise device typically used to aid in the recovery of those with lower back problems. Its main use is to substitute squats for those who cannot sustain the strain that comes with doing regular squats. A typical Reverse Hyperextension device is a bulky and immovable device, which poses a problem if the placement area has limited space. With our innovative design, the device will be foldable so it can be stored away when not in use and still as stable as needed to serve its purpose without causing injury. Another benefit coming from the redesign is the ability to easily move the device when needed. The redesign of the device will be made out of aluminum, with a few components out of steel for added strength. Finally, something not seen on ordinary Reverse Hyperextension devices that our redesign has is a real time angle readout. The readout is intended to keep track of the patients' progress along their recovery process. With the redesign of the Reverse Hyperextension device, one will have everything found on the typical device along with many added features to make the device more user friendly and flexible to the users.



Student: Tucker Morey
Student Status: Undergraduate
Major: Chemistry
Advisor: Dr. Ram Gupta
Title: Effect of Chemical Treatment on the Electrochemical Properties of Carbon Nanotubes
Time: 10:30-11:30am

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Abstract:

Supercapacitors are electrochemical energy storage devices primarily attractive for their fast charging and discharging capability, long lasting stability and safe handling. Because of these unique qualities, supercapacitors are ideal candidates for a number of applications including regenerative braking in cars, static random access memory and motor starters. To date, three main material classes have been investigated for electrode applications. These include carbonaceous materials, metal oxides and polymers or their composites. Metal oxide based supercapacitors have high capacitance, but severely suffer in stability, making carbonaceous materials that store charges through double layer adsorption mechanism particularly attractive. In addition, carbonaceous materials are relatively non-toxic, chemically inert, stable at high temperatures, easily accessible and often sustainable. Here, we study the effect of chemical treatment on the electrochemical properties of commercial carbon nanotubes (CNT). Structural and electrochemical properties of untreated, sulfuric acid treated and KOH activated CNT was studied. It was observed that surface area of the CNT changes with such treatment. Surface area of 210, 236 and 239 m²/g was observed for untreated, sulfuric acid treated and KOH activated CNT, respectively. Electrochemical investigations suggested that such treatment reduces the charge storage capacity of CNT which could be due to creation of some functional groups on the surface of CNT which increases its resistivity. Specific capacitance of 730, 620 and 626 F/g was observed for untreated, sulfuric acid treated and KOH activated CNT, respectively at 2 mV/s of scan rate. Similar observation was observed in galvanostatic charge-discharge studies, where a specific capacitance of 260, 208 and 224 F/g was observed for untreated, sulfuric acid treated and KOH activated CNT, respectively at 500 mA/g of current density.



Student: Hannah Thomas
Student Status: Undergraduate
Major: Biology
Advisor: Dr. Virginia Rider and Mr. Blake Meyers
Title: Functional Analysis of PhasiRNA in Soybean Anther
Time: 10:30-11:30am

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Abstract:

Many phasiRNA have been discovered but the targets and functions of these molecules remains largely unknown. The function of phasiRNA produced by miR4392, which are expressed highly in the anthers of soybeans were compared to similar ones found in maize. A short tandem target mimic (STTM) was designed to knock out the production of phasiRNA at different points of biogenesis. The resulting constructs were examined for varying phenotypes and molecular variations through RT-qPCR and sRNA library sequencing. Constructs where phasiRNA production was halted developed fewer beans. Failure to produce phasiRNAs in reproductive tissues can lead to important crop yield changes and deleterious mutations.



Student: Maggie Carson

Student Status: Graduate

Major: English

Advisor: Dr. Chris Anderson

Title: Walt Whitman: A Celebration Of Health, Flesh, and Nature

Time: 8:30-9:30am

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Abstract:

Walt Whitman, the poet, was one of the first American public figures to display work that described intimate scenes and language of homosexuality. In the pre-civil war period, when homosexuality was not yet a term, Whitman's sexuality is a strong element of his poetic identity. The poems focus on uniting and healing an America that was on the brink of civil war. The homoerotic themes support his goal to promote equality of gender and race in order to celebrate all identities and lifestyle of 'real' people of America. While analyzing Whitman's major works, the essential connection between the beauty and respect of the human conditions arises and transcends all limitations. His message of healing America can be seen through the medium of his homoerotic poetic descriptions in his celebration of health, flesh, and nature.



Student: Karly Kownslar
Student Status: Graduate
Major: Communication
Advisor: Dr. Alicia Mason
Title: Zika 2016: A 3-Phase Longitudinal Study of the Media Impact on Public Attitudes and Behavioral Response Characteristics
Time: 8:30-9:30am

Abstract:

Using the Extended Parallel Processing Model (EPPM) as a theoretical framework, the present 3-phase longitudinal study examines the impact of media exposure to Zika information on public perception of the threat severity, personal susceptibility, and behavioral intentions toward the threat of Zika virus between May and November of 2016. Zika is a disease that is spread by mosquitos and through sexual contact. It was first discovered in Uganda in 1947, when it was reported to cause only flu-like symptoms, which dissipated in 5-7 days. However, in 2015 multiple cases were diagnosed in Brazil and other South American countries. By Spring 2015, CDC named it an emergency health threat and encouraged travelers to be vigilant and protect themselves from mosquitos. For reference, May began the height of mosquito season, an increasing number of cases being reported, as well as research connecting Zika to microcephaly, and the news that Zika could be transmitted sexually. By November, the media reported more cases in the US, and that Zika can trigger paralysis (Guillain-BarrÇ Syndrome). However, mosquito populations were diminishing. All of these events as well as media-content could impact attitudes and perception. A total of 794 participants participated in an online survey throughout three phases, roughly one month apart. Participants were recruited through the PSU Communication Research Lab using Amazon Mechanical Turk and TurkPrime. Measured EPPM concepts include: perceived severity, susceptibility, self- efficacy, response-efficacy, third-person effects, combined with behavioral intentions. Our study uses perceived knowledge sufficiency and personal concern as moderating variables. Participants also selected the sources from which they received information about Zika, and tested their knowledge of the symptoms of the disease. Results indicate that there was no significant difference between phase 1 and 2 in severity and susceptibility; however, perceived severity was consistently high in both groups. We reported a significant difference in knowledge sufficiency between phases 1 and 2, with knowledge sufficiency higher in phase 2. Furthermore, there was no significant difference between sex and severity, both males and females skewed similarly higher on the scale, which is interesting considering the severe effect on pregnant women. Implications for health communication risk communication theorists and pragmatic patient-centered care are provided. The importance of measuring information sufficiency as a moderating variable and premise for basing future studies in emphasized. Methodological limitations, and future research directions are provided.



Student: Lindsey Ratcliff
Student Status: Graduate
Major: Nursing
Advisor: Dr. Jan Schiefelbein
Title: Nurse Practitioners' Impact on Rural Adolescent Prescription Abuse
Time: 8:30-9:30am

Abstract:

Adolescent prescription abuse is a rising problem in rural America which requires further study and intervention. Causes and consequences of this epidemic are numerous, and greatly affect the current and future state of our youth's health. This research problem focuses on exploring the knowledge level of nurse practitioner students on rural adolescent prescription abuse. The study's aim was to reduce the prevalence of prescription pill abuse among the local adolescent populations in rural Kansas through continued education of nurse practitioner students. The research design was a quasi-experimental one group, pretest-posttest design. The sample of participants were a convenience sample of nurse practitioner students enrolled in a graduate level nurse practitioner program in a rural community. Following a pretest, educational intervention, and posttest, it was concluded that the educational intervention was beneficial in increasing knowledge among the group of participants on adolescent prescription abuse in the rural American population. The goal of the educational intervention was to inform and encourage nurse practitioners who will be prescribing in their future practice to include patient education on proper storing and disposal with every prescription written. Further research is recommended due to limited generalizability of results.



Student: Zheng Yao Ooi
Student Status: Graduate
Major: MBA
Advisor: Dr. Bienvenido Cortes
Title: The Impact of Airline Concentration on Smaller Communities and Airports
Time: 8:30-9:30am

Abstract:

This study examines the price-concentration relationship in the U.S. airline industry. Based on Singh and Zhus (2008) study, an economic model is applied to the Kansas airline market. The study empirically measures the airfare or price effect of the key determinant, carrier concentration, after controlling for other variables such as trip distance from Kansas to destination airports, the presence of an airport hub, nearby airports, and local area characteristics including per capita income and population. The main hypothesis is that the fewer the airline companies serving an airport (i.e., the higher the market concentration), the higher the average airfare, all else equal. The Kansas sample is a combination of cross-sectional data (travel data for seven Kansas airports) and time-series (2000, 2005, 2010, and 2015). Airline travel data are gathered from the Bureau of Transportation and Federal Aviation Administration while local area economic statistics are taken from the Bureau of Economic Analysis. Of the Kansas airports, Wichita is the only hub and the rest are smaller airports. The results of applying ordinary least squares regression on the panel data set indicate that airline concentration has a negative and significant impact on average airfares, confirming the hypothesis. The existence of an airport hub and the average travel distance are directly related to airline fares. Moreover, there are significant time fixed effects in that airfares have consistently risen relative to 2000 prices. Although the findings show that income and population have the expected causal relationship with airfares, the estimated coefficients are statistically insignificant.



Student: Blake Barto
Student Status: Undergraduate
Major: Economics
Advisor: Dr. Michael Davidsson
Title: Determinants of Crime in Micropolitan Areas
Time: 9:30-10:30am

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Abstract:

Most cities and populated areas have crime related problems. Crimes have bad social and economic consequences and are very costly for society. This paper analyzes the determinants of crime in micropolitan areas. The Office of Management and Budget first defined micropolitan areas in 2003. Since the classification of micropolitan areas is fairly recent then most studies on the determinants of crime in the economic literature have been on metropolitan areas. There is therefore a wide gap in the knowledge on determinant of crimes between metropolitan areas and micropolitan areas. The contribution of this paper to the economic literature is to help bridge this gap and the purpose of this research study is to increase the overall knowledge on determinants of crime in micropolitan areas. This paper furthermore applies the findings of the study on the crime rate in the Pittsburg Micropolitan Area and attempts to identify policies, which would help reduce the overall crime rates in the Pittsburg Micropolitan Area.



Student: Steven Beets
Student Status: Undergraduate
Major: Finance and Economics
Advisor: Dr. Michael Davidsson
Title: Determinants of Housing Prices in Micropolitan Areas
Time: 9:30-10:30am

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Abstract:

Housing costs are the most significant costs for the average household budget and have significant implications for quality of life and standard of living. Most studies on determinants of housing costs have been on metropolitan areas. Micropolitan areas were first classified in 2003 by the Office of Management and Budget and are defined as having at least one urban cluster with a population of at least 10,000 but less than 50,000. Micropolitan areas are therefore a new classification of urban areas and there have not been many studies on the cost of housing in micropolitan areas. This paper examines determinants of growth in housing costs in micropolitan areas. The purpose of this study is to bridge the information gap in the economic literature between metropolitan areas and micropolitan areas. This study uses the Ordinary Least Squares (OLS) model. The OLS method squares the error term (the amount of variation in the data that is not explained by the regression), making bigger errors have more penalty in the estimation of the determinants of growth in housing costs, which results in overall more solid and more conservative estimates. A weighted average of growth in the median gross rent and the growth in median housing prices are used in this study to represent the growth in housing costs. This paper furthermore applies the results from the model on the growth of housing costs to the Pittsburg Micropolitan Area and attempts to identify policies which would help make local housing more affordable.



Student: Courtney Blankenship
Student Status: Undergraduate
Major: Communication
Advisor: Dr. Joey Pogue
Title: An Analysis of Social Stigmas Regarding Poverty
Time: 9:30-10:30am

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Abstract:

In this study, opinion regarding poverty on a national and international level as well as opinions pertaining to negative social stigmas surrounding poverty were collected from students and faculty of all demographics and backgrounds at Pittsburg State University with the intent to identify and understand possible hypocrisies in the way that society views people in poverty and the expenditure decisions that they may make. Survey-taking participants were between the ages of 17 and 80, represented various sexual orientations, races, ethnicities, socioeconomic backgrounds, genders, and religions, and there were 123 people who took the 30-question survey. Qualtrics survey system was used to record, analyze, interpret, and calculate the quantitative data that was collected from the survey responses, and trick questions were used in order to ensure that responses were accurate and intentional. Results found that participants were likely to condemn poverty-stricken people for 'spending beyond their means' on material, status items, however, participants were also likely to acknowledge the hypocrisies within their own opinions. The intent of this study was to prove that certain biases and environmental factors may shape a persons willingness or unwillingness to help those who are in poverty, as well as to prove how the stigmatization of poverty may prevent the system from changing.



Student: Brett Collier
Student Status: Undergraduate
Major: History/Government
Advisor: Dr. Kris Lawson
Title: Building a Legend: The Construction of Brandenburg Field
Time: 9:30-10:30am

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Abstract:

Since the construction of Brandenburg Field in 1922, it has been the home for four national championship football teams and has become a symbol for Pittsburg State University Athletics. This research project explored the construction of Brandenburg Field to find out why the University decided to build the stadium at that time and to demonstrate the significant relationship between athletic programs and strong academics. As other institutions of higher learning in Kansas developed, they built stadiums that would attract more students and community support. Pittsburg State did not want to be left out of the equation. With a new, large, stadium on their campus, PSUs students and faculty now had a point of pride that they could show off to others who came to visit the school. But there is a deeper significance within this chapter of PSU history. This research revealed that William Brandenburg himself believed that a strong athletic program was essential to increasing the quality of students who would want to attend PSU. It is because of the relationship between athletics and academics and the need to be viewed as a respectable institution that Pittsburg State constructed Brandenburg Field. This research was completed using primary sources available through the Axe Library microfilm collection, and the main source was the University's newspaper, The Manualite.



Student: Morgan Ebbs
Student Status: Undergraduate
Major: English
Advisor: Dr. Jamie McDaniel
Title: It Me: Genre, Identity, and the Impact of Memes
Time: 10:30-11:30am

Abstract:

This project explores the intersections of genre and identity. Specifically, this project considers the ways in which identity can be situated through digital artefacts such as memes. Drawing upon the ideas of multiple scholars, this project discusses Rhetorical Genre Studies and genre as social action. Combining these notions with Bradley Wiggins' three-step process of the memetic genre, I assert that memes themselves are not only representations of identity, but that they can also function as identity makers in general. In other words, the social action of the memetic genre is identification. Furthermore, the project discusses the way this identification occurs. In short, memes are sites of identity creation through their inherent persuasiveness. Further asserting this point, the project examines a series of case studies featuring notable memes and an actual discourse community. Through these case studies, I demonstrate both the generification of memes and the ways in which identities, communal or individual, can form around memes, a process I call "memetic identification." In doing so, this project intends to affirm memes not only as a genre, but also as invaluable cultural artefacts, both on the micro and macro scale.



Student: Chelsea Foster

Student Status: Undergraduate

Group Members: Hannah Ishmael

Major: Communication

Advisor: Dr. Alicia Mason

Title: A Comparison of Narrative and Non-narrative Messages for Promoting Zika-related Preventative Health Behaviors in At-Risk Male Populations

Time: 10:30-11:30am

Abstract:

Health communication scholars have expressed a growing interest in the use of narratives as a persuasive tool to promote behavioral change in at-risk populations through the use of examples, detailed depictions of individual cases, and revealing the thoughts and emotions of characters within storylines (Green, 2006; Kim, Bigman, Leader, Lerman, & Cappella, 2012; Kreuter et al., 2007). An ample body of health communication scholarship indicates narratives are an effective strategy to deliver persuasive risk prevention messages to at-risk populations for a variety of diseases including: colorectal cancer (Robillard & Larkey, 2009), HPV vaccination (Hopfer, 2012), and HIV (Berkley-Patton, Goggin, Liston, Bradley-Ewing, & Neville, 2009). The 2016 Zika virus was a novel pathogen in the U.S. population with high levels of scientific uncertainty surrounding the transmission method(s), duration of contagion, and degree of risk posed by infected males. This experimental study uses a 2 message (narrative versus non-narrative/CDC educational) X 2 (identification versus none) design to determine the effectiveness of these persuasive appeals to elicit audience identification, empathy, disease-related knowledge and behavioral intentions to engage in preventative behaviors (e.g., testing, protection, and abstinence) in male populations throughout the Florida region. Identification was operationalized as perceived similarity. Participants were randomly assigned to conditions based on their self-reported ethnic identity. Messages were designed with similar features including: headline, story length, and message source Health Promotion Board. Only the visual pictures of characters, and characters_ names were altered to enhance perceived similarity. More than 200 male participants from impacted areas such as Florida, Georgia, and Texas were randomized into an online study hosted through the PSU Communication Research Lab using Qualtrics software for data collection. Amazon's M(Turk) and TurkPrime were utilized for participant recruitment in November 2016. This presentation will report the findings of this study and discuss the implications for dissemination and implementation efforts relevant to future persuasive risk communication appeals and health communication campaign design. Keywords: health communication, Zika, prevention, narrative theory.



Student: Anna Guigli
Student Status: Undergraduate
Group Members: Amanda Bustamante, Blake Ginardi, and Abraham Russell
Major: Communication
Advisor: Dr. Alicia Mason
Title: Advancing PSU Campus Sustainability : STARS Path Way to Gold
Time: 10:30-11:30am

25

Abstract:

The Association for the Advancement of Sustainability in Higher Education ranks national and international institutions according to their progress and contributions to sustainability through campus and community activities. STARS is a transparent, self-reporting framework for colleges and universities to gauge relative progress toward sustainability. As a charter member of AASHE PSU's initial report in February 2012 achieved a bronze rating, four years later in March of 2016 PSU achieved a silver ranking. Our research has explored the areas of assessment AASHE provides to universities in the updated 2.1 STARS model and identified opportunities for PSU to achieve a gold AASHE-STARs rating. Our research has found a general lack of awareness on how to report individual contributions, as well as a lack of understanding regarding the importance of reporting. As a result, faculty and staff initiatives are underrepresented in previous submissions and minimizes PSU's true progress toward sustainability. Our research analyzes the points systems from 2016 with the submission with the AASHE 2.1 STARS manual has identified multiple opportunities for improvement in many areas such as: academics, operations, innovations, and outreach. Our presentation provides a pathway to gold for PSU by identifying opportunities to improve the reporting process, and processes that can be implemented to improve PSU's campus-community sustainability outreach efforts.



Student: Victoria Ho
Student Status: Undergraduate
Major: History and English
Advisor: Dr. Kirstin Lawson
Title: PSU in World War II: Political Change and the College Experience
Time: 10:30-11:30pm

26

Abstract:

This project examines the importance of the college demographic during periods of rapid political change. The purpose of this research is to demonstrate how crucial the efforts of one population can be during times of national crisis. Specifically, this research project focuses on the students at Pittsburg State University (PSU) during the 1940s and how they responded to the onset of World War II. The research is based on primary sources, particularly newspaper articles from the 1943 and 1944 editions of the Collegio. The evidence showed that PSU students were incredibly active during the war and supported the soldiers abroad in ways other demographics could not, indicating the importance of colleges and universities across the nation during times of national crisis.



Student: Laura Howard
Student Status: Undergraduate
Major: English Education
Advisor: Dr. Philip Rudd
Title: Bilingual or Immersion: How Best to Teach New Languages
Time: 11:30-12:30pm

27

Abstract:

Researchers around the world have found that learning multiple languages has huge benefits to the individual and to the world. However, there is a debate over which programs are the best for meeting the needs of language learners. The main two programs that are in dispute are bilingual and immersion programs. Specifically, this study seeks to find which program, bilingual or immersion, is best not only for native English speakers learning a new language, but for English Language Learners as they learn English. This presentation looks at the manner in which both bilingual and immersion programs are taught and the progress and competency of the students in the programs. The findings show that, while some bilingual programs are effective, immersion programs create not only bilingual and biliterate students, but also bicultural.



Student: Caitlin Martin
Student Status: Undergraduate
Major: Psychology
Advisor: Dr. Ryan Speelman
Title: Promoting the Emergence of Advanced Language Skills
Time: 11:30-12:30pm

28

Abstract:

The purpose of this study is to test the effectiveness of the Promoting the Emergence of Advanced Language (PEAK) Relational Training system for children with diagnosed with Autism and related disabilities. First participants will receive a standardized language assessment. Next, participants will receive discrete trial instruction in areas of deficit identified to promote the emergence of logic and derived relationship amongst novel stimulus sets. Results and conclusions will be reported after all trials are completed.



Student: Tanner Osterbuhr
Student Status: Undergraduate
Major: Economics
Advisor: Dr. Michael Davidsson
Title: Population Trends in Micropolitan Areas
Time: 11:30-12:30pm

29

Abstract:

This paper studies migration to micropolitan areas. The Office of Management of Budget first classified micropolitan areas in 2003. Since the definition is recent, most studies on the determinants of migration in the economic literature have been on metropolitan areas and rural counties. Recent research has found that there is a significant migration down the urban hierarchy, with the most significant migration flows from mega and major metropolitan areas to micropolitan and rural areas. This shows that as time goes on, there are important factors that are pulling people out of large cities and causing them to relocate to micropolitan areas. The contribution of this study is to fill the gap of knowledge in the economic literature of the determinants of migration to micropolitan areas. While some micropolitan areas have seen steady increases in population over the last several decades, some have seen a significant drop. If examining two micropolitan areas, which are similar in many respects, where the population of one is growing and declining in the other, then it is of value to know why. This knowledge is important for micropolitan municipalities, which have stagnated, in order to introduce new policies conducive to in-migration. The Pittsburg Micropolitan Area has seen dismal population growth during the last couple of decades. This paper aims to apply the findings to the Pittsburg Micropolitan Area and attempt to determine policies which would be conducive to local population growth.



Student: Alina Sigitova
Student Status: Undergraduate
Major: Management, Marketing
Advisor: Dr. Lynn Murray
Title: An Analysis of the Renewable Energy Industry:
Lagging Indicators in the Legal, Infrastructural, and
Economic Forces
Time: 11:30-12:30pm

30

Abstract:

The Renewable Energy industry is one of the most pivotal economic movements. As more companies shift to the corporate sustainability model, this shift must be supported by using alternative form of fuels which will not negatively impact the current and future environment and also preserve resources for future generations. However, the renewable energy industry has lagged. By examining history and status quo of the industry and the relationships between the legal, infrastructural, and economic structures surrounding it, a clearer understanding of what is holding back the industry may be gained and potential solutions may be discussed.



Student: Kristen Simmons
Student Status: Undergraduate
Group Members: Kaitlyn Madden
Major: Social Work
Advisor: Dr. Hyejoon Park
Title: Emergency Room Role in Domestic Violence
Time: 12:30-1:30pm
Abstract:

Domestic violence is a serious and frequent problem in today's society that is not normally discussed. Because of the lack of discussion of domestic violence, the number of individuals who are victims of domestic violence may not be identified as victims. Severe physical abuse in a domestic violence situation can cause individuals to seek medical attention from an emergency room. However, if they are not identified as victims or asked the proper questions about their situations, they return to their abusive situations. The purpose of this research study was to discover how effectively emergency room employees identified and served victims of domestic violence. Also, the research showed how a survivor of domestic violence felt she was treated in the emergency room and ways she wished it would have been different. Two face-to-face interviews were conducted in order to look at the information from the view of a nurse in an emergency room and a survivor of domestic violence who sought medical attention multiple times in an emergency room. The views from the nurse and the survivor differed, in that the nurse felt that the way her emergency room identified and served victims was effective, but the survivor saw more areas emergency rooms could improve. However, they both recognized the prevalence emergency rooms can have in victims lives if identified and served properly. The information gathered through this research study showed the researchers how emergency rooms can be improved to identify and properly serve more victims of domestic violence.

Student: Wyatt Smith
Student Status: Undergraduate
Major: Music Education
Advisor: Dr. Craig Fuchs
Title: Exploration into the Life of the Band Director Beyond the Classroom: A Survey of Regional Band Directors
Time: 12:30-1:30pm
Abstract:

I have always desired to learn beyond what is taught in the educational setting of the university. This project created an avenue for discovery and knowledge that would have otherwise remained uncultivated in my educational career here at PSU. My courses in music education have equipped me with the tools and experiences needed in order to be an effective band director however I learned a great deal more than can be taught in the university classroom by surveying 23 regional band directors and music professionals. Initiation of this research began after many months of deliberation and contemplation with my faculty advisor. The purpose of this project developed into answering unknown questions. By brainstorming different areas in music education that I had never experienced in my courses I would be able to gather data from nearly two dozen music educators and begin to understand a larger scope of what it means to be a band director. We developed a questionnaire consisting of 24 essay questions in five categories: Family Dynamic; Educational (Standards/Legislation); Administration of the Band Program; Festival Repertoire; Professional Development. Once all questionnaires were returned the process of extensively studying and disaggregating the data pertaining to program structures, directors' demographics, schools, and results commenced. Overwhelmingly the answers that I received were not consistent from one director to the next, nonetheless they weren't surprising. This project created an inside look into what the future could potentially hold and provided an extra step of preparation with which to enter the music classroom.



Student: Mary Townsend
Student Status: Undergraduate
Group Members: Michelle Sears
Major: Social Work
Advisor: Dr. Hyejoon Park
Title: A Closer Look at Parents with Disabled Children: Are the Public School Systems Doing All They Can?
Time: 12:30-1:30pm

33

Abstract:

The federal implementation of IDEA, was to allow children with special needs to receive a public education. In addition to the federal act, the inclusionary method of special needs children into the conventional classroom, with the assistance of an IEP assignment for the child with exceptionality, was applied to public schools nationwide. The question that was raised through literary review was: Are these students and their families being treated with the same dignity from school district to district, or even state to state? Through the qualitative method, and personally interviewing three families that have a child with various special needs, but also have utilized several public schools, six schools to be exact. We found a gross difference of treatment of the children with needs and the schools interaction with the parents. School's interaction with parent's was defined by the parents knowledge of their childs IEP, communication from the school, and willingness of the school to take the parents thoughts about their childs IEP requirements and care. This study was solely based on the welfare and treatment of the parents of special needs children. Findings within this study verifies that there is a differentiation of treatment from district to district, and even state to state. Ultimately, findings were that there needs to be a form of checks and balances with all schools regarding their treatment of children with special needs and their attentiveness to the parents needs regarding their childs care, as well.



Student: Mark Weaver
Student Status: Undergraduate
Major: English
Advisor: Dr. Don Judd
Title: Magic In Literature and Its Practical Applications
Time: 12:30-1:30pm

34

Abstract:

*This presentation explores the sociological function of magic in fantasy literature as a means of understanding how it serves as a symbol in real life. This presentation examines specific instances in literature, namely within Christopher Paolini's series *The Inheritance Cycle*, in which magic is used or discussed by members of different cultures and social hierarchies. In each of these instances, the role of magic is analyzed in context of how it affects people of different social classes and races. By understanding how magic functions in these contexts, the parallel between magic in the world of fantasy and the real world becomes apparent. Paolini makes use of magic in his work to represent the imbalance of power among different hierarchical levels of society within the world of fantasy. In doing so, he offers a social critique on the inequality of power among various members of society within the real world. This presentation demonstrates how Paolini uses magic to reveal this concept of inequality of power and its practical consequences and applications in society.*



Student: Jessica Macy
Student Status: Graduate
Major: Literature
Advisor: Ms. Laura Washburn
Title: Grimoire: Poems of Feminine Folklore and Mythologies
Time: 11:30-12:30pm

Abstract:

J.R.R. Tolkien said: Pay heed to the tales of old wives. It may well be that they alone keep in memory what it was once needful for the wise to know. This collection is steeped in the substance of mythology and folklore, with a distinctly feminine perspective. My initial inspiration developed, in part, from Christina Rossetti's Goblin Market. In her poem, creatures of the night seek to lure unwary travellers specifically young women into the mire. The first of four poems, Borrowed in the Night, echoes Rossetti's disconcerting setting, and speaks about the inherent threat of womanhood. The second poem, Grimoire, or a witch's spellbook explores the folklore surrounding Atropa belladonna, or nightshade. This herb can be lethal, and historically, it has been weaponized to punish abusive husbands. The speaker is using her grimoire to enact retribution and the other witches can be heard murmuring, Your secret is safe with us. A Lamentable Tragedy, the alternate title to Shakespeare's Titus Andronicus, seeks to harness the voices of the countless woman-victims of sexual violence throughout mythological history, and emblazon their experiences for all the world to see, and to, hopefully, begin to understand. Such experiences transcend time and location. Lastly, Their Legends Chummed Them Up traces the slightly funny, but utterly tragic history of the ordinary salamander. The collection is meant to play with folkloric knowledge, but it is also meant to convey the experiences of women: the fear, the sadness, and the triumph.



Student: Skyler Cooper
Student Status: Undergraduate
Major: Communications
Advisor: Dr. Joey Pogue
Title: Human Communication: Developing a Theory of Reactivity
Time: 11:30-12:30pm

Abstract:

The Theory of Reactivity assumes the majority of human communication is a reaction to human communication. The theory posits three models of reactive response: (a) action reaction, (b) reaction reaction, and (c) action action. To understand the foundation of this theory it is important to understand the metaphysics that inspired it. A parallel comparison is made between each model and a portion of each law. For example, Newton's second law refers to the act of generating motion. This can be seen in the action-reaction model. An action occurs, people then react and start the motion of communication. The discourse will then follow that direction of either negativity or positivity. This will continue until acted upon by Newton's first law. Newton's first law, simplified, suggests that a body in rest, or motion, will remain in that state of rest or motion, unless it is compelled to change by an outside force. This relates to the reaction-reaction model. Once a communication pattern begins a cycle, it will continue that cycle until forces are impressed upon it compelling it to change. Therefore a negative cycle will perpetuate negativity until a positive action is taken to compel it to change and vice versa. These compelling forces are explained in the third law and model. Newton's third law argues, To every action there is always opposed an equal reaction. These opposite reactions hold the capacity to halt or redirect the cycle or direction of the rhetoric of human communication.



Student: Maisie Johnson
Student Status: Undergraduate
Major: Graphic Communications
Advisor: Mrs. Christel Benson
Title: Chelsey J. - Makeup Artist
Time: 11:30-12:30pm

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Abstract:

Over the past few months I have worked to create a brand for a makeup artist based out of Orlando, Florida. I designed a logo as well as a style guide specifying colors, patterns, fonts, and design elements that would be used within the brand. I created several print pieces including style guides, budgets, business cards, thank you cards, and pricing/leave behind folds. I screen printed shirts and totes to advertise my client's name as well as a custom apron for the artist to wear. I entered all of these components into the American Advertising Federation competition (ADDY's) and won a silver award in the category of Integrated Brand Identity Campaign.

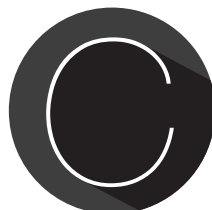


Student: Brooklynn Vincent
Student Status: Undergraduate
Major: Graphic Design and Art Education
Advisor: Mr. Rion Huffman
Title: Linsteadt Chesapeake Bay Retrievers Logo
Time: 11:30-12:30pm

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Abstract:

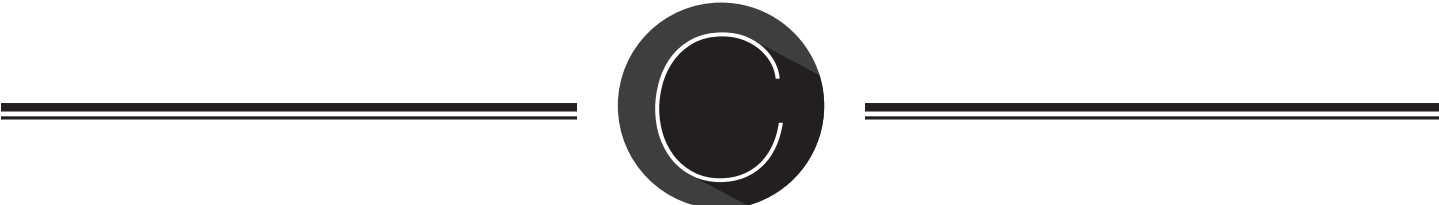
Linsteadt Chesapeake Bay Retrievers Logo This specific logo was created to help this family who have made a business with selling these beautiful dogs, which are known by the name Chesapeake Bay Retrievers. They are amazing creatures that come in different variations of brown, and are bred specifically for retrieving or use for hunting small game like ducks. I was approached by this family who have seen some of my past works I have created for other people and class assignments that I have posted onto my personal social media. They requested for me to create a new branding logo for their animals which require me to do research of the background of the breed, what they are usually bred for, and how to contact if interested on purchasing an animal. I looked up information on the internet and asked the owners for information that I need to have to understand on how to start off creating the logo. They pacifically asked me as well, for me to take photos of the animals that were on site and work on creating a website and social media page for them to promote the animals over a bigger audience. I drew up multiple different types of thumbnails and roughs of different logo ideas that I had for the consumer, after multiple conversations back and forth on changes I was able to get them to sign off of the main logo for their breeding business. I even had them sign off on a secondary logo as well so they had to different logos to their exposure to use when they see fit. I created both the logos within the Adobe Illustrator CC, and the photos I took were done with my personal Canon camera that I had on hand. The photos were clean up and some were edited in the Adobe Photoshop CC and saved and given to the consumer to use. Took the extra time to draw up a frame wire for their social media and website page that would be create at a later date, will consist of the photos I took and along with the logo I created. Finally, at the end I was able to produce a high quality piece of work for a small family owned dog breeding business who were looking to expand and promote their animals big sailing market.



Student: Jaydon Wilson
Student Status: Undergraduate
Major: Graphic Communications
Advisor: Mr. Rion Huffman
Title: Challenges in Competing and Winning in Multiple Photography Categories at the ADDY's.
Time: 11:30-12:30pm

Abstract:

The world of photography is vast, in that there are many different categories of subject that can be photographed. These categories could include portraiture, product, lifestyle, architecture, and many more. All these categories, although all under the photography veil, do not use the same skill set. A photographer cannot shoot a portrait the same way that they could a studio product photograph. All these different forms of photography have varying skills sets for one to master. One way to encourage a photographer to grow their skill set within different photographic categories, is to compete in Photographic or creative competitions that allow different types of photography. Entering these competitions is the best way to asses one's skill level in any level of photography. Portrait photography involves capturing a person's "likeness" and personality. Product photography captures products meant to be sold. Product shots need to show the subject in an enticing and non-distracting manner. Lifestyle photography is meant to capture individuals partaking in events or situations. Architectural photography captures buildings and building characteristic. As one can see, all these worlds are difficult to master and practice due to the differentiating skill sets. I entered the recent 2017 ADDY awards and won 5 photographic awards. These were two product shots, one lifestyle, one portrait, and one architectural. Winning in different categories was not easy. It took having multiple skill sets within photography. One cannot afford to only have the skills in one category. This project aims to demonstrate how these competitions are extremely important to gauge and possibly encourage a photographer to grow their skill set.



Poster Presentations

Category



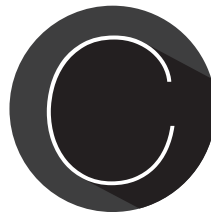
Sciences and
Technology

Category



Business,
Education and
Humanities

Category



Creative Works

Category



Topical Literature
Review

Student: Natalia Agostini Schneider

Student Status: Graduate

Major: Biology

Advisor: Dr. Neil Snow

Title: Rehydration of Herpetological Fluid Preserved Specimens: A Comparison Among Decon 90, Sparkleen Surfactant and Distilled Water Treatments.

40

Abstract:

Biological specimens have been preserved since the 15th century; the first fluid preserved animal was reported in 1662. When properly maintained fluid preserved specimens will last for centuries (e.g. 238 year old scarlet honeycreeper at the British Museum), but improperly sealed jars allow fluid evaporation, resulting in dehydration and bacterial/mold growth. In 2015 the herpetology collection had ca. 230 dehydrated specimens, some of which had been rehydrated previously using surfactant or distilled water. The purpose of this study was to compare existing techniques to a newer method. Thirteen specimens (frogs/reptiles) were rehydrated using three treatments: distilled water; 5% Decon 90; and 5% surfactant Sparkleen. Specimens were weighed and photographed throughout the process. Rehydration consisted of submerging specimens in warm solutions (~40°C) for =14 days, which were changed every other day to avoid bacterial/mold growth. Decon 90 gave the best results; specimens were more flexible, tripled their initial weight, and displayed improved coloration, all of which are important for identifying species. Sparkleen yielded similar results but with less improvement in coloration. Distilled water specimens doubled their initial weight but did not present satisfactory morphological results. For the variable Percentage Weight Gain, we conducted a one-way ANOVA between Decon 90 and Sparkleen treatments. An F-value of 0.39 was observed with a p-value of 0.55. At standard levels of significance of 0.01, 0.05, and 0.10 there is no significant difference between the two treatments. Despite Decon 90 having a more consistent weight gain and better morphological results, Sparkleen is a suitable substitute.



Student: Johara Al Dream
Student Status: Graduate
Major: Chemistry
Advisor: Dr. Ram Gupta
Title: Synthesis and Electrochemical Properties of
Nanocomposites of Polypyrrole and Graphene

41

Abstract:

Together with the fast growth of the worldwide economy, the constant diminution of fossil fuels, along with the enhancing pollution in the environment, establishing clean, effective and maintainable energy sources has become a significant challenge. For the storage and conversion of electrochemical energy, supercapacitors have appealed to researchers in significant concentrations due to their high power capacity, low cost, friendliness to the environment, and long cycle life. Graphene oxide (GO) was synthesized by unzipping the multiwall carbon nanotubes (MWCNT). A chemical polymerization method was used to synthesize nanocomposites of polypyrrole (PPy) and GO. The synthesized nanocomposites were structurally and electrochemically characterized. Using a BET surface area measurement, a large number of pores were observed in the composites. PPy-GO showed a higher surface area than PPy. The thermogravimetric analysis (TGA) conducted on the nanocomposites demonstrated a uniform weight loss as a function of temperature. Initial weight loss was related to the elimination of adsorbed water from the nanocomposites. The electrochemical measurements showed the highest specific capacitance of 2,066 F/g for PPy-GO nanocomposites having 3wt% of GO. The specific capacitance was observed to decreased with increasing scan rates. The electrochemical results suggest that nanocomposites of polypyrrole and graphene oxide could be used for energy storage devices.



Student: Nada Aljehany
Student Status: Graduate
Major: Chemistry
Advisor: Dr. Ram Gupta
Title: Graphene Nanoribbons and their Polymeric Nanocomposites: Controlled Synthesize, Characterization and Applications

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Abstract:

Carbon based materials have shown a great performance as electrodes in electrical energy generation and storage devices such as supercapacitors. Among carbon-based materials, graphene is very attractive due to its unique properties such as high electrical conductivity, large surface area, and high thermal and chemical stability. These unique properties make them suitable for supercapacitor applications. The performance of the graphene as energy storage material could be further improved by growing them in nanoribbon structure. Here, we report synthesis and characterization of graphene nanoribbons (GNR) from multiwall carbon nanotubes (MWCNT). GNR were structurally and electrochemically characterized. The shift of (002) peak in GNR compare to MWCNT confirms unzipping of MWCNT and its exfoliation. Conducting polymers such as polyaniline have been also used for energy applications. Its performance can be improved by making composites with graphene. We have found that nanocomposites of PANI with GNR (PA-GNR) have better performance for energy storage applications. Nanocomposites, PANI and GNR were electrochemically tested using cyclic voltammetry and galvanostatic charge-discharge methods. The overall charge storage capacity of the PA-GNR composites was higher than that of GNR due to its enhance surface area and synergistic effect between PANI and GNR. A symmetric supercapacitor device was fabricated using PA-GNR composite. The effect of temperature on the charge storage capacity of the device was tested. It was observed that the charge storage capacity of the supercapacitor device increases with increase in temperature. The results suggest that GNR and PA-GNR composites could be used as an electrode material for supercapacitor applications.



Student: Abdulrahman Alhathir
Student Status: Graduate
Major: Chemistry
Advisor: Dr. Jody Neef
Title: Synthesis and Electrochemical Study of Copolymers Containing Ferrocene and Imidazole

43

Abstract:

Ferrocene based-polymers have been used in various applications such as sensors, semiconductors, lasers, solar cells, batteries, and photo-oxidation of thin films. However, ferrocene copolymers with electronic interactions between the ferrocene and neighboring moieties have not been well studied. To this end, copolymers of vinylferrocene and vinylimidazole were prepared in various ratios. Imidazole is well known to coordinate to various transition metals which may promote interactions between the ferrocene and imidazole moieties; and impart interesting electronic properties to the copolymer. Copolymers between vinylferrocene and vinylimidazole were prepared by free radical initiation and characterized by FTIR, ¹H-NMR, ¹³C-NMR, and GPC. Each copolymer was electrochemically characterized in solution (CH₂Cl₂) and as a thin film. In addition, the electrochemical response of each material was tested in the presence of various electrolytes such as NaClO₄, Mg(ClO₄)₂, Zn(ClO₄)₂, Cd(ClO₄)₂, and Pb(ClO₄)₂. In addition, each polymer was studied by UV-vis spectroscopy in solution (CH₂Cl₂) and as thin films.



Student: Ghaidaa Allhyani
Student Status: Graduate
Major: Biology
Advisor: Dr. Anuradha Ghos and Dr. Dixie Smith
Title: Comparative Study of Microbial Community of Unperturbed and Perturbed Soil in Southeast Kansas

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Abstract:

The purpose of this project is to compare the microbial communities of the 33 year-old soil at the Monahan with the original soil at the O'Malley. The data collected in this project investigates whether there is a correlation between soil age and the soil microbial community. Using soil DNA analysis is one way we can compare soil microbial communities. Soil DNA was isolated from multiple samples from both sites using DNA isolation kit. Using the community DNA as a template, eubacterial, archaeal, and fungal DNA fragments were PCR amplified using specific-primers. The amplicons were purified and are being processed for cloning followed by restriction-fragment length polymorphism analysis. In parallel to the culture-independent molecular technique, the soil samples from O'Malley are also being processed for isolation of bacterial isolates on culture media. The isolates obtained will be compared to already isolated and identified bacterial isolates from Monahan. The outcome of the project will provide insight on the biogeochemical role performed by the microbes in the development and maintenance of soil different origin.



Student: Wadha Alqahtani
Student Status: Graduate
Major: Chemistry
Advisor: Dr. Santimukul Santra
Title: One-Step Synthesis and Characterization of Biodegradable "Click" Polymers for Biomedical Applications'

45

Abstract:

In this study, we have synthesized dendritic polymers from bio-based small molecules including sorbitol,glutaric acid and others. A propargylic acid derivative was used to make the resulting polymer"click"able. Melt polymerization technique was used for this polymerization reaction using a novel lipase enzyme catalyst, NOVO 435. This reaction was conducted between 90- 95 o C for 72 hours. The polymer samples were collected in each 24 h for detailed characterizations and polymerization reaction monitoring. The resulting polymer was purified and characterized using various spectroscopic methods.Next, these polymers were used for the formulation of polymeric drug delivery system using solvent diffusion method. The drug delivery experiments and cytotoxic effects towards cancer treatment was conducted using in vitro experiments and the results will be presented in this thesis.



Student: Abrar Alzahrani
Student Status: Graduate
Group Members: Samuel Sisk, Marcus Yoakam, and Ram Raghavan
Major: Biology
Advisor: Dr. Anuradha Ghosh
Title: Ecology of Ticks and Tick-borne Pathogens in a Peri-urban Landscape of the Midwestern U.S.

Abstract:

Ticks transmit a wide variety of pathogens to vertebrates including viruses, bacteria, protozoa, and helminthes. Their life cycle depends on blood meals from various hosts as well as on environmental conditions such as the temperature and habitat type. Besides Lyme disease, the rapid emergence of non-Lyme tick-borne diseases is worrisome in the U.S. The present study proposed to assess the prevalence of various tick species and infection prevalence of bacterial pathogens causing Lyme, Anaplasmosis, Ehrlichiosis, Rickettsiosis, Tularemia within the tick community of the peri-urban area in southeast Kansas. Over 1500 ticks were collected during warmer months of 2016 (May-August) from three types of tick habitats (woodland, open grassland and woodland/grassland ecotones) using the flag-drag method. Sampling sites were mostly within 50 miles periphery of Pittsburg area; except a few outliers. Following the identification key, 1006 ticks including adults and nymphs were so far sexed and identified in the laboratory. Majority of these were identified as *Amblyomma* spp. (51.3%; male 164, female 243, nymph 109) followed by *Dermacentor* spp. (47.2%; male 213, female 223, nymph 39) and *Ixodes* spp. (1.5%). The ticks were surface-sterilized and total genomic DNA is currently being extracted from the adult ticks; and will be subjected to PCR amplification using bacterial species-specific primers. Microclimate data as well as landscape fragmentation pattern will be analyzed using GIS-based monitoring method. It is comprehensible that a better understanding of the variations in tick-pathogen prevalence is crucial for implementing sound surveillance and management programs and to understand risk for human/animal diseases.



Student: John Candler
Student Status: Graduate
Major: Polymer Chemistry
Advisor: Dr. Ram Gupta
Title: Carbon Coated Nanostructured Molybdenum Sulfide for the Electrolysis of Water to Produce Hydrogen for Fuel and for Supercapacitive Applications

47

Abstract:

The electrolytical decomposition of water into its components of hydrogen and oxygen gas could be the ideal fuel for the future. The wheels of industry have, since the dawn of the industrial revolution, been powered through the combustion of coal and petroleum distillates. The beauty of hydrogen lies in the fact that its combustion is non-polluting and returns it to its previous state, water, which can then be released with no detriment to the environment. When paired with green sourced electricity the use of hydrogen as a combustible fuel is literally inexhaustible as the product of combustion is the feed stock for the fuel. The splitting of water requires a potential difference of -1.23 V , using the noble metal surface catalyst platinum it is possible to get close to this potential. Although efficient, platinum is prohibitively expensive and its quantities are limited. Here the challenge is to produce an active material to lower the overpotential of hydrolysis effectively and economically. A facile one-step hydrothermal synthesis of MoS_2 has been used to produce an efficient active material for the H.E.R. which is more cost effective and plentiful than platinum and has the benefit of being an effective pseudocapacitive material that can be used in electrical charge storage. Electrochemical analysis using galvanostatic charge discharge indicate a specific capacitance of $\sim 153\text{ F/g}$ and cyclic voltammetry shows a specific capacitance of $\sim 686\text{ F/g}$. The morphology of the material was examined using SEM and reveals a spherical morphology with thin sheets emanating from the surface.



Student: Bhanu Prakash Dhronavalli
Student Status: Graduate
Major: Physics
Advisor: Dr. Serif Uran
Title: TiO_2/CuO Heterojunction Solar Cells Produced by Thermal Evaporation

48

Abstract:

All oxide photovoltaic cells are attracting considerable attention because of their non-toxic, cheaper and chemically stable characteristics for harvesting solar energy. We present our results on a TiO_2/CuO heterojunction solar cells entirely produced by thermal evaporation on fluorine doped tin oxide coated glass substrates, using aluminum as a back contact. The n-type, wide band gap (3.02 eV) TiO_2 window layer and the p-type, 1.2 eV band gap CuO light absorber form a p-n junction, which creates electron-hole pairs. A thickness of about 300 nm CuO is enough to absorb all photons with an energy above the optical transition of about 3.0 eV . We will report on circuit voltage and efficiency of the solar cell.



Student: Sahithi Jukkalkar
Student Status: Graduate
Group Members: Bharath Kumar Mittapally
Major: Technology
Advisor: Dr. Judy Smetana
Title: Consumer Adoption to Solar Energy In Gujarat, India

49

Abstract:

India is one among the developing countries in the world which is using solar energy as an alternate form of production of electricity. Gujarat is one of the top most states in India in producing solar power. The purpose of this study is about why people in state of Gujarat are not able to adapt solar energy only as a main source of electricity when there is a scope for them to adapt. This study also deals with what are the barriers faced by people while adopting solar energy. The barriers may be factors such as economic barriers such as cost, technical barriers such as Installation of solar panels and institutional barriers include workforce and financial incentives. In this study a mixed method of research approach is used as this uses both qualitative and quantitative methods of research. Qualitative method of research will help in gathering the opinions and quantitative method helps to analyse the results that will be obtained from the study. The conclusion of this project will provide the reasons from the people of Gujarat on why are they not implementing solar power as main source of energy.



Student: Stacey Kale
Student Status: Graduate
Major: DNP
Advisor: Dr. Karen Johnson
Title: Determining the Knowledge, Attitude and Beliefs of Primary Care Providers in Rural Southeast Kansas Regarding the Assessment and Treatment of NSABP and CBP

50

Abstract:

An Abstract of the Research Project by Stacey Kale Managing back pain has become a public health and clinical challenge (Krein et al., 2016). New research suggests that it is the most common pain problem (Pauline, 2016). It is the third most expensive health disorders and is exceeded only by cancer and heart disease (Pauline, 2016). Health care providers are caught in conflicting circle of professional obligation to treat patient pain, avoid manipulation by aggressive opiate seeking patients, and alignment with national efforts to rein in opiate misuse and abuse. Many health care providers lack formal pain management education and training thus leaving them at risk for failing to properly manage patients who have the risk for movement towards chronicity, disability, and medication misuse (Hudspeth, 2011). The purpose of this quality improvement research project is to discover provider knowledge, attitudes and beliefs (KABs) in the four state area (Kansas, Oklahoma, Arkansas, and Missouri) and Southeast Kansas four County area (Bourbon, Allen, Anderson and Neosho) in the management of back pain and make recommendations regarding improving pain management education. A Likert method survey, Knowpain12, developed from the validated Knowpain50 survey, was used to reliably measure healthcare provider knowledge of pain management in six domains (Gordon, et al., 2014). The goal is to discover provider educational needs in developing treatment plans based on current recommended guidelines, implementation of treatment plans, reassess and manage longitudinal care.



Student: Janaki Koppolu
Student Status: Graduate
Major: MST
Advisor: Dr. Eli Aba
Title: Statistical Process Control of Graduate Applications to Pittsburg State University

51

Abstract:

According to the Pittsburg State University Office of Admissions website (2016), Pittsburg State University (PSU) is a fully accredited university with more than 150 academic programs which accommodates more than 7300 students from 36 states and 46 countries. Every year, PSU has intake of most graduate students in the fall and spring semesters. After having discussions with the Dean of Graduate School and Continuing Studies, we decided to apply statistical process control (SPC) to the application process from Fall 2014 to Spring 2017 by providing the information of applications received, number of applications completed, number of applications incomplete, number of applications denied, number of applications converted into admissions in fall semester from the graduate office records in order to improve admission process quality. The aim of the project was to apply SPC and other quality tools to identify and eliminate special causes in the admission acceptance of the students and monitor the application process for process capability and process stability.



Student: Sean McCartney
Student Status: Graduate
Major: Business Administration
Advisor: Mr. Dennis Audo
Title: An Update to the Creation of Intelligent Transportation Systems by Maximizing Existing Building Information Modeling and Data Sharing within Intelligent Municipalities Mapping

52

Abstract:

Intelligent Transportation Systems(ITS) is a rapidly changing development and deployment environment. The ITS was created by the United States Department of Transportation. The focus of research on this topic continues to be divided between two key areas of operational priorities:



Student: Sean McCartney
Student Status: Graduate
Major: Business Administration
Advisor: Mr. Dennis Audo
Title: Reduced Risk Factors and Improved Safety Management through Implementation of Building Information Modeling

53

Abstract:

Multiple National and International Construction Companies of various sizes are either starting to, have been engaged or have fully developed and adopted applications of Building Information Modeling (BIM) Practices into their current construction management practices. Currently this is done to gain a strategic edge in an increasingly competitive market. These companies are utilizing BIM for Bid Management through control of preconstruction and construction workflows, interoperability of design and construction, and estimating. With the improvements of augmented and virtual realities becoming common place and economically affordable, the benefits of merging these techniques with safety through further implementing BIM Management Processes. There are two main divisions of safety that can be expanded upon: Safety Model Building, and Live Safety Tracking.



Student: Sean McCartney
Student Status: Graduate
Major: Business Administration
Advisor: Mr. Dennis Audo
Title: Improvements to the Process for Creation, Manipulation and Restoration of 3D Virtual Models for Rapid Prototyping of Fossil Specimens

54

Abstract:

The study and recovery of paleontological field specimens has been a long and advantageous task facing the paleontologist. In the last few years with advances in the capabilities of 3D imaging instrumentation and their supported software (3D Laser Surface Scanning, 3D Photogrammetry and 3D Printed Techniques) an even greater need for the expansion of these techniques is being driven by this research. This projects research has developed improved methods of virtual storage of the digital scans for the purposes of research and comparison with collection specimens and virtual components in the field of paleontology. The improvements to these techniques based on algorithmic programs will allow for faster and more efficient 3D acquisition of Paleontological Data Analysis. This will in turn allow researchers better insight into analysis of new morphological information and identification both in the field and in the laboratory. Virtual and Augmented reality can then be applied to create an expanded interaction for the paleontological researcher. This same research can be applied to improve techniques in recovery, field mapping, restoration, identification and display. The study group for this research is the paleontological specimens of western Kansas. This is a tremendously rich and diverse fossil record that is used as a guild to the aquatic ecosystem of the Cretaceous Seaway. The outcome of the research is to get a better understanding of the fossil record and present the research of the paleontological specimens to the scientific community in as a diverse and rich format as the fossil specimens themselves.



Student: Bharath Kumar Mittapally
Student Status: Graduate
Group Members: Sahithi Jukkalkar
Major: Technology
Advisor: Dr. Eli Aba
Title: Analysis of Sales of a Gas Station

55

Abstract:

Gasco is the name of a Gas Station located in Newman Road, Joplin which provides best service for its customers with quality products. In general the gas station have regular customers. The owner of the gas station wants to know about the amount of gas they sell and want to improve their service to their customers. This project is designed to analyze the sales report of the gas station using X-bar R chart, Histograms and other quality tools. The data collected is the daily sales of the gas station from morning 8:00 AM to 12:00 PM. The samples here used are the amount of gas bought by the customers. The aim of the project is to find out the peak time of sales and reason behind them. The outcomes of the project will also provide enough information for the proprietor to provide a good service for the customers.



Student: Mayuri Murali
Student Status: Graduate
Group Members: Margaret Cook
Major: Psychology
Advisor: Mr. Ryan Speelman
Title: Hooked on a Feeling: Losses Disguised as Wins and Slot Machine Preferences

56

Abstract:

Slot machines may display the same visual and auditory stimuli associated with a win yet pay the player a fraction of the initial wager. These "losses disguised as wins" (LDWs) may perpetuate gameplay and pose a threat to the gambler due to the potential reinforcing effect of the spin despite a net loss. To observe this phenomenon, participants played two concurrently available computerized slot machines of equal payout rates; one offering LDWs while the other did not. Overall participants played the slot offering LDWs for 71% of the total trials across participants. Following this finding, a second set of participants played concurrently available slot machines in which the machine dispensing LDWs dispersed payouts that became systematically worse, still this machine was highly preferred. This finding was also observed in a naturalistic setting where gamblers chose to play as many lines as possible, resulting in a higher density of LDW outcomes. These data suggest that slot machine gamblers may attend to the visual display and sounds of the game more than the payback amount leading them to believe they are winning even when they are losing. Physiological measures such as heart rate, as well as skin conductance response suggest players respond to these outcomes much the same as wins. The gaming industry is likely using this phenomenon to their advantage; developing machines with low payouts rates yet high densities of LDWs to hook players for an extended amount of time.



Student: Shuguftha Naz
Student Status: Graduate
Major: Polymer Chemistry
Advisor: Dr. Santimukul Santra
Title: Novel Nanotheranostics for the Treatment of Prostate Carcinomas

Abstract:

Prostate cancer is one of the leading causes of cancer death in adult men as it is often over diagnosed and over treated. It is a multistage disease with therapeutic challenges of local recurrent advanced tumors and distant metastatic disease. By the age 80, more than 50% of men will develop prostate cancer but all will not have aggressive form of disease. However, because their prognosis is unknown, many aggressive treatments will have side effects like urinary, bowel and erectile dysfunctions. To overcome all these problems, recent advancements in cancer nanotechnology have facilitated a better way to diagnose and provide therapy for prostate cancer. In the present study, we have synthesized magnetic nanoparticles encapsulating Triptolide and Celastrol. Both are known to have the anticancer effects by inducing cell cycle arrest and apoptosis in various cancer cells in vitro and in vivo. Triptolide directly binds to the excision repair cross-complementation group 3 (ERCC3, also known as XPB), and inhibits its DNA-dependent ATPase activity, which leads to the inhibition of RNA polymerase II-mediated transcription and likely nucleotide excision repair. Celastrol has been identified as a novel inhibitor of HSP90 and displays anticancer activity by inducing the degradation of HSP90 client proteins, such as AKT, EGFR, CDKs, IAPs and p53, etc. The identification of XPB and HSP90 as the target of triptolide and celastrol respectively accounts for the majority of their known biological activities. Optical imaging modality was carried out for the imaging of the treatment monitoring. Detail experimental results including cytotoxicity, targeted drug delivery, drug release studies, migration assay and HDAC assay will be discussed. In this study, we demonstrated that the combination of triptolide with celastrol had the synergistic anticancer effect in vitro, which might be due to their complementary anticancer molecular mechanisms.



Student: Shuguftha Naz
Student Status: Graduate
Major: Polymer Chemistry
Advisor: Dr. Santimukul Santra
Title: Molecular Targeted Nanomedicine: Role of
HSP90 Inhibitor and Sophorolipids

58

Abstract:

Oncogenic K-RAS, one of the major histologic subtypes of Non-Small-Cell Lung Cancer (NSCLC) accounts for 25% of the lung cancer related deaths. Hsp90, a ubiquitously expressed molecular chaperone is considered to be a promising target for therapeutic intervention. It is known to interact with several client proteins that are important in the pathogenesis of the cancer. Ganetespib, an Hsp90 inhibitor has been shown to have superior anti-tumor activity in several K-RAS mutant NSCLC cell lines. In addition, lactonic sophorolipids (LSL), a class of chemo-enzymatically modified glycolipids, are known to be promising immunomodulators and have shown to decrease the mortality rate in rat model of sepsis by down-regulating pro-inflammatory cytokines. Recent studies have also demonstrated the anticancer activity of LSL on several cell lines including esophageal, lung and pancreatic cancer cells. HDAC inhibition pathway is to be the best target for antitumor activity of LSL, where the histone deacetylases are inhibited and interferes with the gene expression thereby inducing cytotoxicity and leading to apoptosis. Herein, unique drug cocktail comprising of ganetespib and LSL targeting Hsp90 signaling and inflammatory pathways will be used for NSCLC therapy. Owing to its redox active properties, nanoceria (NC) will be specifically used as the drug delivery platform to supplement the therapeutic potency of the drugs. In this study, LSL and ganetespib carrying nanoceria will be formulated for the targeted treatment of NSCLC. Detail experimental results including, targeted drug delivery, cytotoxicity, drug release and fluorescence microscopy will be discussed.



Student: Katie Rennie
 Student Status: Graduate
 Group Members: Riegen Anderson, Emily Loethen,
 Courtney Hensler, Lucas Roecker, Jocelyn Nino, and Skyler Morris
 Major: Psychology
 Advisor: Dr. Bruce Warner
 Title: Perceptual Load and Cue-Target SOA Shape the Shape of
 Flanker-Interference Declines Over Distance

Abstract:

Perceptual Load and Cue-Target SOA Shape the Shape of Flanker-Interference Declines Over Distance Katie A. Rennie, Riegen Anderson, Emily Loethen, Courtney Hensler, Lucas Roecker, Jocelyn Nino, Skyler Morris, C. Bruce Warner Evidence has accumulated over the years that the distribution of visual attention follows a monotonically decreasing gradient, with distractors farther from the focus of attention producing less interference in an Eriksen flanker task (e.g., Eriksen & St. James, 1986). MÅller, Mollenhauer, RIsler, and Kleinschmidt (2005) found that the gradient of attention in a display with a large spatial extent follows a “Mexican hat” distribution rather than a monotonically increasing gradient. Flankers at an intermediate zone from the target produced less interference than those at a near or far distance, possibly due to a suppression zone falling between two overlapping attentional fields (Bahcall & Kowler, 1999). The present experiment investigated whether flanker interference declines monotonically with distance under low perceptual load and conforms to a Mexican hat like distribution under high load as found by Caparos and Linnell (2009). A mixed analysis of variance (ANOVA) revealed that all effects were significant, including the four-way interaction, $F(3, 330) = 5.39, p = .001$. Decomposition of the four-way interaction found that flanker interference declined monotonically with target-flanker distance in the low load condition and that significantly less flanker interference was observed at distances 3.44-6.23 in the 114 ms SOA condition as compared to 0 ms SOA. In the high load condition, significant cubic trends were observed, revealing Mexican-hat like patterns of flanker interference decline and recovery.



Student: Kyle Schwenker
Student Status: Graduate
Group Members: Alisa Zlatanic, Petar Dvornic, and Jamie Messman
Major: Polymer Chemistry
Advisor: Dr. Jeanne Norton
Title: Effects of Processing Parameters on Rheology and Temperature Stability of Silica-Filled Model Polysiloxane Copolymers

Abstract:

Polysiloxanes are a class of high performance polymeric materials that are used in a wide variety of applications including O-rings, gaskets, sealants, coatings, and adhesives. However, their elastomers generally exhibit low strength and have poor mechanical properties unless reinforced with fillers. Fillers are incorporated into polymer formulations by a process called compounding. One approach to compounding utilizes twin-screw extrusion to vigorously mix the reinforcing fillers into a polymer matrix. In this study, a lab-scale co-rotating twin-screw extruder was used to compound a commercially available amorphous reinforcing silica filler (Hi-Sil™ 233D) with a model vinyl-terminated dimethyl-diphenyl siloxane copolymer (Gelest PDV-0331). Various formulations and processing parameters were evaluated to achieve thixotropic behavior in the resulting filled polysiloxanes. Thermogravimetric analysis (TGA) was used to determine the consistency of filler distribution in the polysiloxane matrix. It was determined that a 40 °C processing temperature resulted in the best distribution of filler, with the percent residue varying less than 3% from the targeted loading amount among all samples evaluated. Oscillatory rheometry was used to determine the yield stress, and flow rheology was used to evaluate the thixotropic behavior of the compounded samples. It was observed that, as the filler amount increased, the thermal stability, yield stress, and thixotropic behavior were enhanced. The filler loading of 27 wt% resulted in enhanced thermal stability, the highest yield stress, and the best thixotropic behavior.



Student: Sami Shukr
Student Status: Graduate
Major: Physics
Advisor: Dr. Serif Uran
Title: ZnO/CuO Heterojunction Solar Cells Produced by Thermal Evaporation

Abstract:

All oxide photovoltaic cells are attracting considerable attention because of their non-toxic, cheaper and chemically stable characteristics for harvesting solar energy. We present our results on a ZnO/CuO heterojunction solar cells entirely produced by thermal evaporation on fluorine doped tin oxide coated glass substrates, using aluminum as a back contact. The n-type, wide band gap (3.37 eV) ZnO window layer and the p-type, 1.2 eV band gap CuO light absorber form a p-n junction, which creates electron-hole pairs. A thickness of about 300 nm CuO is enough to absorb all photons with an energy above the optical transition of about 3.0 eV. We will report on circuit voltage and efficiency of the solar cell.



Student: Yuga Sunkarasetti
Student Status: Graduate
Major: Engineering Technology
Advisor: Dr. Eli Aba
Title: Data Analysis Using Statistical Process Control: A Case for a Cold Rolled Coil

62

Abstract:

ABC Steel is one of the largest and fastest growing integrated steel industry in India. It has established a strong presence in the global value-added steel segment with the acquisition of a steel mill in Texas, USA. ABC Steel has also formed a joint venture for setting up a steel plant in Georgia. The major products this company produces are cold rolled coils, hot rolled coils, HR sheets, and TMT bars. There are various factors which result in a defective cold rolled coil. Most likely these are considered as 4M's (Man, Machine, Method, Material). In this project, various defects that are usually found in a cold rolled coil and impact quality of steel and quantity of production (mainly sales) were considered. The main objective of the project was to use various tools of statistical process control (SPC) to identify, separate, and monitor the special causes and enhance the quality of product by establishing and maintaining consistency in the process, and thus enabling process improvement. To have a better understanding of cause and respective effect which led to the defects I made use of cause and effect diagram (Ishikawa diagram) which identifies and isolates the causes of the defects. In conclusion, the findings show how SPC can be used to separate variation resulting from special causes from variation resulting from natural causes.



Student: Tanuja Tummala
Student Status: Graduate
Major: Polymer Chemistry
Advisor: Dr. Santimukul Santra
Title: Targeted Combination Therapy of Prostrate Cancer.

63

Abstract:

Targeted Combination Therapy of Prostate Cancer Tanuja Tummala, Shuguftha Naz, Tuhina Banerjee and Santimukul Santra Department of Chemistry, Biology, KPRC, Pittsburg State University, Pittsburg, KS 66762 Prostate Cancer is the most common cancer among men and according to ACS 2016 statistics about 180,890 new cases appear and about 26,120 deaths occur. Nearly, 6 in 10 cases are diagnosed in men aged 50 or older and there are no often early symptoms. The treatment options includes surgery, chemotherapy, hormonal therapy and/or radiation and it can often be treated successfully. However, the poor management and overtreatment made it a continuous problem and ways to find better treatment option. Towards development of a prcised medicine for advanced prostate cancer, we designed a magnetic nanoplatform which can integrate various key components such as drugs, imaging agents and targeting ligands enabling targeted delivery of drugs in high concentrations to tumor. Herein, we used a three drug combination of Oxaliplatin, Irinotecan and 5-Flurouracil which are already known to be effective in colorectal cancer and pancreatic cancer. The three drug combination encapsulated in folate conjugated magnetic nanoparticles had shown a tremendous effect of cell death via oxidative stress in LNCaP cells. Cytotoxic assay results revealed about 88% of tumor cells were killed within 24 h of incubation. Individual mechanisms of the drugs and their synergistic effect in the treatment will be discussed by relating with the optical microscopy and magnetic resonance imaging technologies. This study provides clinically actionable information that could impact treatment decisions for individuals with prostate cancer.



Student: Nagandla Venugopal
Student Status: Graduate
Major: MET
Advisor: Dr. Eli Aba
Title: A Case for Quality Filter Mapping

64

Abstract:

The present scenario in the production industry demands quality of product and the cost effectiveness of the process. The selection of suitable solutions for the integration of inspection process within the process, chain plays a key role. Quality Filter Mapping (QFM), an innovative variation of the Value Stream Mapping (VSM) which is a commonly used Lean Manufacturing tool, provides valuable information to identify the defects occurring in the manufacturing process flow line at the point of occurrence rather than at the End of Line (EOL). Based on the designed elements of VSM, QFM provides a suitable tool for the visualization, analysis and the design of quality assurance measures within the manufacturing process chains. It thus facilitates the identification of effective testing equipment, testing strategies, and quality control loop. In this project, an effort has been made to focus on the defects produced relating to the physical products and detecting the defects as early as possible in the Shell Casting Foundry. After analyzing and learning the process flow from the VSM, the EOL rejection data is used to plot Pareto chart. This chart is then used to find out the few vital defects. For these defects, cause and effect diagram and Quality Assurance (QA) mini matrix was used to identify the source of the defects. Process Failure Mode Effect Analysis (PFMEA) tool was used to quantify the corrective measures. Finally, cost-effectiveness is calculated by a weighted cost average method with reference to PFMEA tool and shows a considerable improvement.



Student: Chungyang Zhang
Student Status: Graduate
Group Members: Sanket Bhoyate and Mihail Ionescu
Major: Polymer Chemistry
Advisor: Dr. Ram Gupta
Title: Bio-Based Polyols Using Limonene for Rigid Polyurethane Foams with Improved Flame Retardancy

65

Abstract:

Limonene, an extract of orange peel, was used to synthesize bio-based polyol via thiol-ene click chemistry. The synthesized bio-based polyol was used as an alternative to petrochemical-based polyol for preparation of rigid polyurethane foams (RPFs). Fire-retardant polyurethane foams were prepared by addition of different amounts of dimethyl methyl phosphonate (DMMP) in the polyol. The effect of amount of DMMP on the properties of RPFs was studied. The foams showed a regular cell structure with uniform cell size distribution with over 90% of closed cells in the RPFs. The RPFs showed excellent compressive strength and maximum compressive strength of ~199.7 kPa was observed. The foams showed excellent fire retardancy in horizontal burning test, which showed reduction in burning time by ~95% compared to the polyurethane foam without DMMP. Weight loss during the burning test for the polyurethane foam without addition of DMMP was 48% which reduced significantly by addition of DMMP to 5.7%. Our results suggest that bio-waste could be used for preparation of polyurethane foams and addition of small amount of phosphorus containing compound can significantly reduce its flammability.



Student: Charles Ault
Student Status: Undergraduate
Major: Chemistry
Advisor: Dr. Ram Gupta
Title: Synthesis and Characterization of Nylon 6,10

66

Abstract:

A poster discussing the synthesis and characterization of nylon 6,10, a member of one of the most influential families of polymers ever developed. The poster will also discuss in brief the development and history of nylons.



Student: Charles Ault
Student Status: Undergraduate
Major: Chemistry
Advisor: Dr. Jody Neef
Title: Ferrocene-Containing Polyurethanes for Improved
Flame-Retardant Properties

67

Abstract:

Flame retardant polyurethanes are needed for various commercial and industrial applications; toward that end ferrocene derivatives with multiple hydroxyl groups were synthesized for incorporation into polyurethane thin films for testing. The ferrocene diol synthesized was 2,3-dihydroxypropyl ferrocene carboxylate. The compounds were characterized using FT-IR spectroscopy, ¹H-NMR and ¹³C-NMR spectroscopy. This compound was incorporated into a commercially available polyol mixture at various weight percentages, mixed with toluene di-isocyanate, and cast as thin films on glass plates. Each film was tested for flame retardancy using a standard burn test chamber and thermal stability in both nitrogen and air. Cone calorimetry testing with various formulations was performed to determine heat and smoke release rates. Volatile organic compounds testing were also performed on selected films. In addition, potential synergistic effects of the ferrocenyl polyols with triphenyl phosphine was studied.



Student: Pathikrith Banerjee
Student Status: Undergraduate
Major: Physics and Mathematics
Advisor: Dr. Benjamin Tayo
Title: Structural Compositional and Analysis of 2-D
Atomic Configuration Around the K-Point

68

Abstract:

Two dimensional atomic crystals represent an important class of materials with exotic structural, electronic and optical properties such as linear energy dispersion relation, excellent thermal and electrical conductivities, and energy band gaps lying in the visible region of the electromagnetic spectrum. Important 2D materials belonging to this family include graphene, hexagonal boron nitride, transition metal dichalcogenides, and other materials. Their energy band gaps range from zero band (graphene) to a band gap of 5.9 eV (hexagonal boron nitride). Moreover these materials can be combined together to form nanoscale heterostructures providing a suitable means for fabricating advanced functional materials with enhanced tunable properties. In this presentation, we discuss how the unique structural properties of these materials can be correlated to their exotic electronic and optical. We will use graphene as a case study, then we will discuss the properties of other 2D materials and how they can be combined like lego blocks to form hybrid functional materials with novel properties. We will also discuss areas of potential applications such as energy storage, light emitters, ultrafast electronics, and light harvesting.



Student: Tyler Banka
Student Status: Undergraduate
Major: Manufacturing Engineering Technology
Advisor: Dr. Russell Rosmait
Title: Casting Conversion Project - Front Muller Plow
Fabrication Conversion to ADI Austempered Ductile Iron
Casting

69

Abstract:

Foundries throughout the United States utilize green sand molding as a primary molding process for casting parts. This process can be highly abrasive and damaging to the surrounding mechanical parts. The purpose of this project is to develop our capability of using an Austempered Ductile Iron (ADI) as the outside plow on a Simpson Technologies M05 Muller. The front plow works within a high abrasion and wear environment. Changing to ADI could yield a plow with greater strength and greater resistance to wear than the current steel fabrication. The part could also result in reduced part manufacturing cost and could be sold as a premium high wear resistant part. Austempered Ductile Iron (ADI) is a specialty heat treated material that takes advantage of the near-net shape technology and low cost manufacturability of ductile iron castings to make a high strength, low cost, excellent abrasion-resistant material. Better Wear Resistance - The unique characteristics of an Austempered Material make it more wear resistant than many competitive materials. The high case hardness of Carbon Austempered steel give it a tough wear surface. The imbedded carbides and Austempered microstructure of Carbide ADI make it a competitive wear material for ground engaging applications. The high strength and toughness of ADI and Austempered Steel make them more suitable for the muller plow higher wear applications.



Student: Chandler Bishop
Student Status: Undergraduate
Group Members: Josh Brown, Megan Vanwey, and Kamri Brynds
Major: Psychology
Advisor: Mr. Ryan Speelman
Title: Training the Madagascar Hissing Cockroach to Run Bases

70

Abstract:

Can a cockroach be trained to run bases? This experiment incorporated the use of backward chaining and reinforcement to evaluate the ability of a Madagascar hissing cockroach to traverse a model baseball field. The initial step involved placing the subject at third base and a small piece of an apple as positive reinforcement for running home. Once the subject had mastered this step, he was moved to second base, to first, and to home; requiring him to traverse all bases. Preliminary data show successful mastery of the initial task (running from third to home) and subsequent steps will be employed as mastery is achieved. This study aims to demonstrate that even insects may be shaped to complete seemingly complicated tasks.



Student: Trevor Burrows
Student Status: Undergraduate
Group Members: Adam King
Major: Biology
Advisor: Dr. Hermann Nonnenmacher
Title: Insect Foragers on Tall Thistle, *Cirsium Altissimum* (L.) Spreng., and Boneset, *Eupatorium Perfoliatum* L., in Cherokee County, Kansas.

71

Abstract:

*Tall Thistle, *Cirsium altissimum* (L.) Spreng., and late boneset, *Eupatorium serotinum* Michx. (Asteraceae) are native plant species which may be found in bloom from August into late September or October in southeast Kansas. In fall semester, 2014, three sites in Cherokee County, Kansas, were used to observe and collect foragers on tall thistle plants located amidst populations of boneset. Pollen washes of foragers were made with ethanol and then stained with Calberla's fluid to study pollen load compositions as part of an ongoing study of forager guilds and annual changes in their relative oligolectic or polylectic foraging. Observations of forager activity on tall thistle included counting numbers of foragers per rewarding inflorescence, and recording amounts of time of bumblebee foraging bouts on one rewarding inflorescence. From September 05 to September 23, 2014, a total of 34 foragers, in two insect Orders, on tall thistle, were collected and washed. As tall thistle blooming phenology ended by September 25th, boneset blooming phenology began and continued until October 21, 2014. Bumblebee foraging was not observed on boneset but forager diversity increased over that observed on tall thistle. Whereas bumblebees and butterflies visited tall thistle, insect visitor diversity on boneset included several species in Orders Hymenoptera, Coleoptera, Mecoptera, and Lepidoptera.*



Student: Dominic Cavitt
Student Status: Undergraduate
Group Members: Patrick Knapp, Lucas Roecker, April Shaner, Billie Purdum, and Kaylee Lozier
Major: Psychology
Advisor: Mr. Ryan Speelman
Title: Examining Food Preferences in the Madagascar Hissing Cockroach

72

Abstract:

Reinforcer assessments may help clinicians reliably determine preferred items that could later be delivered as rewards. To determine potential reinforcers, a reinforcement assessment was conducted with a Madagascar hissing cockroach to determine most preferred foods. To contrive motivation, the subject was kept in a state of deprivation and allowed access to food only during experimental sessions. Assessment trials were conducted 20 minutes daily, in which the roach was free to choose any of 4 available foods, which were placed in each of the four corners of the box. At the beginning of each trial, the roach was placed in the center of the chamber while experimenters recorded latency to choose a food item as well as the duration of time spent with each food. Using these data the experimenters found clear preferences suggesting that common foods such as Cinnamon Toast Crunch can be experimentally identified as having a reinforcing effect, a finding that may help inform potential rewards to be delivered in future experiments.



Student: Mallory Gibson
Student Status: Undergraduate
Major: Biology
Advisor: Dr. Virginia Rider
Title: Wingless 4 (WNT4): Regulator of Stromal Cell Proliferation or Differentiation?

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Abstract:

Mammalian uterine stromal cells proliferate and differentiate into the decidua in preparation for embryo implantation. Evidence suggests that female sex steroids stimulate proliferation and differentiation of stromal cells by regulating a precise temporal and spatial sequence of WNT protein expression. In the rat uterus, WNT4, WNT5a, WNT7a, and WNT7b are expressed in the stroma in response to progesterone and estradiol. WNT5a is expressed in the stroma in response to progesterone alone and knock down of Wnt5a in uterine stromal cell lines blocks their proliferation. The purpose of this study was to investigate if WNT4 is required for stromal cell proliferation and/or differentiation. Quiescent rat uterine stromal cell lines (UIII) confirmed to express WNT4 in culture were stimulated with fibroblast growth factor (FGF, 50 ng/ml) and progesterone (1 μ M). Proliferation was measured 48 h later by the MTT assay. Progesterone plus FGF significantly ($p < 0.05$) stimulated proliferation. To determine the effect of Wnt4 on proliferation, stromal cells were transfected with siRNA (5 nM) targeting Wnt4 and a scrambled siRNA (5 nM) as a negative control. At 24 h post transfection, one-half of each sample was stimulated with progesterone and FGF. Proliferation was measured 48 h after stimulation using the MTT assay. Knock down of Wnt4 expression did not affect ($p > 0.05$) stromal cell proliferation. The results are consistent with the idea that Wnt4 signaling may regulate stromal cell differentiation rather than their proliferation.



Student: Laci Hadorn

Student Status: Undergraduate

Major: Chemistry and Biology

Advisor: Dr. Santimukul Santra

Title: Drug Cocktail Carrying Nanomedicine for the
Abstract:

LNCaP cells, of the prostate adenocarcinoma lymph node metastasis, are androgen-sensitive adherent epithelial cells. Prostate cancer is the most common cancer in men, with 1 in 7 men being diagnosed in their lifetime. Hsp90 is a key molecular chaperone involved in cell signaling, proliferation, and survival, and therefore a promising target for therapeutic intervention. Inhibition of Hsp90 suppresses androgen signaling, promoting degradation of client proteins resulting in apoptosis. Both Gedunin and Celastrol disrupt the function of Hsp90 through unique pathways. The co-chaperone Cdc37 mediates the loading of protein kinase onto Hsp90, and the natural product Celastrol disrupts Cdc37-Hsp90 complex formation. The natural product Gedunin inhibits p23 chaperoning activity, blocking its cellular interaction with Hsp90. Studies have shown the anticancer activities of Gedunin on several lines of cancer including melanoma, prostate, and human breast cancer cells. Herein, a novel, folate functional magnetic nanomedicine encapsulated with Hsp90 targeting drug cocktail will be used for effective treatment of cancer. Due to its rapid drug release system, this MR nanoprobe will be specifically used as the drug delivery platform to deliver targeted drug therapy. In this study, Gedunin and Celastrol carrying iron-oxide nanoparticles will be formulated for the targeted treatment of LNCaP cells. Effective drug delivery using targeted nanomedicine formulations, and various biomolecular and cellular assays will be performed to evaluate anti-tumor activity and effectiveness of delivery.

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Student: Lee Koch

Student Status: Undergraduate

Group Members: Madison Marsh, Nick Skiles, and Avery Mielke

Major: Psychology

Advisor: Mr. Ryan Speelman

Title: Shaping Tank the Madagascar Hissing Cockroach to Tackle
Army Men

Abstract:

Can a Madagascar hissing cockroach be trained to tackle army men? To answer this question our research team evaluated the effects of reinforcement and natural shaping of the subject Tank to seek out and tackle an army man. First Tank was placed on a state of food deprivation to ensure food functioned as a reward, and could only gain access to food in the experimental chamber. Small food items were placed on top of the army man and were accessed as a natural consequence of knocking the man over. In addition to food rewards, the experimenters lightly tapped on the experimental chamber producing an aversive vibration that was only removed when Tank moved towards the army man. Response latency data indicate Tank became faster and more proficient at knocking over the army man. These data indicate shaping and reinforcement can be used to train insects to perform creative actions not commonly emitted in nature.

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Student: Cody Lindbloom
Student Status: Undergraduate
Group Members: Serena Hoffman, Brenna Hoppes,
 Torbin Slavens, Kristine Flinn, and Kevin Daily
Major: Psychology
Advisor: Mr. Ryan Speelman
Title: Bowling in the Madagascar Hissing Cockroach

Abstract:

Can you train a cockroach to bowl? To answer this question, a wooden "bowling alley" apparatus was designed by the experimenters. Next, a backward chaining procedure was used where the final steps were taught in isolation, and subsequent steps were added sequentially. First the roach was placed four inches from the pins. Positive reinforcement in the form of food (Hershey's bar; Cheerios) as well as negative reinforcement (escape from aversive stimuli; pen tapping, pen sweeping) were delivered contingent upon entering the area behind the pins. Preliminary results suggest that roaches can be taught to run down an alley towards a goal. Further experimentation will reveal the number of preceding steps that can be trained to include running down the alley and knocking down miniature bowling pins.



Student: Emily Loethen
Student Status: Undergraduate
Group Members: Molly Crager and Riegen Anderson
Major: Psychology
Advisor: Dr. Bruce Warner
Title: Redesign of the Psychology Department Web Page
 Utilizing Human Factors Principles

Abstract:

The purpose of this project is to redesign the Psychology Department's web landing page utilizing various human factors principles to increase the satisfaction of people using the site. University websites have extreme importance in the promotion and first impression of a school. Studies show that on average it takes 50 milliseconds for users to form a first impression of a web page, which then affects their overall opinion of the website's usability and aesthetics. In the case of the Psychology department's web page, survey respondents reported that they felt the site was easy to navigate, but when challenged with a task to complete using the site, they expressed that it was difficult to use, as well as lacking in aesthetics. In order to make the Psychology Department's web page higher in usability, the Human Factors principles of white space, overall density, and text borders are being employed. Another major change is the structure of the website's pages and links in order to increase usability for students. This will be determined through survey results measuring current Psychology student's preferences and the degree to which they are using this site. Along with structure, the survey will determine what aspects of the visual layout can be improved. Through modifications using the responses of students, user satisfaction is likely to increase, as well as traffic to the site, and appeal of the department and university to prospective students.



Student: Kevin McNay
Student Status: Undergraduate
Group Members: Kyle Schwenker, Robert Susnik, Petar Dvornic, and Jamie Messman
Major: Plastics Engineering Technology
Advisor: Dr. Jeanne Norton
Title: Rheological and Thermal Properties of Model Polysiloxane Copolymer and PDMS with Varied Amorphous Silica Filler Content

Abstract:

Polymeric materials are used in a wide variety of applications in the modern world. If each new application required a novel polymer to be synthesized, the use of polymers would become cost-prohibitive. However, existing polymers can be tailored to a variety of applications at a cost that is less than traditional materials through the process of compounding. Compounding involves blending one or more polymers with a variety of additives, including UV stabilizers, flame retardants, and fillers. Polysiloxanes are polymers that consist of a repeating silicon-oxygen backbone with varied side chains. Polysiloxanes have unique flexibility and temperature properties, but require additives to improve their tensile strength. In this study, a lab-scale co-rotating twin-screw extruder was used to compound a commercially-available silica filler (Aerosil® R 8200) with two commercial polysiloxane products: a vinyl-terminated polydimethylsiloxane (Gelest DMS-V31) and a vinyl-terminated diphenyl-dimethyl siloxane copolymer (Gelest PDV-O331). Various formulations were evaluated to achieve thixotropic behavior in the resulting silica-filled polysiloxane extrudates. Thermogravimetric analysis (TGA) demonstrated that filler was well-distributed in both polysiloxane matrices studied. Oscillatory rheometry was used to determine the yield stress, and flow rheology was used to evaluate the thixotropic behavior of the compounded samples. The ceiling filler loading amount was established to be greater than 50 weight percent in both PDMS and the copolymer, which resulted in enhanced thermal stability, yield stress, and thixotropic behavior.



Student: April Miller
Student Status: Undergraduate
Group Members: Miranda Fazzi
Major: Biology
Advisor: Dr. Jody Neef
Title: The Use of Microwaves in Organic Chemistry Laboratory

Abstract:

Green chemistry has received considerable attention as an area of chemistry that focuses on chemicals and chemical processes to reduce their impact on the environment. Within this field is microwave chemistry. Microwave chemistry offers the advantages of fast heating and shorter reaction time; thus, improving energy cost. However, the cost of a chemical microwave is often cost prohibitive for smaller universities to introduce this technique in laboratories. To circumvent this problem, our lab has focused on experiments (Friedal Crafts Acylation and Esterification) which can be performed in commercially available microwaves. For Friedal Crafts Acylation, ferrocene was acetylated using acetic anhydride and a phosphoric acid catalyst. Reaction times and catalyst amount were varied to determine their effect on reaction yields. For the esterification reaction, salicylic acid was converted to aspirin using acetic anhydride with phosphoric acid as the catalyst. With the esterification reaction, yields were studied as the catalyst amount and reaction times were varied. For each reaction, the reaction times were less than five minutes and good yields were obtained. In addition, the shorter reaction times of the microwave reactions will provide students with a greater learning experience by allowing time for purification and analysis, since these are often limited in class due to time limits.



Student: Evan Noel
Student Status: Undergraduate
Group Members:
Major: Chemistry
Advisor: Dr. Irene Zegar
Title: The Discovery of Anticancer Agents Targeting Lung Adenocarcinoma Transcript 1 RNA (MALAT1)

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Abstract:

Long non-coding RNA molecules (lncRNA) are transcripts of more than 200 nucleotides in length. Up to date, there has been about 35,000 lncRNA identified, which is believed to be an underestimate as this class of RNAs makes up 98% of the non-coding transcriptome. Although very few lncRNAs have been characterized in detail, it is clear that they are important regulators of gene expression. It is believed that lncRNAs may carry out both gene inhibition and gene activation through a range of diverse mechanisms. Moreover, lncRNAs have been found to play important roles in the development and pathophysiology of a number of diseases including cancer. In fact, key oncogenes and tumor suppressors are now, known to be regulated by lncRNAs. In addition, lncRNAs are known to have secondary structures that play key roles in their functions. Therefore, lncRNAs now represent a major group of biomolecules for drug targeting research. In this work, we will examine ligand binding to MALAT1, a 9000- nucleotide, highly abundant, nuclear lncRNA found to regulate gene expression of metastasis-associated genes. MALAT1 has been shown to be thermally stable with a half-life of about 29 days. MALAT1 stability has been associated with it's role in cancer. It is believed that MALAT1 thermal stability is due to its 3'-end region that has a unique triple stranded structure that consists of a Hoogsteen triple stranded U.A.U as well as C+.G.C interactions. The work presented here focuses on using small molecules to destabilize the 3'-end of MALAT1 which would potentially lead to the discovery of therapeutic agents that can be used treat patients with metastasized cancer cells.



Student: September Numata
Student Status: Undergraduate
Major: Biology
Advisor: Dr. Peter Chung
Title: Gene Expression Studies in Macrophage-Mediated Cytotoxicity

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Abstract:

As cancer is one of the leading causes of death, there have been many approaches to possible treatments. One potential way to eliminate cancer cells is through the use of the body's own innate immune cells, such as macrophages. However, cancer cells are often resistant to macrophage-mediated killing and proceed to metastasize and produce tumors. Our lab has been interested in understanding how activated macrophages discriminate between normal and tumor cells. To that purpose, two SV-40 transformed murine fibroblast cell lines, F5m and F5b, have been used to investigate this discrimination. F5m cells display the wild-type phenotypic characteristic of resistance to contact-mediated killing by macrophages, whereas F5b cells exhibit sensitivity to direct macrophage killing. Unpublished microarray data provided by Kansas State University has shown alterations in the expression of many genes. Our experimental approach involves utilizing qPCR to confirm gene expression levels as determined by the microarray data. Our data involves the qPCR analysis of 6 target genes, 4 of which were overexpressed by F5b, while 2 others were underexpressed in the F5b cell line. The results of real-time PCR can then be confirmed using a western blot to analyze if changes in gene expression are occurring on the mRNA or protein level. Then, either transformation of F5b cells or silencing of genes in F5m cells will provide information on the specific gene(s) contributing to macrophage resistance. Hopefully, the results of this study can then be applied to other types of cancer cells displaying resistance to contact-mediated killing by macrophages.



Student: Oleksandra Pashchenko
Student Status: Undergraduate
Major: Biology and Chemistry
Advisor: Dr. Santimukul Santra
Title: Rapid Diagnosis of H5N1 and H7N9 Influenza with Novel Magnetic Nanosensor

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Abstract:

Slight mutations in various strains of influenza, such as H5N1 and H7N9, have been known to result in a number of flu epidemics around the world. For this reason, it is very important to develop novel diagnostic techniques to quickly and reliably diagnose different strains of influenza. Unfortunately, there are relatively few methods by which influenza may be rapidly diagnosed, and these are generally not designed with point-of-care application in mind. We present the synthesis of magnetic relaxation nanosensors (MRnS) capable of differentiating between various influenza subtypes (H5N1 and H7N9). Our nanosensors are created by synthesizing subtype-specific antibodies to the surface of iron oxide nanoparticles (IONPs), which may then bind to viral particles in solution. This binding allows for the sensitive and timely collection of T2 magnetic relaxation data, which could be used for a primary diagnosis in point-of-care settings.



Student: Kelly Talley
Student Status: Undergraduate
Major: Biology
Advisor: Dr. Christine Brodsky
Title: Soil and Water Quality along the Urban to Rural Gradient in Galena Kansas

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Abstract:

Water and soil quality can vary along the urban to rural gradient due to human activities, often polluting water and making soils more acidic. Through environmental disturbances such as urban development and mining, we hypothesized that water and soil quality have been affected in Galena, Kansas. In this experiment, we tested stream water pH and dissolved oxygen (DO), and soil pH, nitrogen, phosphorus, and potassium. We conducted these water and soil quality tests in four locations, representing two disturbed (urban and mined land) and two undisturbed areas in Galena. The results were surprising. The soils were relatively equal in nutrient content across the urban to rural gradient. Water pH was relatively constant across the gradient, around a value of 8.5, with the exception of Carver Hill, an "undisturbed" location. The same pattern was observed for dissolved oxygen, with the urban locations having lower DO concentrations, again with the exception of Carver Hill (DO average 8 mg/L). Although Carver Hill was classified as undisturbed by mining and urban growth, we found with further research that Carver Hill had a history of agricultural land use. The site's agricultural history potentially affected the soil and water quality making the water and soil more acidic. Through our findings, even seemingly undisturbed locations were still affected by human activities, highlighting the importance of maintaining water and soil quality throughout urban and rural locations.



Student: Hannah Thomas
Student Status: Undergraduate
Major: Biology
Advisor: Dr. Virginia Rider
Title: The Spatial Expression of the T Cell Homing Receptor, CCR7, Is Differentially Regulated By Progesterone and Estradiol in the Rat Uterus

Abstract:

Few autoimmune disorders are as devastating as those that affect fertility. The C-C chemokine receptor type 7 (CCR7) is a T-cell homing receptor in lymphoid tissues of humans. Expression of CCR7 could recruit T regulatory cells involved in localized uterine immune suppression that permits implantation of the semi-allogeneic embryo. The present study investigated the cell-specific expression of CCR7 receptors in the uterus. Sex steroid effects on CCR7 cell-specific expression were examined in ovariectomized (OVX) rats and OVX rats treated with progesterone (2mg) for three consecutive days (0hE). Some progesterone pretreated rats were given a single injection of estradiol (0.2 μ g) at day 4 and the uterine horns were removed 6 hours later (6hE). This hormone regimen stimulates a 5-fold increase in synchronously proliferating stromal cells. Uteri were fixed, embedded in paraffin and processed using standard histological methods. Progesterone pretreated uteri exhibited a significant ($p < 0.02E-3$, 41%) increase in antimesometrial pre-decidual cell CCR7 expression compared with OVX rat uteri. Estradiol treatment did not further increase cell density at the antimesometrial region but significantly increased ($p < 0.9E-5$, 35%) mesometrial CCR7 expression over that in OVX uteri. The results suggest that progesterone stimulates CCR7 expression in pre-decidual cells at the ventral region of the uterine horns where implantation occurs, while estradiol increases CCR7 expression at the dorsal region of the uterine horns where increased vascularity arises. Together the results suggest that recruitment of T regulatory cells could occur prior to embryo attachment and may be an essential step in the maternal preparation for pregnancy.



Student: Mikaleigh Woodward
Student Status: Undergraduate
Group Members: Marcus Yoakam
Major: Biology
Advisor: Dr. Anuradha Ghosh
Title: Community Household Environmental Studies on Antibiotic Resistant Strains of *Enterococcus* spp. and *Acinetobacter* spp.

Abstract:

With increasing prevalence of antibiotic resistance threats, there is an upsurge in the occurrence of community-acquired infections. The purpose of this study is to assess the ecology and prevalence of Enterococcus spp. and Acinetobacter spp. (that are well-known antibiotic resistant nosocomial pathogens) in the household environment. Each household sampling kit contained 5 swabs for each of shoe bottom, restroom, cleaning supply, kitchen top, and door step/handle as well as a demographic data sheet to be filled up. Fifteen such kits (n=75) have been currently processed out of 30 households involved in this study. The swabs were subjected to enrichment using selective media for test bacterial species. Total 8/15 (53%) and 13/15 (86%) kits were positive for growth of suspected enterococci and Acinetobacter spp., respectively. Only 1/15 cleaning supplies (6%) showed growth for enterococci whereas the kitchen top (6/15, 40%) showed more frequent enterococcal contamination. Although majority of the locations swabbed were contaminated with suspected Acinetobacter spp., 10/15 door step/handles were free of any selected microbe. Overall, 42/75 (56%) of the swabbed locations were contaminated with suspected Acinetobacter spp. in contrast to 12/75 (16%) with enterococci. Further biochemical tests, PCR amplification of selective genes, and antibiotic susceptibility testing will be carried out on the confirmed isolates. The antibiotic-resistant isolates will be genotyped and compared to their relative nosocomial strains. The community will be outreached with recommended cleaning protocol and stewardship in antibiotic consumption and resistance. The outcome of this study may help facilitate effective and appropriate antibiotic treatment of community-acquired infections.



Student: Lynzee Flores
Student Status: Graduate
Group Members: Hannah Ishmael and MacKenzi Tims
Major: Communication
Advisor: Dr. Alicia Mason
Title: Emotion Labor, Patient-Centered Care & First Responders
Disaster Response: Lessons Learned from the 2011 Joplin Tornado

Abstract:

The analysis examines the opportunities and obstacles experienced by first responders to providing patient-centered care within the first 48-hours of the EF-5 Joplin-Duquesne tornado that struck on May 22, 2011 in Joplin, Missouri. A total of 14 semi-structured qualitative interviews with first responders were transcribed and serve as out units of analysis. In total 291 pages with 103,130 number of words comprise our data set used for analysis. In order to address the research questions advanced in the study we employ a grounded theory qualitative method to thematically code the data. Our analysis focuses on key areas of emotion labor of first responders, as well as the opportunities and obstacles to providing psychological, physical, and emotionally-sensitive patient-centered care in the immediate aftermath of the storm. Emotional labor can be defined as the public and observable facial and bodily display of an individual when trying to process their emotional management towards a situation which is not concordant with and individual's actual emotional state. This sociological behavior was first published in the book, The Managed Heart by Dr. Arlie Hochschild from the University of California-Berkeley in 1983. Along with the analysis of emotional labor, themes of disaster and crisis triage, community outreach and media engagement will be discussed. The discussion of these key areas, will demonstrate how these factors play a role in the performance of first responders in crisis situations. All three factors impose ethical and moral implications to first responder behaviors and decision making ability. We offer an interpretation and analysis, as well as limitations and future directions for applied research and practice. Key Words: patient-centered care, health communication, disaster and community planning



Student: Trudy Hansen
Student Status: Graduate
Major: Career and Technical Education
Advisor: Dr. Julie Dainty
Title: Clinical Instructors Perceptions in Assessing Critical Thinking of the Physical Therapist Assistant Student using the Clinical Performance Instrument

Abstract:

Eight face-to-face interviews were conducted across the state of Kansas for this qualitative study. The three domains of Bloom's Taxonomy: Cognitive, Affective, and Psychomotor, were used in this phenomenological study to categorize Clinical Instructors (CIs) perceptions of the following: 1) Defined clinical problem solving on the Physical Therapist Assistant- Clinical Performance Instrument (PTA-CPI. 2) Listed attributes the student PTA (SPTA) should possess when critically thinking. 3) Stated considerations, the CIs used when assessing the SPTA's clinical problem solving on the PTA-CPI. 4) The CIs explained the SPTAs clinical behavior rationale. 5) The CIs reported the advantages and disadvantage of the PTA-CPI. 6) The CIs stated their perceptions of what they feel is an adequate length of time for the SPTA's critical thinking skills to be developed and assessed within the duration of a PTA Program.



Student: Hannah Ishmael
Student Status: Graduate
Group Members: Chelsea Foster
Major: Communication
Advisor: Dr. Alicia Mason
Title: A Comparison of Narrative and Non-narrative Messages for Promoting Zika-related Preventative Health Behaviors in At-Risk Male Populations

Abstract:

The 2016 Zika virus was a novel pathogen in the U.S. population with high levels of scientific uncertainty surrounding the transmission method(s), duration of contagion, and degree of risk posed by infected males. This experimental study uses a 2 message (narrative versus non-narrative/CDC educational) X 2 (identification versus none) design to determine the effectiveness of these persuasive appeals to elicit audience identification, empathy, disease-related knowledge and behavioral intentions to engage in preventative behaviors (e.g., testing, protection, and abstinence) in male populations throughout the Florida region. Identification was operationalized as perceived similarity. Participants were randomly assigned to conditions based on their self-reported ethnic identity. Messages were designed with similar features including: headline, story length, and message source Health Promotion Board. Only the visual pictures of characters, and characters' names were altered to enhance perceived similarity. More than 200 male participants from impacted areas such as Florida, Georgia, and Texas were randomized into an online study hosted through the PSU Communication Research Lab using Qualtrics software for data collection. Amazons M(Turk) and TurkPrime were utilized for participant recruitment in November 2016. This presentation will report the findings of this study and discuss the implications for dissemination and implementation efforts relevant to future persuasive risk communication appeals and health communication campaign design.



Student: Michaela Joines
Student Status: Graduate
Group Members: Lynzee Flores
Major: Communication
Advisor: Dr. Alicia Mason
Title: Improving the Web-based Marketing of PSU's Sustainability Efforts & Outreach: A Content Analysis of KBOR Institutions.

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Abstract:

In order to more fully understand how to effectively promote campus-wide sustainability efforts in online and digital environments a content analysis of sustainability related web-based marketing strategies in higher-education was conducted. Our analysis included Kansas Board of Regents (KBOR) institutions (e.g., Emporia State, Fort Hays State, Kansas State, University of Kansas, Wichita State and Pittsburg State), Pittsburg State University's Aspirant Institutions (e.g., California State University, Salisbury, University of Northern Iowa, University of Wisconsin-Stout, Western Washington University) and a variety of other regional peer institutions (e.g., Arkansas Tech, Missouri Southern State University, University of Arkansas, Northwest Missouri State and Missouri State). A total of 16 websites were identified for analysis and three were omitted due to minimal or incomplete information. In order to address the research questions advanced in the study several broad categories were created to examine website functionality, the quality of sustainability content, and features such as: web characteristics, sustainability: concept & definition, institutional commitment, sustainability impacts, recognition, resources & support, and general content. Our findings provide insight as to how to integrate online communication strategies that promote interactivity with audiences, serve as a tool for facilitating partnerships among faculty, students, staff and campus visitors about PSU's commitment to sustainability, and serve as a source for engagement data needed for agencies such as Association for Advancement of Sustainability in Higher Education (AASHE). We offer an interpretation and analysis, as well as recommendations and strategies for future applied practice at PSU.



Student: Sean McCartney
Student Status: Graduate
Major: MBA
Advisor: Mr. Dennis Audo
Title: Continued Improvements to Business Strategy by Utilizing Techniques of Building Information Modeling

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Abstract:

For over 10 years now there has been a paradigm shift within the construction industry to the ever-increasing utilization of Building Information Modeling (BIM). Demand for increased Productivity, Efficiency, Maximization of Management, and more Sustainability while reducing Lead Times, inefficiencies in Duplication and Rework, as well as, Lifecycle Costs. The core value of Building Information Modeling is Communication, the actual Project Management and finally the Construction Data itself.



Student: Viet Nguyen
Student Status: Graduate
Major: MBA
Advisor: Dr. Maeve Cummings
Title: Artificial Intelligence and Finance

91

Abstract:

I'll be back, said T-800 Model 101, is one of the most famous quotes in movie history from the artificial intelligence character played by Arnold Schwarzenegger in The Terminator 2: Judgment Day. The movie was a huge success with a gross revenue of \$420,877,700 after adjustment for inflation (Terminator). Since the premiere, there has been much debate of how an artificial intelligence entity can impact human life. Many people welcome artificial intelligence into our everyday lives; other fear it. What is artificial intelligence? How can artificial intelligence benefit humankind? What would be the future of humanity with artificial intelligence? The objectives of this research paper are to raise awareness of artificial intelligence applications in finance and to encourage further development in the field of artificial intelligence. This study will provide summary information from current research and recent breakthroughs in artificial intelligence development. Artificial intelligence is going to be the next milestone in human achievement, and will significantly improve our living conditions.



Student: Lura Parrish
Student Status: Graduate
Group Members: Aaron Burn, Melissa Stebbins, Trevor Maiserouille
Major: Career & Technical Education
Advisor: Dr. Andrew Klenke
Title: International Technology and Engineering Educator's Conference (ITEEA) Dallas, Texas March 15-17, 2017

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Abstract:

Members attended the International Technology & Engineering Educator's Association (ITEEA) Conference held in Dallas, Texas, March 15-17, 2017 where the students presented, "Tired of the Same Old Classroom Routine? Do You Have What It Takes to 'Breakout'?". The conference workshop demonstrated how to adapt the "breakout" room phenomenon into any classroom routine. Implementing 'breakout' allows instructors to introduce curricular objectives through activity-based learning while simultaneously building problem-solving, critical thinking, and teamwork skills. After a short PowerPoint presentation, participants actively completed a breakout session organized and adapted by PSU students, which included bringing all of the documentation, locks, boxes, and clues needed for the challenge. This experience allowed students to interact and assist teachers in the classroom while developing professional presentation attributes. In addition to a professional presentation, members engaged in National Technology & Engineering Education Collegiate Association (TEECA) competitions to include Transportation Challenge (1st Place) Manufacturing Challenge (2nd Place), Communication Challenge (2nd place), Educational Display (3rd Place), Technology Challenge Quiz Bowl (4th Place), Robotics Challenge and Teaching Lesson. PSU TEECA's chapter earned the distinction of outstanding chapter awarded to one school nationwide. Each member attended professional development presentations during the conference on current topics in Technology & Engineering education, examples included, "Recruiting T&E Teachers", "Classroom Aquaponics", and "Girls Just Want To Do STEM".



Student: Kristi Riggs
Student Status: Graduate
Major: Graphic Design
Advisor: Dr. Jeanea Lambeth
Title: Nontraditional Pittsburg State University Students
With Children: How Many Hours Of Study Are Applied
To Classwork Versus Those Without Children

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Abstract:

Nontraditional students with children are a growing population within the college and university environment. Many questions about the struggles these students go through to achieve a degree, have yet to be discovered. The aim of this quantitative study is to examine the relationship between the average study time of nontraditional students with children, versus students without children attending Pittsburg State University (PSU). Study data will be collected through a bulk email to students, faculty, and staff of PSU, administering a survey through Survey Monkey to a random population sample.



Student: Haley Mona
Student Status: Graduate
Group Members: Andrew Gloschen and Lauren Jenkins
Major: Psychology
Advisor: Dr. Jamie Wood
Title: Prescription Variables and Financial Stress Affect Current
Stimulant Diversion Rates in College Students

94

Abstract:

Medication diversion is a significant problem among college students. Studies have found that 26% to 35% of college students have diverted prescribed medications to peers and stimulants were the most commonly diverted medication. College students misuse stimulants for a variety of benefits including increased academic performance, sustained concentration and various recreational (partying, etc.) purposes. Two variables, non-medical use of prescription stimulants and diversion of previous prescription medications have been the variables most closely linked to a greater likelihood of currently engaging in stimulant diversion. The current study investigated the relationship between 4 independent variables (type of medication [generic/ name brand], medication effects duration, number of tablets/capsules of medication prescribed per month and level of financial stress) and the dependent variable of frequency of current diversion of prescription stimulants. None of the variables had been investigated in previous studies. Participants for the study were students that had responded to a bulk email requesting participation in a survey on stimulant medication in exchange for a chance to win 1 of 3 gift cards. Data were analyzed using the 4 independent variables and frequency of stimulant diversion as the dependent variable. The findings, which reveal a combination of main and interaction effects are presented in the context of developing interventions for reducing the frequency of stimulant diversion on college campuses.



Student: Stephanie Spitz

Student Status: Graduate

Group Members: Sandra Cobos, Margaret Cook, Andrew Gloschen, Callieann Jackson, and Michael Weaver

Major: Psychology

Advisor: Dr. Ryan Speelman

Title: Use of Shaping and Reinforcement to Increase Speed of a Madagascar Hissing Cockroach in Timed Trials

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Abstract:

The purpose of our study was to shape a six-month-old Madagascar hissing cockroach to run a race track apparatus as quickly and accurately as possible. The participant, Giles was placed in the track and response latencies were recorded from the moment he touched the track until he reached the finish line. Accurately running the track resulted provision of oranges while failing to move or run resulted in a gentle nudge to his posterior side. Distance to the finish line was increased systematically beginning with one-third of the track, followed by two-thirds, and finally the entire 33 inches. Distances were only increased after observing a doubling of initial speed for each targeted distance. Preliminary data indicate that the participant learned to run two-thirds of the track using the aforementioned procedures. The experimenters anticipate that speed will increase as additional trials are conducted.



Student: HaGyung An

Student Status: Undergraduate

Major: International Studies

Advisor: Dr. Lauren Balasco

Title: Hidden Messages in Water: Understanding the Framing of Water Policies by Israel and Palestine

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Abstract:

While there is vast research on the water scarcity in Middle East and how it impacts Israel and Palestine, little is known in the framing of water policies developed by both Israel and Palestine and how it affects the geopolitics between Israel and Palestine (Ide & Fröhlich, 2014). This study seeks to investigate how Israel and Palestine each frame their water policies to both their respective population and identify if these water policies have implications on the continuous Israel-Palestine conflict. Examining specifically each states water management and use policies this study looks to uncover how these water policies can be framed in a way to be a propaganda tool to perhaps incite the on-going conflict between Israel and Palestine. Through media analysis and assessment of scholarship I hope that this study will shed a new light towards understanding the underlying tension and implications between Israel and Palestine through the outlook of each states way of framing their own respective water policies.



Student: Hank Cloninger
Student Status: Undergraduate
Major: Accounting
Advisor: Dr. Cheryl Geifer
Title: Sit-to-Stand Desk on College Campuses

97

Abstract:

Every participant has indicated having musculo skeletal discomfort during working hours of the week. Often these people are sitting for at least 20 hours a week. The purpose of this study has been to incorporate sit-to-stand desks for people in order to alleviate musculo skeletal discomfort by periodic sitting and standing throughout their work week. The materials and methods for this study includes trial periods for students and employees to use sit-to-stand desks and see the difference in their comfort after a period of time. Although this is an ongoing study, the results so far have shown participants to have less fatigue and discomfort when using sit-to-stand desks.



Student: Ethan Crockett
Student Status: Undergraduate
Major: Political Science
Advisor: Dr. Lauren Balasco
Title: Not-So-Extreme-Vetting: The 2016 Election

98

Abstract:

I will be asking the question, why did Donald Trump overcome the controversy/scandals of his presidential campaign to become elected. The purpose of this activity will be to examine the election process in the United States and evaluate how candidates go through a vetting process from the public. I will examine the campaign by looking at public opinion data and literature. I will also be looking at the aspect of the vetting process that the electorate goes through during election periods and how that seemed to fail during this election. I will be citing several books including Political Scandal: Power and Visibility in the Media Age by John B. Thompson. As my research is ongoing I do not have results or a conclusion at the moment but will during my presentation



Student: Ashley Denton
Student Status: Undergraduate
Group Members: Tiffany Garcia
Major: Social Work
Advisor: Dr. Hyejoon Park
Title: The Effect of Mental Illness on Active Duty or Veteran College Students

99

Abstract:

There is a sizable amount of college students who are veterans or active members of the military. Regardless of this population, little is known how mental illness affects these students and what they do to sustain positive academic standing. There are few research studies about veterans or active military individuals who attend college and live with a mental illness. There are also few programs or assistance offered to the above individuals. This study aims to determine how prevalent an issue mental disorders play on college students with a present or past military duty. It also aims to determine how these students cope with their disorders and the stress of college courses. This study sampled two individuals for a qualitative view on mental illness and the military population of college students.



Student: Ashlyn Dowell
Student Status: Undergraduate
Major: Political Science
Advisor: Dr. Lauren Balasco
Title: The Rise of Right Wing Populism in the United States

100

Abstract:

The objective of this paper is to determine the major factors that led to the rise of right wing populism in the United States. With the close of the 2016 Presidential election, there are many unanswered questions concerning right wing populism. The United States currently is headed by a President who subscribes to right wing populist ideals, Donald Trump. Donald Trump campaigned vigorously on populist notions. With my paper, I hope to answer some of these questions posed by not only Americans, but by individuals around the world. These questions are of importance not only to individuals within the United States, as there seems to be a rise of populism around the globe. The rise of right wing populism within the United States can be attributed to four main factors: xenophobia, war on the media, economic, and security concerns. This paper will seek to explain the reasoning behind these common denominators.



Student: Kayla Drybread
Student Status: Undergraduate
Group Members: Tyler Cox and Hernan Enseldo-Diaz
Major: Social Work
Advisor: Dr. Hejoon Park
Title: Exploring How an Individual's Childhood Experiences Can Influence What Profession They Choose to Enter in Adulthood.

101

Abstract:

Adverse Childhood Experiences or ACEs have been proven to have a lasting health effect in adulthood. This research aims at discovering whether or not an individual's ACE score is insightful of what profession that person chooses to go into. Does a high or low ACE score determine if you go into a helping profession? If trauma was experienced in childhood, it could incline the individual to assist others. The sample included 30 individuals over the age of 18. Outcomes were measured by using both qualitative and quantitative research methods in the form of questionnaires and interviews. Each participant completed the ACE questionnaire, personal background information, and 10% of the sample was interviewed.



Student: Emily Fry

Student Status: Undergraduate

Group Members: Cameron Ginther, Ebony Harley, Hannah Ishmael, Adilet Makhanbetali, Amanda Robinson, Sydney Shields, Jodeci Turner, Sakshi Bhati, Kristin Chadd, Cody Cherry, Trevor Clark, and Lynzee Flores

Major: Sustainability, Society & Resource Management

Advisor: Dr. Alicia Mason

Title: Assessing the Impact of Narratives Regarding the DAPL

Abstract:

The Dakota Access Pipeline "DAPL" is a new \$3.7 billion dollar, 1,172-mile, 30-inch diameter pipeline designed to transport crude oil across 4-states in the U.S. The recent public scrutiny of this development lead to months of protestors from locals and advocacy groups asserting the development will undermine the quality of the natural resources including water and soil, as well as disturb the sacred lands of indigenous populations. In order to explore this further our study uses narrative theory a theoretical frame for understanding degree of influence these first-person accounts have on audiences_ perceptions toward the pipeline and the developers. This study utilizes a 2 narrative (anti and support) x 2 (print/video) experimental design and received approval through the PSU Institutional Review Board (IRB). Data Collection occurred across a 2-week period from November 14-27, 2016. We used the Qualtrics online data capture system and recruited participants throughout the DAPL region with Amazon TurkPrime. Messages were randomized so that each participant received either a print or a video narrative message representing the dominant stakeholder groups classified as oppositional (e.g., native Americans, local communities, policy makers) and supportive (e.g., O&G industry, policy makers, and local community members). A manipulation check was performed to ensure the design of the experimental messages were perceived as professional. A total of 258 participants were included in the study with ages ranging from 18 to 50+ with (18.6%)- 18-23 yrs of age, (22.9%)- 24-29 yrs of age, (44.2%)- 30-69 yrs of age, and (14.3%) 50+ yrs of age. Respondents were 34.9% male and 65.1% female. Participants also varied in residency with 2.3% from ND, 5.8% in SD, 16.3% in KS, 13.2% in IA, 3.5% in MO, 54.7% in IL, and 4.3% in other locations. Other sample demographics such as race/ethnicity, education level, and marital status were also measured. Our poster documents the differences in public perception based on the format of the narrative as either print or video, and the impact of these narratives on behavioral intentions such as willingness to speak positively, negatively, and seek and share information online with social media. Limitations and discussions are addressed.



Student: Kolleen Gladden

Student Status: Undergraduate

Major: English and Graphic Communications

Advisor: Dr. Don Viney

Title: The Philosophy of Physics: a Theistic Approach

Abstract:

Over the last century, scientific discovery has led to incredible developments regarding the understanding of the natural world. However, as this knowledge increases, the same mystery appears; no discovery can be made without consciousness. Quantum physics has only began to encounter the interesting queries caused by perception and observation. This project discusses several tenets of the latest research including the Double Slit Experiment, the Two Dimensional Earth theory, and Dr. Robert Lanza's Theory of Biocentrism. Following the establishment of the research itself, this project then discusses the philosophical implications, particularly regarding theories such as the Multiverse theory and Theism, finally concluding that logic favors theism as the more probable theory.



Student: Avery Mielke
Student Status: Undergraduate
Major: Psychology
Advisor: Mr. Ryan Speelman
Title: Playing To Lose: Examining Blackjack Players
Choice and Win Probabilities

104

Abstract:

For most, gambling is a recreational experience. Of the available game options, blackjack is commonly advertised as offering the best odds, and is one of the more popular table games. For games of skill such as blackjack, player strategy will influence the odds of winning, and poor strategy will increase the cost of this activity. As gambling is colloquially speaking "more fun" when winning, methods designed analyze player choice and promote optimal strategies are of value. The purpose of this experiment was to evaluate the choices made by recreational blackjack players and the resulting win probabilities associated with these strategies. Players were shown 48 hypothetical hands and asked whether they would hit, stand, double down, etc. The odds associated with these strategies were calculated for each player and compared to the best possible strategy derived from mathematical models. Next, the predicted losses were graphed to provide a visual representation of how poorly the average recreational player performs in terms of expected losses. Results indicate recreational blackjack players made substantial deviations from optimal strategy, significantly inflating the cost of this entertainment. These players could expect vast improvements by referencing strategy tables that are commonly available. Simply educating gamblers on the predicted outcomes of their choices may promote responsible gambling by reducing the role of inaccurate rule following, superstition and other factors that contribute to irrational play.



Student: Skyler Morris
Student Status: Undergraduate
Group Members: Alyssa Goodwin, Michelle Sisneros,
Halie Terrell, Kalyn Deckard and Shannon Santoscoy
Major: Psychology
Advisor: Mr. Ryan Speelman
Title: Aversive Training

105

Abstract:

This study is looking at punishment and how a Madagascar Hissing Cockroach reacts to three different punishments. In our study, punishment refers to any change in a human/animals surroundings after a given behavior or response. The purpose is to condition the cockroach to view the sandpaper as a negative punishment and to escape the surface to a positive safe zone. The positive safe zone refers to the space in the box that is not lined with sandpaper. For week one the materials we used were a piece of sandpaper in the shape of a circle in a shoebox, a straw, a music speaker. For week two and on we decided the music was not working and changed the music speaker to and a pen for tapping. We started off by blowing puffs of air on him to see how long it would take him to get off. Second, we took the straw and poked him on the back area. Next we would take a pen and tap on the floor of the box behind the cockroach. We noticed that the longer the experiment continued on, the more defiant the cockroach would become. About half way through the trials he would stop going off of the sandpaper no matter what we were using to encourage him.



Student: Eli Oldham
Student Status: Undergraduate
Major: Biology
Advisor: Dr. Lauren Balasco
Title: Policies and Debates Surrounding Mitochondrial Replacement Techniques in the United States

106

Abstract:

In February of 2015, the United Kingdom officially legalized the use of controversial three-person in vitro fertilization (IVF) involving the mitochondrial replacement techniques (MRT), pronuclear transfer (PNT) and maternal spindle transfer (MST) (Callaway, 2015). These techniques can be used to help prevent mitochondrial disease from being passed down by the mother to her child and, in a recent case, has been used to help an infertile mother procreate (Dimond and Stephens, 2017), but these techniques are subject to ethical debates pertaining primarily around the study of human embryos and the potential progress towards editing and harming the human germline (Dimond and Stephens, 2017). This legalization of these techniques has allowed the Human Fertilisation and Embryology Authority (HFEA) of Britain to license clinics to carry out the procedures, something the FDA in the United States has yet to allow, although the UK's policy changes have influenced the US and others like it (Callaway, 2015; Haimes and Taylor, 2017). By observing the research studies and how they effected the policies revolving around the controversial technique in the UK, the ethical debates and political decisions of the US can be assessed to allow for a better understanding as to why the US is hesitant about legalizing MRT.



Student: Matthew Stross
Student Status: Undergraduate
Major: Political Science
Advisor: Dr. Lauren Balasco
Title: Fake News and Democracy

107

Abstract:

Despite its frequency of use during the 2016 U.S. Presidential Election, the phrase fake news suffers from incredible vagueness. That it should be easily understood, it requires a more exhaustive conceptualization and concreteness of definition, so that its use can be more fairly assessed. My research will proceed by answering the question, What is fake news, and what does it mean for a 21st century democracy? and thereby investigate the meanings, uses, and implications of the phrase, fake news. In order to do so, I have attempted to define the phrase in relation to other similar terms such as news and propaganda, and I have looked at the usage of the phrase in the context of political speeches, social media posts, and interviews, as well as in the broader context of everyday usage. Ultimately, I have argued, it is imperative that we begin to recognize the term for what it is, curb its usage, and learn to think more critically about the language that we use to express certain ideas. The phrase, especially as it has been used, may yield dangerous consequences for the individual, and for a democracy.



Student: Victoria West
Student Status: Undergraduate
Major: Fashion Merchandising
Advisor: Ms. Kalari Flotree
Title: 1930's Southeast Kansas Social and Political Elite,
as Told by Evening Gowns

Abstract:

Clothing, a tangible representation of economics, manufacturing, politics, and ethics is an important form of material culture that holds historical significance. Clothing has the power to communicate signs about a wearers culture, and place in society. For this study, two 1930s gowns from the Family and Consumer Sciences Historic Costume Collection at Pittsburg State University served as resources as they were used to explore the culture and status of prominent women in Southeast Kansas during the 1930s. During that period, Girard Kansas was the hub for Socialist news in the United States. Emanuel Haldeman-Julius, editor of the socialist newspaper Appeal to Reason, and later the author of Little Blue Books, was a prominent man from the area who lived in a luxurious home, threw elaborate parties, and was accustomed to an ornate lifestyle. Though many people in Southeast, Kansas were experiencing a drawn-out period of destitution during the 1930s, social events hosted by Haldeman-Julius were frequented by the social and political elite. The gowns used in this study served as examples of garments that were worn by the women who attended the parties of Haldeman-Julius. This study found that while uncertainty exists as to if these garments are connected to the Haldeman-Julius family, they, as material culture, are visual representations of the social status of the women who were a part of the 1930's Southeast Kansas social and political elite.



Student: Lucy Lotspeich
Student Status: Graduate
Major: Graphics Management
Advisor: Mr. Rion Huffman
Title: How to be a Better Graphic Designer for the Next Year

109

Abstract:

I have recently competed in the American Advertising Awards. I submitted six projects. Three were photography and the other three were for Pittsburg State University's Graduate and Continuing Studies office for advertising material. At the Addy's I did not receive any awards but I did receive great feedback from the judges. I am taking the constructive criticism and putting it to my advantage. I also researched some new trends coming out for graphic designers that could ultimately help me out in the long run.

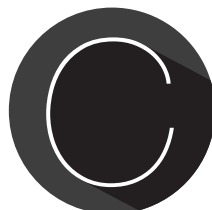


Student: Kristin Padilla
Student Status: Undergraduate
Major: Family Consumer Sciences
Advisor: Ms. Kalari Flotree
Title: Dress as Social Commentary and Art: A Study of Jimi Hendrix's Style-Fashion-Dress

110

Abstract:

Dress as Social Commentary and Art: A Study of Jimi Hendrix's Style-Fashion-Dress Jimi Hendrix, an iconic popular culture figure from the 1960s, was unconventional and complex. Hendrix was a celebrated musician and fashion influencer of his time. His visual appearance, like the postmodern dress of today, was curated, unapologetic, and intentional. This study explored the complexities of Hendrix's style-fashion-dress and used them to create a contemporary women's wear ensemble. This study found that the key components of his dress referenced socio-political and cultural influences. Hendrix's use of dress to communicate striking messages heavily influenced all aspect of ensemble creation; from concept through design. Overall, this study demonstrated that although the primary function of clothing is to dress the body, the ways in which the messages that it sends are perceived are, in many cases, of more importance.



Student: Katherine Sauter
Student Status: Undergraduate
Major: Graphic Communications
Advisor: Mr. Rion Huffman
Title: Bringing Intricate Details to Life with Automated Focus Stacking

Abstract:

Macro photography allows us to see extreme details of subjects that we typically cannot see with our naked eye. A major limitation of traditional macro photography however, is shallow depth of field. Due to the subject being so close to the lens, details become blurred and out of focus except for on a single plane of focus. To remedy this problem a photographer may attempt to use an extremely small aperture to extend the depth of field. The issue with this technique is that there must be a tremendous amount of light present to properly expose the subject, and using that amount of light might not even be possible depending on the circumstances. A more feasible alternative is to focus stack. Focus stacking refers to the technique of taking multiple images and stacking them together. Each image will be taken with focus placed on a different plane. These images can then be stacked together in image editing software, and the result is a perfectly focused imaged from the front of the subject all the way to the back. This practice is tedious, as it may require hundreds of shots to be stacked together. Focus stacking takes very precise instruments and dedication from the photographer; however, the result allows humans to see intricate details of the subject that would have only previously been able to be seen if under a microscope. This project aims to use automated focus stacking hardware and software to create incredibly detailed photographs of everyday items.



Student: Sanket Bhoyate
Student Status: Graduate
Major: Polymer Chemistry
Advisor: Dr. Ram Gupta
Title: Graphene-Based Materials for Supercapacitor Electrodes e A Review

Abstract:

The graphene-based materials are promising for applications in supercapacitors and other energy storage devices due to the intriguing properties, i.e., highly tunable surface area, outstanding electrical conductivity, good chemical stability and excellent mechanical behavior. This review summarizes recent development on graphene-based materials for supercapacitor electrodes, based on their macrostructural complexity, i.e., zero-dimensional (0D) (e.g. free-standing graphene dots and particles), one-dimensional (1D) (e.g. fiber-type and yarn-type structures), two-dimensional (2D) (e.g. graphenes and graphene-based nanocomposite films), and three-dimensional (3D) (e.g. graphene foam and hydrogel-based nanocomposites). There are extensive and on-going researches on the rationalization of their structures at varying scales and dimensions, development of effective and low cost synthesis techniques, design and architecturing of graphene-based materials, as well as clarification of their electrochemical performance. It is indicated that future studies should focus on the overall device performance in energy storage devices and large-scale process in low costs for the promising applications in portable and wearable electronic, transport, electrical and hybrid vehicles. This review article is studied and presented as literature review poster to provide brief overview about use of graphene in various super capacitor application.



Student: Basel Alkassab
Student Status: Undergraduate
Group Members: Christian Dalton
Major: Political Science
Advisor: Dr. Lauren Balasco
Title: Weapons of Mass Destruction in the Hands of Terrorists: How Should Countries Respond?

Abstract:

The rise in transnational criminal actors is a major problem for the global community. Globalization forces, porous borders, and the increase in terrorist activity are some factors forcing states to be more vigilant in preventing private actors - specifically terrorists - from obtaining Weapons of Mass Destruction (WMDs). In order to help countries contain the spread of this criminal behavior, the United Nations must be at the center of global dialogue, peace, and cooperation. This past February 2017, a student delegation from PSU attended the 57th Annual Midwest Model United Nations Conference in St. Louis, MO and represented Colombia. To prepare, students were responsible for researching an assigned topic and how their respective country would respond to it. In this poster presentation, members of the delegation will talk about their research related to WMD access by terrorists and how the country of Colombia has worked with the United Nations to ensure that countries adopt proper security protocols to prevent this access by criminal non-state actors.



Student: Aubri Ashbacher
Student Status: Undergraduate
Major: Nursing
Advisor: Dr. Barbara McClaskey
Title: Rivastigmine Patch Vs. Rivastigmine Pill

114

Abstract:

The Rivastigmine patch is the first of its kind. Until its creation, there were no transdermal patches on the market for mild-moderate Alzheimers patients. At this time, the Rivastigmine patch is still the only transdermal patch on the market for this group of patients. The purpose of this research is to identify if the Rivastigmine patch is better tolerated than the Rivastigmine pill in a patient with mild-moderate Alzheimers. The information was obtained by analyzing studies and reports in the form of a research analysis. There are many ways that the Rivastigmine patch can assist Alzheimer patients. One of the benefits of the patch is that it isn't an oral medication, so patients with swallowing disorders can use it. Another benefit to the patch that caregivers tend to prefer is its ease of use and schedule. Overall, patients tend to be more compliant in using the patch verses the pill. Studies are showing that patients are also tolerating the patch better than the pill. New research is even demonstrating that the patch is improving patient conditions better than previously used treatments.



Student: Yi-hsueh Chu
Student Status: Undergraduate

115

Major: English
Advisor: Dr. Phil Rudd
Title: Sentence Analysis of Zusak's *The Book Thief*

Abstract:

*The Book Thief, by Markus Zusak, is a well-sold novel that tells a story of the German society under Nazi control during World War II from Death narrating the life of Liesel Meminger. Literature can be studied and analyzed in different specialized literary perspectives. Such a study requires a higher English proficiency on certain fields, such as grammar. This project is intended to analyze Markus The Book Thief from a syntactic point of view. Traditional diagramming was employed to access the sentence structures, sentence patterns, tenses, and voices in Zusak's writing. The finding shows that Zusak used simple, complex, and indicative sentences in the past tense and active voice to construct most of his writing in *The Book Thief*.*



Student: Megan Goul
Student Status: Undergraduate
Major: Nursing
Advisor: Dr. Barbara McClaskey
Title: Debriefing After Code Blue

116

Abstract:

The purpose of this research is to identify if initiating a staff debriefing after a resuscitation improved the involved staffs well-being, improved communication in future critical care events and improved patient care. A long code blue, or a resuscitation on a young child can have a profound effect on the staff involved, and most hospitals do not have a structured plan in place. Some staff find time to talk about their feelings during down time, but some must pick up their normal routine shortly after being involved in a critical care event. There is also research that shows a fast paced, high stress environment can lead to a communication disconnect, where errors can occur. Although there is a need for more research, trials have shown that debriefings allow for the staff to connect after a critical care event discuss what went right during the code, ways to improve for the next resuscitation, and offer an environment to discuss staff feelings.



Student: Meagan Hamman
Student Status: Undergraduate
Major: English
Advisor: Dr. Phillip Rudd
Title: Chuck Palahniuk's Rant Sentence Features

117

Abstract:

Starting as a journalist and slowly moving into fiction writing; Chuck Palahniuk is now a National Bestselling author, with nine of his works making the list. One of those is Rant, which is written in the style of an oral biography. This novel takes on the role of experimental narrative; where the story is told through several different people who contradict one another; change their statements, and leave the reader confused. Chuck Palahniuk's goal, which he achieved, was to make the reader question whether the characters themselves believe anything of the story. Through this paper, the twists and turns of Rant will be analyzed through traditional diagramming and word study. Specifically, this study will discover Chuck Palahniuk's writing style; his preferred sentence structures; the tense and voice. As stated above, the methods used will be the traditional diagramming using the Reed-Kellogg system, to present a visual representation of the author's writing style. The results show that Chuck Palahniuk uses compound-complex, declarative sentences in the present tense and active voice.



Student: Sara Huffaker
Student Status: Undergraduate
Major: Nursing
Advisor: Dr. Barbara McClaskey
Title: Prevention Care and Incidence of Human Papillomavirus (HPV)

118

Abstract:

The review of clinical trials and several peer-reviewed research articles indicates an overwhelming trend of the importance of vaccinating adolescents for the Human Papillomavirus (HPV). Vaccination can decrease the cost of care in comparison to contraction of the disease and can prevent strands of ovarian cancers in young girls. Continual research on this topic can lead to greater prevention from the virus, thus leading to healthier lives and possible elimination of unnecessary death. The age range in which is recommended for vaccination varies but has been documented from eleven to twenty-three years of age. Due to the primarily adolescent age range, the need to educate and inform parents, as well as the adolescents, on the potential risk of HPV and the high success rate of vaccination is a priority.



Student: Lauren Humbard
Student Status: Undergraduate
Major: Nursing
Advisor: Dr. Barbara McClaskey
Title: A Look into Education Measures Regarding Cardiopulmonary Resuscitation

119

Abstract:

The purpose of CPR is to save life. However, there is concern the general populace is not given enough information about the effects of CPR on a patient's body, particularly if there are comorbidities to be considered. There is extensive research into the effect medical technology has on the extension of a patient's life. As a natural consequence, there is concern this prolongation leads to unnecessary suffering by medically fragile patients. This research review explored the studies on education measures to facilitate effective end of life decision making regarding CPR by patients admitted into hospitals. CPR measures are currently the default treatment measures. There have been several policies put into place by hospitals to address this issue. The Do No Harm policy gives doctors the ability to withhold CPR when patients are deemed medically unfit. Shared Decision Making attempts to incorporate the patients family into the decision process. However, there is evidence that the decisions made are not documented in the patient's chart or carried into the patient's medical record accurately, and that family members may not uphold wishes amidst changing and uncertain medical prognoses. One area that could be researched is the effectiveness of current interventions aimed at improving end of life decision making. If the proven measures are not effective, there should be a change in the current practice, and a better way of dealing with this sensitive issue researched and sanctioned.



Student: Kristen Martin
Student Status: Undergraduate
Major: Nursing
Advisor: Dr. Barbara McClaskey
Title: Utilizing Tissue Plasminogen Activator

120

Abstract:

Cerebral vascular accidents, more commonly referred to as strokes, happen daily but many people do not know the initial signs and symptoms. A review of literature on strokes reveals that it is essential that an individual who has the early signs of a stroke get to the hospital within a three-hour window to receive the proper treatment and perhaps prevent the progress of a stroke. Tissue plasminogen activator (tPA) is the only treatment available for strokes, and it is extremely under-utilized. It dissolves the clot and improves blood flow to the part of the brain being deprived of blood flow. Studies have shown that patients that have received tPA have recovered fully or have less disability and are less likely to need long-term care in a nursing home. If more people knew the signs of a stroke, especially those at high risk, more people would receive prompt, proper treatment resulting in a better quality of life.



Student: Emma Martinie
Student Status: Undergraduate
Major: Biology
Advisor: Dr. Phillip Harries
Title: Consumption of Sugary Beverages and Type II Diabetes in Middle-aged Women

121

Abstract:

Weight gain and type II diabetes is a growing health concern in the United States due to lack of a healthy lifestyle. A cohort study was conducted along an eight year span to measure the effect of weight gain and type II diabetes due to sugary beverages. This was a prospective studied that followed up with many middle-aged womens health every couple years. The results confirmed that having a sugary beverage once a week will not cause remarkable health effects, but if women drink more than one sugary beverage a day they are placing themselves at risk for weight gain and type II diabetes. It is crucial to promote healthy lifestyles and provide information so the population of this country can be knowledgeable of these health risks.



Student: Taylor Mason
Student Status: Undergraduate
Major: Nursing
Advisor: Dr. Barbara McClaskey
Title: Use of Intrauterine Balloon Devices in the Treatment of Postpartum Hemorrhage

122

Abstract:

Postpartum hemorrhage is the leading cause of maternal mortality worldwide and estimated to be responsible for around 140,000 deaths each year, or one death every 4 minutes. Medications alone cannot always prevent or treat postpartum hemorrhage, and thus the use of intrauterine balloon devices has been explored. Balloon devices have shown great success in helping prevent hysterectomies and in helping decrease maternal mortality. Industry advances have improved the medical technology utilized with intrauterine balloon devices. There are at least a six different balloon devices in use today. In this research I studied three of the most commonly used devices. The Bakri balloon, the Rusch balloon, and the condom catheter balloon have all shown positive results in treating postpartum hemorrhage. In this evidence-based project, the poster summarizes the use and outcomes of each.



Student: Mercedes McGuire
Student Status: Undergraduate
Major: Nursing
Advisor: Dr. Barbara McClaskey
Title: Increasing Breastfeeding Rates

123

Abstract:

The World Health Organization recommends that infants be breast fed exclusively for the first six months and then breast fed with supplementation of age appropriate foods until two years of age. The United States shows breastfeeding rates exclusively for six months at 16.5%. An increase in the prevalence and duration of breastfeeding could decrease incidences in several chronic diseases such as obesity, cardiovascular disease, diabetes, and certain cancers, which account for 88% of deaths in the United States every year. The benefits of breastfeeding are something that nurses and doctors who work with mothers and infants should be aware of and should be educating their patients. Other educational deficits include the ability to help with common breast feeding problems, milk supply issues, attachment issues, and even, sore cracked nipples. Review of the literature provides evidence that all health care providers in the United States are not equipped with the knowledge to help educate mothers or to promote breastfeeding. Because of this, a national standard of education and training for health care providers should be implemented to promote and support breastfeeding, and in turn, increase the prevalence.



Student: Tony Milano
Student Status: Undergraduate
Major: Nursing
Advisor: Dr. Barbara McClaskey
Title: Using Chlorhexidine Gluconate and Tooth Brushing To Reduce Ventilator-Associated Pneumonia in the Intensive Care Unit

124

Abstract:

Ventilator-associated pneumonia is one of the most common infections in the intensive care setting. This infection often occurs secondary to the placement of an endotracheal tube in a patient's trachea, known in nursing as intubation, to supplement an artificial airway. This tube is then attached to a mechanical ventilator, which will then act as the patient's secondary means of respiration. Hospitals often try to develop new techniques to prevent these nosocomial infections from taking place while using evidence-based practice. Chlorhexidine is an antiseptic chemical used to prevent infection in various settings of the hospital. The use of chlorhexidine oral solution along with tooth brushing has been shown to greatly reduce the risk of VAP after intubation.



Student: Courtney Medsker
Student Status: Undergraduate
Major: Nursing
Advisor: Dr. Barbara McClaskey
Title: Food Protein-Induced Enterocolitis Syndrome

125

Abstract:

Food Protein-Induced Enterocolitis Syndrome, also known as FPIES is a non-IgE mediated food allergy that affects children from 6 months to 5 years of age. Acute reactions can become life-threatening leading to aggressive treatment. The biggest problem facing children with FPIES is the lack of awareness among healthcare providers. Research shows that this condition is unrecognized by most pediatricians and emergency department physicians, which often leads to misdiagnosis and reoccurring episodes. Educating healthcare providers about FPIES can result in early diagnosis and improved treatment plans for children suffering from this condition. Parent education on the disease process, symptoms, and triggers can lead to increased treatment compliance and lower incidence of reactions. An assortment of scholarly research articles supports the severity of FPIES and the lack of recognition of the condition throughout the medical field. Addressing the lack of awareness of Food Protein-Induced Enterocolitis Syndrome and conducting widespread education among pediatricians and emergency room personnel can result in early treatment initiation and improved family education.



Student: Abbie Moore
Student Status: Undergraduate
Major: Nursing
Advisor: Dr. Barbara McClaskey
Title: Animal Therapy and Children Receiving Treatment

126

Abstract:

I researched the benefits of animal therapy with children receiving medical treatment. I created a poster with my information.



Student: Cassandra Ngo
Student Status: Undergraduate
Group Members: Kourtney Endicott
Major: Political Science
Advisor: Dr. Lauren Balasco
Title: Criminal Accountability of UN Peacekeepers: How Should Countries Respond?

127

Abstract:

One of the main responsibilities of the United Nations is to maintain international peace and security through its peacekeeping forces. While peace operations have been in existence for decades as a means to manage and prevent conflict, recent scandals involving peacekeeping troops have hurt the credibility of UN missions. Although peacekeepers contribute significantly in providing peace and security, they have been associated with allegations of sexual exploitation as well as abuse of their power in the places they are assigned to protect. As such, the United Nations is currently developing policies and programs to prevent such crimes from occurring in the future. This past February of 2017, a student delegation from PSU attended the 57th Annual Midwest Model United Nations Conference in St. Louis, MO and represented Colombia. To prepare, students were responsible for researching an assigned topic and how their respective country would respond. In this poster presentation, members of the delegation will talk about their research on criminal accountability of United Nations peacekeeping forces and how the country of Colombia has worked with the United Nations to ensure that crimes are properly investigated and prosecuted by the United Nations.



Student: Madison Palmer
Student Status: Undergraduate
Major: Nursing
Advisor: Dr. Barbara McClaskey
Title: Water-Birth: Benefits and Risks

Abstract:

The trend of water birth among the world population is one that ebbs and flows. In recent years, it has once again become popular. Many expectant mothers are leaning toward natural child birth and, in turn, the incidence of water birth is on the rise. Although there is not much in regards to recent research on the subject, what has been done has shown multiple benefits to the water birthing process. Benefits for the mother include promoting relaxation, reducing episiotomy rates, and pain relief to name a few. There also are benefits for the baby, such as providing an environment that is similar to the mother's womb promoting less stress to the newborn. There continues to be concerns regarding risk to the newborn, however, the review of the literature has not supported that concern if the birth process is managed with appropriate guidelines. The water birth process varies with each pregnancy, but the general concept is the same throughout. The mother enters a pool or tub filled with warm water typically up to her breasts. While the mother can choose to get out of the water at any time, it is recommended that she stay in the water for at least one hour to determine its effectiveness. There are many birthing centers and even a few hospitals that facilitate water birth. It is important to note that there is not a right or wrong course of action: it is simply what one prefers.





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