



a Celebration of
Scholarship
EDINBORO UNIVERSITY

April 6, 2016

Welcome: Greg Morrow

April 6, 2016

Dear Students, Faculty, Staff, and Guests,

It is my pleasure to welcome you to Edinboro University's third annual *Celebration of Scholarship*, recognizing a variety of student-faculty accomplishments. Students at Edinboro have a wide variety of opportunities open to them as they pursue their degrees. One of the most exciting of these is the chance to work collaboratively with our outstanding faculty and their fellow students on research and other forms of scholarship. Today's *Celebration of Scholarship* gives us the opportunity to both recognize the hard work and accomplishments of our students and their faculty mentors, and to connect with students and faculty from across the university. Too often we narrow our focus to our own departments and academic interests and consequently miss opportunities to expose ourselves to the many outstanding accomplishments occurring on campus. One of the most rewarding aspects of my involvement in the *Celebration of Scholarship* over the past three years has been the opportunity to learn more about the excellence in collaborative research and scholarship that takes place across our campus. These accomplishments are certainly something to celebrate and commemorate!

As I noted above, this is our third annual *Celebration of Scholarship*. The *Celebration of Scholarship* continues, however, to be a work in progress. If you have suggestions, comments, or recommendations please don't hesitate to bring them to me or to any member of the *COS* planning committee.

In closing, I feel very fortunate to be a part of a vibrant university with exceptional colleagues, students, and staff members and I hope that each of you feels this as well. Thanks to all of you for being a part of excellence at Edinboro!

Best wishes and thank you for your attendance,

Gregory Morrow, Ph.D.
Department of Psychology
Co-Chairperson: Celebration of Scholarship Planning Committee

Acknowledgments

The Celebration of Scholarship Committee would like to thank:

Reviewers

Dan Bennett	Ivan Chompalov	Patricia Claster	Sam Claster	John Dexter
Karen Eisenhart	Qun Gu	Joyce Jagielo	Cindy Legin-Bucell	Richard Lloyd
Susan Maloney	Anthony McMullen	Tim Meyer	Greg Morrow	Denise Ohler
Bill Pithers	Doug Puharic	George Richards	Eric Straffin	Ted Yeshion

Judges

Celebration of Scholarship Awards

Dan Bennett	Patricia Claster	Sam Claster	Matt Foradori	Qun Gu
Jingze Jiang	Erinn Lake	Cindy Legin-Bucell	Karen Lindeman	Richard Lloyd
Mary Jo Melvin	Tim Meyer	David Obringer	Doug Puharic	Jane Puhlman
George Richards	Eric Straffin	Rick White		

Provost's Choice Award

Provost Michael Hannan Dean Nathan Ritchey Dean Scott Miller Dean Alan Biel Judith Kubeja

Additional Thanks To:

- Dr. Joyce Jagielo: Program Editor
- Dr. Joyce Jagielo: Abstract Review and Judge Coordinator
- Dr. Michael Hannan and the office of the Provost for the Provost's Choice Award prize.
- Dr. Nathan Ritchey for the prizes for the College of Science and Health Professions Award prizes.
- Dr. Scott Miller for the prizes for the College of Arts, Humanities and Social Sciences Award prizes.
- Dr. Scott Miller for the prizes for the School of Business Award prizes.
- Dr. Alan Biel for the prizes for the School of Graduate Studies and Research Award prizes.
- Mr. William Berger for assistance in designing the program and the COS logo.

Celebration of Scholarship Planning Committee

Gregory Morrow (Co-Chair)	Qun Gu (Co-Chair)	Samuel Claster	Theodore Yeshion
Amy Mcclune	Eric Straffin	Joyce Jagielo	Timothy Meyer
Patricia Claster	Judith Kubeja	Dan Bennett	

Schedule

12:00 to 1:00 Poster Setup

1:00 to 3:00 Closed Reviewing

3:00 to 5:00 Poster Exhibition/Judging

5:00 to 5:30 Light Refreshments

5:30 to 6:00 Program Closing and Presentation of Awards

- Welcome: Dr. Michael J. Hannan, Provost
- Awards

All activities take place in the Multipurpose room of the Pogue Student Center.

April 6, 2016

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College of Arts, Humanities and Social Sciences

DIGITALITY, SOCIALITY AND THE SELF

Aidan McCracken

Sociology

Project Advisor(s): Irene Fiala, Patricia Cluster

Poster Number: 1

Assimilating Internet-enabled, socially connective digital devices into a coherent understanding of contemporary interpersonal relations and the processes of self-conceptualization is integral to the continued relevance of the social sciences going forward. Not only do these newly found modes of cyberconnectedness allow users the ability to access an immense, aggregated sum of human knowledge electronically regardless of physical location, they also provide them with the means by which to interface with one another in the same way: lifted from the confines of temporal and spatial limitations. With this comes a necessity to evaluate these new modes of social interactivity and information diffusion so as to better understand how they either serve as platforms from which dominant, codified and spatially located social orders and identities are reaffirmed or instead as the site of incubation and sustenance for new, counternormative identities. To explore these conflicting potentialities, this presentation for the Celebration of Scholarship will provide both a theoretical background on the divergence of these oppositional models of information diffusion (principally drawing upon the “aborescent” and “rhizomatic” typologies advanced in the works of G. Deleuze and F. Guattari) alongside an explanation of varying experimental strategies conducive to exploring the interplay between personal identity and social group affiliation with digitally connective technologies

Poster
CAHSS-1

PUBLIC PERCEPTIONS OF POLICE LEGITIMACY AND TRUSTWORTHINESS

Annie Cable, Cody Haag

Criminal Justice

Project Advisor(s): Kevin Courtright, Deborah Vegh

Poster Number: 2

Research demonstrates that the public perception of law enforcement fairness is more significant in shaping legitimacy than effectiveness. (Katz, 2015). When people believe they have been dealt with fairly, they are less likely to feel that the police bullied them. (Mazerolle, Antrobus, Bennett, & Tyler, 2013). In the wake of recent national incidents that resulted in fatalities, law enforcement has been portrayed in a negative light. Due to this, citizens may question the trust placed into law enforcement, and even the legitimacy of police. This study seeks to address public perceptions of police legitimacy and trustworthiness. A news clip, uploaded by CNN to YouTube, titled “New Video Shows Arrest of Freddie Gray,” received 1.9 million views and 4,477 comments. Using content analysis and a systematic random sample of comments, nine thematic categories were ascertained, including police legitimacy, support for actions, blame placed on the police, blame placed on the media, sympathy towards the victim, and the need for more evidence. These findings are consistent with other research in the field that addresses trust and legitimacy of law enforcement.

Poster
CAHSS-2

A STUDY OF THE USE OF LUMINOL IN BATTLEFIELD ARCHAEOLOGY: THE REVOLUTIONARY WAR BATTLE OF BENNINGTON

Eric Bennett, Bethany D. Scott

Political Science and Criminal Justice

Project Advisor(s): Theodore Yeshion

Poster Number: 3

Poster
CAHSS-3

Luminol is a forensic investigative tool and presumptive blood test that provides chemical indications for the presence of trace amounts of blood. In fact, the sensitivity of Luminol is exceptionally high with an ability to detect one part blood in one million drops of water. This is the same sensitivity that a shark has to find blood in the ocean. This forensic tool has also been used in civil matters as well as in areas of interest to archaeologists and historians by providing assistance in a variety of reconstructions. Two such forensic reconstructions involved artifacts recovered from the Revolutionary and Civil War battles. In this presentation, students Eric Bennett and Bethany Scott, who worked under the direction of Dr. Ted Yeshion, will discuss the methods and results of Luminol testing which was conducted on ammunition samples recovered from the Revolutionary War's Battle in Bennington, NY.

LEARNING TO STARVE IN AMERICA

Kristen Hall

Sociology

Project Advisor(s): Ivan Chompalov

Poster Number: 4

Poster
CAHSS-4

This study looks at the effects of declining nutrition in the food industry on children's health in the United States. This country is facing an epidemic of childhood obesity rates, as well as an overall increase in poor nutrition related illnesses in children such as type two diabetes, early menstruation, high blood pressure, and cavities. This study utilizes data from the CDC, USDA, ERS, FEACHR, and the FDC, among other valid sources. While focusing on data specific to the United States, findings indicate that high poverty and low income homes tend to have higher rates of malnutrition among children. Children that partake in school lunches rather than bring lunch from home also have higher rates of food related problems. Educating children and parents on proper nutrition is a great start, but will not solve the overall problem. Providing fresh nutritious foods, and making other healthy choices available to students during school hours is vital to making a difference in this country.

PUBLIC'S PERCEPTION OF POLICE BODY CAMERAS: DOES THE PUBLIC PERCEIVE THESE DEVICES AS USEFUL IN REDUCING POLICE USE OF FORCE?

Kyle Boocks, Josh Holman

Criminal Justice

Project Advisor(s): Kevin Courtright

Poster Number: 5

Keywords: excessive force, police body-worn camera, police use of force, the social

This study examines a content analysis on the public's perception of police use of force. The research question explored in this study is **what the public's perception of body cameras worn by police officers is and whether or not it perceives these devices as useful in reducing police use of force**. In order to examine these, a YouTube video entitled "Can Body Cameras End Police Brutality?" and its comments were evaluated using content analysis. The video was posted by TestTube News in August 2014 and currently has over 80,000 views. It covers (1) a petition to the White House for a new law called the Michael Brown Law; (2) the evidence found of police body cameras working to reduce police use of force; and (3) the issues of requiring police to wear body cameras. There were 315 comments on this video at the time this study was conducted in Fall 2015. Coding rules were developed to determine whether or not the public perceived police body cameras as useful in reducing police use of force by counting the number of times each theme appeared in the data. In performing a content analysis, 18 themes were discovered in the data. These themes were ascertained by watching the video and reading its comments twice. Findings support that the public does consider these devices to be useful in reducing police use of force; however, this support was not as high as anticipated. Public comments reflect more concern with perceived or actual problems arising out of the police utilizing body cameras. Nevertheless, a review of the literature on police body cameras suggests that these devices look to be promising as a factor in reducing police use of force.

Poster
CAHSS-5

A THEORETICAL ANALYSIS OF BULLYING IN SCHOOL-AGED CHILDREN AND ADOLESCENCE

Laura Chandler

Sociology

Project Advisor(s): Samuel Claster

Poster Number: 6

Poster
CAHSS-6

The purpose of this poster is to explain what bullying is and how it impacts the children involved. The definition of bullying is that it is a behavior that people engage in to repeatedly attack or intimidate others either physically, verbally, or psychologically with the intention to cause fear, distress, or harm to the victim. Children can be involved in the dynamic either as bullies, victims, victim-bullies, or as bystanders. Bullying has many social and psychological impacts on development for all those involved; not just the victims. Some of the effects include social ostracism, aggression, impulsivity, and a host of learning and cognitive deficits including Conduct Disorder, ADHD, and social anxiety. The choice of victims is a result of power imbalances already in place; victims are typically already marginalized when targeted for bullying as that is a protective factor for the bully. The less liked the victim is, the fewer social sanctions they may receive for choosing that victim. The reason bullying is such a huge detriment to development is rooted in identity theory as well as goal-framing. Children are still creating their own sense of self, and if they are involved with bullying that sense of self gets skewed and they begin to view the words “victim” and “bully” less of a label and more of a role they are expected to play. In short, that word becomes part of their identity.

College of Science and Health Professions

DIGITIZING FORESTED VS. NON-FORESTED AREAS OF THE FRENCH CREEK WATERSHED OF NORTHWESTERN PENNSYLVANIA

Dara Wilson

Geosciences

Project Advisor(s): Karen Eisenhart

Poster Number: 7

The French Creek Watershed spans approximately 1,235 square miles, most of which lies in northwestern Pennsylvania. This watershed is renowned for its fairly pristine waters and original aquatic diversity. The upland portion of the watershed has been less studied when compared to the stream itself. Yet uplands are important because they can impact the quality of the water that travels through the watershed. For example, an invasive insect species, Hemlock Woolly Adelgid, has been discovered just to the east of the watershed in Cook Forest and is anticipated to have a major impact on the structured areas within the forest. The goal of my project was to construct a map that differentiated forested and non-forested areas within the French Creek Watershed. This was the first step in a multi-step project that will map conifer forest patches, specifically hemlocks, throughout the watershed. The forest versus non-forest map was created by combining 160 ortho-photos (aerial images) and then clipping them into the shape of the watershed. I then hand digitized (the process of converting geographic features of a map into digital polygons) the forested and non-forested areas for over 300 hours to produce the county maps. My next step is to try to discriminate conifer patches within the forest shapes. Once the remainder of this project is finished, the hemlock map can then serve as a tool for environmental protection groups tracking the Hemlock Woolly Adelgid. One of the groups that will be using the finished map is the French Creek Valley Conservancy. This is an environmental group devoted to protecting the quality and biodiversity of the French Creek Watershed.

Poster
CSHP-1

THE SEARCH FOR ANGIOGENIC INHIBITORS IN THE HEMOLYMPH OF THE ORB-WEAVING SPIDER, *ARANEUS DI- ADEMATUS*

Jessy Wall, Cassidy Christian, Abigail Warner

Biology

Project Advisor(s): Matthew Foradori

Poster Number: 8

Angiogenesis is the normal physiological process of generating new blood vessels; it can also be involved in the production of disease (eg. tumor angiogenesis). Small tumors are limited to 1 -2 cm³ in size in the absence of a blood supply. If small tumors can establish a blood supply, they can grow rapidly. Tumor angiogenesis occurs when growth factors stimulate the proliferation and migration of endothelial cells in blood vessels, causing complications in blood flow or diminishing organ function. Angiogenesis inhibitors are a wide variety of compounds that have the ability to inhibit the growth of new blood vessels, thereby slowing the growth or spread of tumors. Hemolymph is a blood-like fluid in spiders, primarily involved in respiration. Components of the hemolymph from *Argiope aurantia*, known as protease inhibitors, were found to inhibit the action of enzymes found in the gut of insect prey. These inhibitors are similar in function to a class of angiogenic inhibitors called tissue inhibitors of metalloproteases or TIMPs. The protein components of pooled hemolymph from several female *Araneus diadematus* were fractionated using ion-exchange chromatography. These isolated protein fractions were assayed for their ability to inhibit bovine aortic endothelial cell (BAOEC) proliferation and migration.

Poster
CSHP-2

THE EFFECTS GLYPHOSPHATE HAS ON ORGANISMS AND THEIR ENVIRONMENT

Allison Beck

Biology

Project Advisor(s): Nina Thumser

Poster Number: 9

Recent laboratory research has shown that glyphosate-based weed control products such as Round-Up® have had adverse effects on nontarget organisms, specifically earthworms. This product is among the most widely used herbicide in the world, commonly being sprayed on crop fields. If it does have a negative impact on nontarget organisms in the field, it could also be harmful to humans through the food chain. The purpose of this research was to investigate and record the effect a glyphosate-based herbicide has on the distribution and abundance of naturally occurring soil macrofauna. The design of this study was to record and compare the diversity and abundance of soil macrofauna among a field treated with one glyphosate-based herbicide, one treated with a non-glyphosate-based herbicide, and one treated with no herbicide at all. The Simpson Biodiversity Index indicated the most diverse field was the field sprayed with the glyphosate-based herbicide next was the untreated field and least diverse was the field sprayed with other herbicides. However, for the order of abundance of soil macrofauna the greatest number was in the non-glyphosate field, next was the untreated field, and least was the glyphosate field.

Poster
CSHP-3

FOREST STRUCTURE OF HOWARD FALLS LAND TRUST

Angela Johnson, Allison Kosmiski, Brian Oesterling

Geography

Project Advisor(s): Karen Eisenhart

Poster Number: 10

The study took place at Howard Falls Land Trust in Franklin Township in Erie County, Pennsylvania. This land was once cleared for agriculture, but it was abandoned in the early twentieth century and has since reverted back to forest. Our goal was to characterize the forest structure in three separate plots at the north end of the property; this is part of an ongoing project to characterize the forests across the entire land trust. We used the belt transect method to record tree species and size. We used the line-intercept method to record downed woody material. Lastly, we measured the litter depth of each plot with a standard ruler. Combining the data, we were able to see a distinct difference between plots 1 and 2 and plot 3. The results showed that *Acer rubrum* (red maple) was dominant throughout all three plots, especially in plots 1 and 2. This, combined with the presence of *Fraxinus americana* (white ash), suggests an early successional forest setting. However, there was clearly a size difference with regards to the tree diameters. In Plot 3, the average tree diameter was 45 centimeters, whereas all trees in the other plots were this size or smaller. All trees were 45 cm in diameter or less in the first 2 plots. In plot 3, this was the average size. Plot 3 also had a noticeably deeper litter depth, with more logs and debris on the ground at more advanced stages of decay. The results are typical of early successional, Eastern deciduous forest development on post agricultural land. The size of the trees and logs and the depth of litter suggest plot 3 is reverting back to forest at an earlier date.

Poster
CSHP-4

USING THE LEAP MOTION CONTROLLER TO CONTROL A LEGO NXT HAND

Anthony Sartoris

Computer Science

Project Advisor(s): Dan Bennett

Poster Number: 11

The Leap Motion is a device which tracks hand motions in 3D space. The LEGO NXT is a programmable robotics kit that comes with servo motors. Advances in computing technology have made it easier to link different hardware and software together which paves the way for implementations of new technologies. The goal of this project is to combine multiple pieces of hardware and software across several programming languages to control a LEGO NXT robot with a human hand. This poster will discuss the process of controlling LEGO NXT robots with human hands, the tools used to achieve this, and the difficulties encountered.

Poster
CSHP-5

PASCAL'S THEOREM: A EUCLIDEAN APPROACH

Bradley Wolfe

Mathematics

Project Advisor(s): Richard White

Poster Number: 12

Poster
CSHP-6

We shall give a direct proof of Pascal's theorem, which states that if six arbitrary points are chosen on a circle in order to form a simple hexagon, then the three pairs of extended non-parallel opposite sides of the hexagon intersect at three points that are collinear.

ORBITS IN DIFFERENT SPACE-TIME METRICS

Domenico Andreoli

Physics

Project Advisor(s): Richard Lloyd

Poster Number: 13

Poster
CSHP-7

The project determined a planar orbit of a particle with mass m for three different cases. The first is the Newtonian case, an orbit around a star. The second case is an orbit in the Schwarzschild metric, a static non-rotating black hole. Finally, the third case is the Kerr-Newman metric, a rotating, charged black hole. Each case was examined with the particle at the same impact parameter. MATLAB was utilized to make plots of the radial coordinate $1/r$ versus the angular coordinate ϕ for each case for comparison between each of the cases.

THE SEARCH FOR INHIBITORS OF ANGIOGENESIS IN THE HEMOLYMPH OF THE CORN FURROW SPIDER, *LARINIOIDES CORNUTUS*

Elizabeth Rudzki

Biology

Project Advisor(s): Matthew Foradori

Poster Number: 14

Poster
CSHP-8

Angiogenesis is the process by which new capillary blood vessels are generated and is a natural physiological process. If a cancerous tumor can signal angiogenesis, it can connect itself to a blood supply that will allow it to grow exponentially. The tumors that send out these signals to stimulate the proliferation and migration of new endothelial cells can cause diminished blood flow to other organs in the body. Our research examines fractions of *Larinioides cornutus* hemolymph for the presence of angiogenic inhibitors. Spider hemolymph has been shown to contain protease inhibitors that are similar in function to TIMPs (tissue inhibitors of metalloproteases), a class of angiogenic inhibitors. Hemolymph from 20 *L. cornutus* was fractionated using a Bio-Rad EG-1 Econo Gradient Pump with a Bio-Scale Mini UNOsphere Q sepharose column. These fractions were then introduced to bovine endothelial cells (BAOEC) to assess their ability to inhibit proliferation and migration.

ROLE OF CONSISTENCE IN SUSPECT CHARACTERISTICS PORTRAYED IN COURTROOM ANIMATIONS

Erin Connel, Emilee DeMay, Matthew Atwood, Drake Thornton, and Gabriel Wiessmann

Psychology

Project Advisor(s): Ronald Craig

Poster Number: 15

The use of computer animation in court has been increasing (Dunn, Salovy, & Feigensin, 2006). In both Pennsylvania and California courtroom animations have been found to be permissible when presented as demonstrative to an expert's testimony. However, very little is known regarding how jurors will regard such animation, whether they will consider it a demonstration of what an expert is presenting or, since they can "watch" the events, think that it is what actually took place. Dodd, Zuasky, and Craig (2013), found the presence of animation significantly increased guilty verdicts in a mock criminal negligence trial. Connel, DeMay, and Craig (2015) found individual characteristics of the animation, specifically differences in visual perspective, also impact juror decisions of guilt. This project examines individual characteristics of courtroom animation on jurors' decision making, specifically the animation's portrayal of the race of the suspect. The project will have seven conditions where participants will be asked to complete an anonymous online survey where they will portray a juror in a drive by shooting case. Animation was created that varied the race of the perpetrator (black/white) and a written case summary that also varied the race of the suspect (black/white). The conditions will differ in the race stimuli presented in the animation and narrative, in addition there will be conditions with race varied in the narrative but no animation. Data collected will consist of the participants' verdict, certainty of that verdict, impact of evidence on their verdict, and demographic information. The results will be examined to identify any effects of the portrayal of perpetrator's race in the animation on jurors' decision making regarding guilt. The project will aid in the understanding of potential effects of individual characteristics of animation used in court.

Poster
CSHP-9

SPECIES DIVERSITY AND DENSITY, AND SOIL QUALITY TESTING IN ROUND-UP TREATED FIELDS

Hilari Norris

Biology

Project Advisor(s): Nina Thumser

Poster Number: 16

There are several pesticides and herbicides used in agriculture today that can be harmful for the environment as well as animal and human health. Round-up is an herbicide used commonly today for smaller gardening tasks to control weeds and pests, and on a larger scale for corn and soy bean crops. There are few cases of high concentration Round-Up pesticide found in ground water. There is no correlation in our study showing effects on ground water, although in other studies there were. However there was a correlation with the effects on the environment including the soil chemistry. This effects plant life.

The focus of this study was to analyze fields treated with certain types of herbicides with different concentrations, and its effects on soil texture and chemistry.

Our results indicated lower levels of essential nutrients in the soil such as nitrogen, phosphorous, and potassium required for plants to flourish

Our results indicate a correlation between use of certain pesticide and low level organic nutrients of our concern.

THE SEARCH FOR INHIBITORS OF ANGIOGENESIS IN THE HEMOLYMPH OF THE FISHING SPIDER, *DOLOMEDES TENEBROSUS*

John Ferko, Stephanie Buczkowski, Julia Jagielo-Miller

Biology

Project Advisor(s): Matthew J. Foradori

Poster Number: 17

Cancerous tumors are limited in size and growth rate until blood vessels are stimulated to grow toward them in a process known as tumor angiogenesis. Two key processes involved in angiogenesis are proliferation and migration of endothelial cells (EC) lining the tunica interna of the blood vessels. Once a tumor has an established blood supply, growth is exponential. Compounds that inhibit the process of tumor angiogenesis have been discovered in many different sources, including avascular cartilage and dense regular connective tissue. Our research examines the fractionated components of *Dolomedes tenebrosus* hemolymph for novel inhibitors of angiogenesis. Several proteins found in spider hemolymph have been found to contain proteolytic inhibitors similar in function to a class of angiogenic inhibitors called tissue inhibitors of metalloproteases. Hemolymph, pooled from several female *D. tenebrosus*, was fractionated by low pressure liquid chromatography using a Mini UNOsphere Q sepharose column. The fractions were assayed for their ability to inhibit the proliferation of Bovine Aortic Endothelial Cells (BAOEC). Proliferation of endothelial cells is necessary for newly-forming blood vessels, and this *in vitro* assay can detect proliferation through metabolic activity. Fractions that inhibited proliferation were then screened for their ability to inhibit BAOEC migration.

Poster
CSHP-10

Poster
CSHP-11

LEARNING ANATOMY FROM COMPETITIVE APPS

John Szymanski

Computer Science

Project Advisor(s): David Tucker

Poster Number: 18

LECOM is interested in creating an application to help students learn anatomy facts more easily. This application, to appeal to Generation Z, mimics the popular trivia game Trivia Crack by having students compete against each other in a series of questions pertaining to anatomy. These questions are drawn from a database of facts that are needed for the successful completion of a medical degree program.

The project presented in this poster describes the implementation of such a mobile app, including technical details from basic application development to communications protocols. The poster will also include a discussion of issues related to interface design and ease of use. The poster will include any data from testing the app with LECOM students, which is currently taking place. Finally, the overall system design and live application will be presented.

Poster
CSHP-12

MOCK JURORS' PERCEPTIONS OF POLYGRAPH TACTICS USED TO OBTAIN A CONFESSION

Joseph Ray, Paige Skinner

Psychology

Project Advisor(s): Ron Craig

Poster Number: 19

Keywords: false confessions, polygraph, jury, interrogation

Interest in false confessions and the role of the interrogation process in creating them has risen dramatically in the past decade. Confessions serve a crucial role in clearing cases, moreover there is strong evidence that juries believe a confession even in light of strong exculpatory evidence. However, research has shown that the use of legal interrogations tactics, like deception, increases the risk of a false confession. One tool often used in the interrogation process is the polygraph test. Regardless of the outcome of the polygraph, the suspect is often told the test indicated they were being deceptive and these "deceptive results" are then used by the interrogator as an indicator of their guilt in confronting the suspect to obtain a confession. The tactical use of the polygraph may contribute to suspects feeling either trapped, or come to mistrust their memory and subsequently falsely confess. This study looked at jurors' perceptions of polygraph test as a tactic in obtaining a confession, specifically the role of providing accurate versus inaccurate feedback about the results of the test during the interrogation process. Participants read a mock crime scenario where circumstantial evidence leads to an interrogation and ultimately a confession that is later recanted. Four version of the scenario were developed that varied the use of the polygraph in the interrogation and the veracity of what the suspect was told regarding the results of the test. After reading the scenario participants determine the defendant's guilt, assess the importance of the evidence presented, complete the Confessions Attitude Scale, and provide demographic information. Responses will be analyzed to determine any impacts of the polygraph as a tactic on view of the confession, importance of evidence, and relationship to attitudes towards false confessions.

Poster
CSHP-13

A HISTORIC SEDIMENT RECORD OF WATERSHED DISTURBANCE AROUND EDINBORO LAKE, NORTHWEST PENNSYLVANIA

Joshua Szall

Geosciences

Project Advisor(s): Eric Straffin, Brian Zimmerman

Poster Number: 20

Eutrophic lakes are vulnerable to changes within the watershed, especially those that increase sediment and nutrient influx. Effective lake and watershed management requires a quantifiable means of evaluating the impact of these changes from point and non-point sources. This study serves as an evaluation of Edinboro Lake, a small eutrophic kettle lake located in Erie County, Pennsylvania that is directly adjacent to the town of Edinboro.

Poster
CSHP-14

Sedimentation history was investigated with Livingston cores taken from the relatively undisturbed, deepest (27ft) portion of the lake. Analyses were performed on the sediments to determine bulk density, percent organic matter (LOI), and magnetic susceptibility. Pb210 and Cesium data were obtained from a separate, close proximity core, and used to construct an age model correlating age with depth. Mass accumulation rates were then calculated using these dates.

Data from this analysis was compared to the history of human activities within the lake and its watershed. Strong correlations were found between watershed activities that increase runoff and erosion, and increases in sedimentation and eutrophic activity of the lake. In particular, two dredging operations at the north end of the lake where a few major streams enter are correlated with relatively large spikes in the sedimentation rate. Overall, post-European settlement in the area has influenced the rate and style of sedimentation, and has contributed to increasing eutrophication.

THE MORLEY TRISECTOR THEOREM FOR AN ISOSCELES TRIANGLE

Kevin Shuman

Mathematics

Project Advisor(s): Richard White

Poster Number: 21

Poster
CSHP-15

The Morley Trisector Theorem states that the associated Morley triangle of any triangle is equilateral. The Morley triangle is a triangle formed at the intersections of the angle trisectors of the given triangle. This proof will look at a special case when the given triangle is an isosceles triangle.

INACTIVATION OF PATHOGENIC BACTERIA ON MEDIA CONTAINING FRUIT JUICES AND SPICES USING RADIANT CATALYTIC IONIZATION

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Biology

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Poster Number: 22

Food-borne illnesses are exceedingly prevalent and are an unremitting issue. The World Health Organization (WHO) estimates that 2 billion people worldwide are affected by food-borne illnesses yearly. In order to combat this problem, new sanitizing techniques have emerged in recent years and are being extensively used in a multitude of places to decontaminate contact surfaces. By generating activated oxygen species such as hydrogen peroxide, superoxide anion, hydroxyl radical, and ozone, Radiant Catalytic Ionization (RCI) has come to the forefront of potential solutions for this issue with its countless applications for reducing the number of bacteria. Previous research has shown that RCI causes a 90% killing of food-borne pathogens during a 20-minute exposure. The focus of this study is the examination of the effects of RCI on *Escherichia coli* and *Listeria innocua* grown on different types of media, to simulate common food products. The media that were used for this study include Tryptic Soy Agar (TSA) and TSA infused with organic apple juice, organic ground turmeric, or organic ground cinnamon. The spices turmeric and cinnamon, both of which are natural antimicrobial agents, were chosen to explore the possibilities of a synergistic effect between the spices and the food product in the presence of RCI.

Poster
CSHP-16

MEDIAN CONCURRENCE THEOREM: AN EUCLIDEAN EXPLORATION

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Poster Number: 23

Using Euclidean Geometry, this project demonstrates one of the various proofs of the Median Concurrence Theorem. The Median Concurrence Theorem states that the three medians of any given triangle have a point of concurrency. With the implementation of the Parallel Projection Theorem, three cases are considered to verify that any two medians of the triangle will intersect at a point. While compiling these three cases, the Point Construction Postulate leads to the revelation that the three medians will intersect at the same point of concurrency.

Poster
CSHP-17

ARTIFICIAL NEURAL NETWORKS AS GAME OPPONENTS

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Computer Science

Project Advisor(s): Timothy Meyer

Poster Number: 25

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CSHP-19

An artificial neural network (ANN) is an artificial intelligence algorithm that attempts to mimic the brain. Using ANNs, machine learning is completed by passing input into the network of initially randomized weights, checking to see if the network's answer was correct, and adjusting accordingly. Wrong answers are adjusted through a process known as back-propagation. When this occurs, the network is reevaluated backward (from the output to the input) and various formulas are used to calculate error and make appropriate adjustments so the network does better next time. This project uses an ANN as a computer controlled opponent in the dots-and-boxes game. The game is played on a 3x3 board of dots. Players take turns connecting dots to make lines in an attempt to complete a square. When a square is completed, a point is awarded to that player and they get another turn. Throughout this experiment, an ANN is matched against opponents of varying strategies to see how well it will learn to play against them and if it can learn to win against them more often.

THE BEHAVIORAL ALTERCATIONS ON TERRESTRIAL ORGANISMS THAT ENCOUNTER HERBICIDES

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Biology

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Poster Number: 26

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CSHP-20

The herbicide Round-Up®(glyphosate based) may have unintended interactions with many of the terrestrial isopods living in exposed areas. Consequences of glyphosate have been linked to human diseases and illnesses, so the question being asked is what happens to the terrestrial isopod detritivores that depend on the soil containing the herbicide for their food. The first step in investigating the effect of these types of herbicides on detritivores was to determine if the isopods' distribution change when exposed to Round-Up®. A trial tube will consist of four detachable tubes each with a different soil type (control (water only), 1% Round-Up®, 2% Round-Up®, and 4% Round-Up®). A minimum of 8 trials will be run; each trial will consist of placing 10 isopods at each end of a trial tube and leaving them for 96 hours. At the end of this time period, the sections will be separated and the number of isopods in each section will be recorded. Once all trials are concluded a chi-square goodness-of-fit test will be run to determine if the isopods show a non-random distribution across soil types. Deviations from random could indicate an attraction or repulsion from the presence of Round-Up®in the soil.

School of Graduate Studies and Research

BEST PRACTICE IN EARLY INTERVENTION FOR DIVORCED/SEPARATED FAMILIES: A SURVEY OF CURRENT PRACTICE

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Poster Number: 27

Relatively recent legislation and policy (IDEA, 2004) has emphasized the importance of the role of caregivers in early intervention. Collaboration with caregivers creates a context that promotes generalization of taught strategies/techniques within the child's routines and daily activities. Ideally, the caregiver learns strategies during the early intervention visit and then continues to use them with their child throughout the week.

Currently, there is no research regarding best practices for divorced/separated families. When parents are not living in the same home and the child is spending time with both caregivers, it would be in the child's best interest if both families knew the strategies the interventionist was teaching. This study seeks to survey how interventionists are managing the sharing of information to both homes and identify if there is a need for further research regarding best practices for including a non-custodial parent into therapy.

A 22-item survey examining current practices in Early Intervention when working with divorced or separated homes, was created in SurveyMonkey. The questions were in both multiple choice and open-ended format. This survey is currently being sent, via an emailed link, to early interventionists across Pennsylvania. Currently, 80 responses have been collected.

Survey data will be analyzed and presented, including early interventionist's feedback on topics such as 1) Do you have a policy for sharing information to parents living in different households? 2) How do you handle information exchange between parents in different households? 3) Do you have regular contact with each parent? 4) Do you observe consistency in implementation of strategies across households? Qualitative data will be used to develop themes to describe the current practices of service providers across the state of Pennsylvania.

Poster
SGSR-1

THE EFFECT OF REPEATED READING ON SILENT READING COMPREHENSION

Jasara Trunzo

School Psychology

Project Advisor(s): Joel Erion

Poster Number: 28

Reading comprehension is the ability to read text, process it and understand its meaning. It is a necessary skill in education, and in everyday life. Repeated Reading is an empirically proven method of increasing fluency and comprehension in readers. My study is a replica of one done by Freeland, Skinner, Jackson, McDaniel, and Smith (2000) designed to measure the effects of Repeated Reading measures on silent reading comprehension. I modified this study to be working with children who have an emotional disturbance diagnosis. This is because children with emotional disturbances frequently have difficulties with reading and comprehension. My study will consist of one child, who qualifies for assistance under the IDEA category of Emotional Disturbance, and is struggling with reading comprehension. The study will consist of 5 weeks of 2 sessions each week. During each session the student reads two passages: one control (first session) and one repeated reading (second session). During the control, the participant will be provided with the passage he is to read silently to himself while the examiner times it, the student will be informed that he is being timed, but that there is no time limit to complete the reading. Upon completion the examiner will distribute 10 multiple choice questions that test knowledge of the passage and comprehension. Then the repeated reading phase begins. The student is then given a passage of the same difficulty level and asked to read the passage out loud to the examiner two times. During this time the examiner follows along correcting any mistakes made by the student. The next day the second session is administered identically to the first session using the Repeated Reading passage. The number of comprehension questions answered correctly will be compared for each session to determine effectiveness of the study.

Poster
SGSR-2

THE EFFECTS OF COVER-COPY-COMPARE ON MATH FACTS FLUENCY: A MATH INTERVENTION FOR STUDENTS WITH EMOTIONAL AND BEHAVIORAL DISORDERS

Kristen Arlet

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Poster Number: 29

Based on the effects of cover-copy-compare (CCC; Coddling, Eckert, Fanning, Shiyko, & Solomon, 2007) on mathematics interventions with general education students, it is hypothesized that students with emotional and behavioral disorders will improve on mathematics facts fluency. Data on mathematics interventions for students with emotional and behavioral disorders is limited, and CCC for mathematics facts fluency has not been measured with this population. This hypothesis will be tested with three, sixth grade students, residing at a treatment facility in northwest Pennsylvania, who have been identified by their teacher as needing improvement in mathematics facts fluency. The research will consist of three phases over approximately six weeks: a one week baseline phase, a four week intervention phase, and a one week post-intervention phase. Each week will contain three, 15 minute sessions. Students will be administered the CCC intervention according to the protocol employed by Coddling et al. (2007). Interobserver agreement for digits correct per minute will be measured. Upon completion of the study, a social validity questionnaire will be completed by the participants to measure the social acceptance of the intervention with this population. It is predicted that the participants' digits correct per minute when giving mathematics facts will improve compared to their baseline measures. Data will be analyzed based on percentage of nonoverlapping data. The findings may have implications for mathematics interventions for students receiving residential care and it will bolster the current research on interventions for students with severe emotional and behavioral difficulties.

Poster
SGSR-3

A CLUSTER CRITICISM OF THE 2016 PRESIDENTIAL PRIMARY DEBATES: HOW CANDIDATES FRAMED THEIR SPEECHES

Zahedur Arman

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Poster Number: 30

Every presidential debate is unique, and raises important issues to the voters. In the 2016 presidential primary debates, candidates have raised myriad issues, and framed them with their choices to attract voters. They have emphasized contemporary issues related to the American society, politics, and culture. They also present how they will solve the problems, if they are elected President of the United States. In primary presidential debates, issues are discussed more than characters or images of the candidates (Benoit, Hansen, & Verser, 2003). Voters tend to believe that one party or the other is better in dealing with such issues. The main intent of this study is to see how candidates framed issues in the presidential primary debates.

Poster
SGSR-4

This study examines the 2016 presidential primary debates of both the Democratic and the Republican Party. An eclectic electronic coding system has used to analyze data. It is an open coding approach that “employs a select and compatible combination of two or more First Cycle coding methods” (Saldana, 1988, p. 188). After eclectic coding comes code mapping: listing the codes, categorizing them meaningfully, and constructing major categories; code landscaping comes next: organizing and examining codes through basic approaches such as word clouds and outlining. We have used frequency of terms to select main issues that framed each issue as discussed by the candidates. We will examine how the candidates of the 2016 US presidential election frame and handle issues more perfectly through using a cluster criticism of the rhetoric.

ENHANCING SPELLING PERFORMANCE IN STUDENTS WITH LEARNING DISABILITIES IN AN URBAN ELEMENTARY SCHOOL

Ashton Barnes

School Psychology

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Poster Number: 31

The purpose of this study is to compare the effects of the two spelling strategies on students with learning disabilities and behavioral problems. Two elementary students who receive learning support instruction will be used for this study. Both students will be identified as having a learning disability and will spell below grade level, and have difficulties in decoding, fluency, and reading comprehension. Studies show that students with learning disabilities tend to spell below grade level, especially when compared to those without disabilities (Hochstetler, McLaughlin, Derby, and Kinney, 2013). The students participating in this study will also be identified as having behavior problems in the classroom. The Cover, Copy, and Compare (CCC) model is a research-based strategy that has been shown to enhance learning across skill and content areas (e.g., spelling, mathematics, science, and geography) and students, including elementary and secondary students. (Jaspers, Williams, Skinner, Cihak, McCallum, and Ciancio, 2012). As a result of these findings my research question is, will the cover, copy, compare strategy be more effective than the copy only strategy for two elementary students with learning disabilities and documented behavior problems?

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SGSR-5

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