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INTRODUCTION AND WELCOME MESSAGE

As researchers, we know that dissemination is an indispensable element of our work. We publish or present our research to advance knowledge. We expect that clearly documented and openly shared research will be broadly discussed and assessed. Until recently, this discussion and assessment was limited to relatively small circles of “peers”, often conducted in the opaque jargon of the discipline.

In the past two decades, the internet vastly accelerated the sharing and exchange of information. Now the public has access to an enormous amount of information that previously was limited to researchers in the field. Events such as the recent Russian meteor collision, or images from the Mars Rover, are widely and almost instantaneously viewed by millions.

Researchers need to learn to communicate clearly to the public. Taxpayers expect to see results from federally funded research. In response, these funders are now hosting workshops for researchers such as “Science: Becoming the Messenger”. Researchers in every discipline are beginning to discover the potential of crowdfunding – but success depends upon sharing a clear and compelling story to a general global audience.

Cara Santa Maria, our keynote speaker, is a Senior Science Correspondent for the AOL Huffington Post Media Group. She exemplifies the science communicator, with a passion for science education and a mission to make the fascination that she feels for the natural world accessible to a global audience. This should be our mission as well.

Research Days provides our students with a valuable learning opportunity. By presenting their research and answering questions posed by an audience outside their immediate discipline, they are preparing themselves to be effective communicators. So I ask you to help by being active participants – challenge our student researchers to explain why their questions are important, ask what problems they encountered and how they solved them, and inquire if they have plans to continue their research.

In the end, these two special days every April are essentially about communicating – not only communicating actual results but also communicating the effort, enthusiasm, and passion that went into the work you see. Please join me in celebrating an embodiment of Kean’s motto “Semper Discerns” – “Always Learning”.

Jeffrey H. Toney, Ph.D.
Provost and Vice President for Academic Affairs

SCHEDULE OF EVENTS

TUESDAY, APRIL 23, 2013 – STEM BUILDING

10 a.m. – 11 a.m. Schwartz Lecture Hall 2nd Fl. Keynote: Cara Santa Maria, Senior Science Correspondent, AOL Huffington Post Media Group
Beyond Academia: Communicating Research, Passion, and Poetry to Improve Science Literacy

11 a.m. – 4 p.m. STEM Building Faculty Research Presentations see program for details of rooms and times

11 a.m. – 4 p.m. STEM 4th Fl. Kean University Assessment Institute Update Poster presentations

2 p.m. – 3:30 p.m. Kean Hall 127 Graduate Faculty Panel Living with Genocide

WEDNESDAY, APRIL 24, 2013 – STEM BUILDING

8:30 a.m. – 10 a.m. STEM 318 Psy.D. Dissertation Symposium

10 a.m. – 12 p.m. STEM Atrium Poster Presentations Group A: Computer Science, Health Sciences, Mathematics, Natural Sciences

10 a.m. – 11 a.m. STEM 415 Student Oral Presentations Group B: Arts, Business, Education, Humanities, and Social Sciences

10:30 a.m. – 12 p.m. STEM 318 “Just War” Student Panel: The Thirty Years War; The Irish Republican Army: The Trials of Joan of Arc

1 p.m. – 3 p.m. STEM Atrium Poster Presentations Group B: Arts, Business, Education, Humanities, and Social Sciences

1 p.m. – 2:45 p.m. STEM 318 Student Oral Presentations Group A: Computer Science, Health Sciences, Mathematics, Natural Sciences

3 p.m. – 4:30 p.m. STEM 501 MA in Holocaust and Genocide Studies Student Panel: Forgotten Conditions of Genocide

3:30 p.m. – 5 p.m. STEM 318 Ed.D. in Urban Leadership Student Panel: Critical Issues In Urban Education

5 p.m. – 7 p.m. STEM 6th Fl. Early Childhood & Family Studies Graduate Colloquium
Beyond Academia:
Communicating Research, Passion, and Poetry to Improve Science Literacy

So you’re doing amazing research—solving problems, illuminating dark corners, learning about the mysteries of the universe. Now what? You want to shout from the rooftops how exciting your discoveries are. But where do you start?

The intersection between academia and public outreach is growing every day. But it’s still in desperate need of your help, especially when it comes to science literacy in the United States.

Together, we’ll discuss strategies for getting your voices heard. I’ll talk about my own journey from the university classroom/laboratory to the television screen, and everywhere in between. And perhaps most importantly, we’ll work together to find the passion and poetry that resides in all of us, especially when we stop and take the time to gaze up at the stars.

* * *

Cara Santa Maria is the senior science correspondent for The Huffington Post, where she hosts and co-produces a weekly video series called “Talk Nerdy to Me.” She also co-hosts the new Weather Channel series, “Hacking the Planet.” A north Texas native, Cara currently lives in Los Angeles. Prior to moving to the west coast, she taught biology and psychology courses to university undergraduates and high school students in Texas and New York. Her published research has spanned various topics, including clinical psychological assessment, the neuropsychology of blindness, neuronal cell culture techniques, and computational neurophysiology.

Dr. Patricia Morreale is an Associate Professor in the Department of Computer Science and the Director of the Multimedia and Network Research Laboratory. In the past 12 years, both at Kean and prior to Kean, Dr. Morreale has received over nine million dollars in grant funding including an NSF S-STEM grant to develop “Project ASK: Applying Student Knowledge for Success in Computer Science”. This successful five-year project was aimed at increasing the number of academically talented, financially needy students graduating with undergraduate degrees in Computer Science and has doubled Kean’s retention of students in this major.

Dr. Morreale has mentored 81 undergraduate students in the past 12 years. Fourteen publications authored by Dr. Morreale and her undergraduate students have appeared in professional journals, and her students have presented at 22 professional conferences. Awarded Kean’s competitive Students Partnering with Faculty summer research award each year from 2008 through 2011, Dr. Morreale worked with three students each summer and throughout the following academic year in various computer science projects focusing on sensor data, environmental sensing and stream data.

Dr. Morreale is especially committed to encouraging female students. She is first author of REU-in-a-Box: Expanding the Pool of Computing Researchers (2011). This effort was a project of the National Center for Women and Information Technology (NCWIT). This comprehensive resource guides faculty through the stages of a research experience for undergraduates, focusing on the interactions of faculty mentors with students and the processes by which they conduct and share their research. It is available for download at www.ncwit.org/reubox. Following the successful debut of the guide, Dr. Morreale worked to establish a national award for undergraduate research mentoring. This peer-reviewed award highlights best practices www.ncwit.org/project/ncwit-undergraduate-research-mentoring-award.

Dr. Morreale is the coordinator of Kean’s chapter of the Association for Computing Machinery (ACM), which had an all-female leadership team of CS majors in 2011-2012. Teaching her students to give back to the community, Dr. Morreale’s ACM student group recently refurbished a computer and donated it to a local mother and children’s shelter.

Dr. Morreale’s devotion and dedication to Kean’s students are overwhelmingly apparent in all of her efforts on campus. The students who nominated her for Research Mentor of the Year spoke of Dr. Morreale’s inspiration and “life-changing influence”. One student stated Dr. Morreale is “the perfect example of what a teacher and mentor should be to students’. Another student cited “the intelligence that Dr. Morreale displays and her humble personality make her an outstanding mentor and I am honored to recommend her for this award”.

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<td>STEM 317</td>
<td>(1) Quoth the Raven: “Eat My Shorts”: The Life, Literature, and Legacy of Edgar Allan Poe (2) The Origins of “The Cask of Amontillado,” or Some Words about Poe and a Mummy</td>
<td>Dr. John Gruesser</td>
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<td>11 a.m.</td>
<td>STEM 415</td>
<td>Detecting and Validating Planets around Other Stars: A Stability Analysis of GJ 581</td>
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<td>TEACHNJ: Opportunities and Challenges for Effective Teacher Evaluation</td>
<td>Drs. Leila Sadeghi and Kathe Callahan</td>
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<td>Synthesis and Evaluation of Pyrrolidine Derivatives as CCR1 Antagonists for In-Vitro Inhibition of Multiple Myeloma</td>
<td>Dr. James Merritt</td>
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<td>12:30 p.m.</td>
<td>STEM 317</td>
<td>Murderous Mormons and Meek Methodists: A Study of American Religious Violence from the Diaries and Journals of I.D. Gillilan</td>
<td>Dr. Brid Nicholson</td>
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<td>12:30 p.m.</td>
<td>STEM 415</td>
<td>Cilium: No Longer a Vestigial Organelle</td>
<td>Dr. Rongsun Pu</td>
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<td>STEM 317</td>
<td>Lessons in Race and Equality - Quakers Anthony Benezet and Richard Waln on the Abolition of Slavery and Rights</td>
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<td>Dr. Juyoung Ha</td>
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<td>Hearing and Health Implications of College Students Obtained through a College Hearing Screening Program</td>
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<td>The Plainfield Satellite Professional Development School Model</td>
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<td>3:30 p.m.</td>
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<td>Design to Touch: Engraving History, Process, Concepts and Creativity</td>
<td>Prof. Rose Gonnella</td>
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SONIA ARORA  
NJ Center for Science, Technology and Mathematics  
Repurposing Old Drugs for New Uses: Targeting Multidrug Resistance in Cancer  

Dr. Arora will describe the identification of new uses for previously FDA approved drugs from the Johns Hopkins Clinical Compound Library (JHCCIL). Discovering a new drug molecule is a time and money consuming process. Very often the compound that worked in animal studies fails in human trials. Drug repurposing implies finding new uses or indications for old drugs. This is a very fruitful and cost effective strategy because we already have millions of drugs in market that have been approved by FDA and have a favorable pharmaceutical profile. Based on this principle and using bioinformatics approaches Dr. Arora and her team have identified new compounds that inhibit the molecular pump P-glycoprotein (P-gp) and hence target multidrug resistance in cancer cells.  

This study describes the identification of new uses for FDA approved drugs. The target under investigation is P-glycoprotein (P-gp): a protein pump that transports drugs out of a cell, causing multidrug resistance (MDR) in cancer cells. The primary objective of the study is to identify a new modulator of P-gp that binds and inhibits its activity, thereby reversing MDR and causing successful drug accumulation to kill cancer cells. The approach used involves integrated techniques in computational chemistry, structural bioinformatics and cell biology. Using computational chemistry tools, a virtual database of 1600 FDA approved compounds was constructed. The database was then screened for binding to P-gp using structural bioinformatics techniques. The docked orientation of each compound was then analyzed to predict the binding affinity and interactions with the P-gp binding pocket. Finally, cell culture and in-vitro techniques are currently underway to verify our in-silico results. The major scope of the project lies in its likely impact on society by providing a newer treatment option for drug-resistant cancers. Development of MDR to chemotherapeutic agents is a major problem for successful cancer treatment. MDR is typified by the broad cross-resistance to structurally dissimilar cytotoxic agents - in other words, the development of resistance by a cell to one drug produces similar resistance to other drugs. This project thus addresses the urgent need to discover new therapeutic agents that reverse multidrug resistance in tumors, thereby increasing therapeutic potential of anti-cancer drugs.  

ROSE GONNELLA  
Co-PI: Christopher Navetta  
Design  
Design to Touch: Engraving History, Process, Concepts and Creativity  

You know Johannes Gutenberg, the father of printing on paper, right? You probably have seen actual letterpress printing. Letterpress printing is showing up on all sorts of printed matter. Recently, this form of relief printing has found itself in a revival on the desktop. But you don’t know about engraving on paper, right? Why not? Engraving is an “intaglio” process; a truly distinct, one-of-a-kind, tactile, and color full printing process. Engraving is more lush than letterpress because the hues printed are densely opaque. So now you know a little, but not enough. Engraving is visually delightful. Engraving heightens printing to an art form. The new era for the printed word is to go - go digital. Yet, there is a place in the media mix for specialty printing such as engraving—which has been in use since the fifteenth century and can continue with awareness. Learn more about engraving and actually see exactly how it creates “design to touch”.  

When in 2010, the members of the International Engraved Graphics Association asked me to write a book about engraving in order to teach and inspire young designers about this fine printing option, my heart seized on the challenge. It is apparent through simple observation of contemporary mass media that the printed word on paper is in a life-threatening struggle and seemingly not looking as though it will remain long into the 21st century. The history of printing and related industries therefore is especially relevant to study in this, our highly technological era that is inevitably pushing toward a paperless and “print-less” society. Unique among the specialty printing processes, the engraved word and image ought to remain for future generations to enjoy. With awareness and understanding, engraving has a chance to continue and perhaps even flourish in a revival. Why engraving? As information and images increasingly compete for our attention through mobile phones, laptops, and other screen-based devices, specialty printing is poised to take on a distinct role within the media onslaught. Although printing is not dead, the obvious forward pitch for the medium is to create physically outstanding printed matter. Engraving is truly extraordinary printing. The raised surface and rich color of engraved graphics draws one in to touch and that tactile experience can form a distinct relationship with the reader. Engraving also has both the look and feel of hand-craftsmanship (in fact, there are times when the plate is hand worked) yet the contemporary process is capable of producing thousands of perfectly exquisite impressions. Even though the primary focus of the research and resulting book is a study of the commercial methods and use of engraved graphics, I was thrilled to be reminded and to rediscover that engraving is also in itself artistic and inherently expressive. By writing this book, I was able to intermingle my own interest in design and fine arts with a rekindled joy and new knowledge for a centuries-old printing process that is also viably high tech. Engraving can compete with digital forms of visual communication because it has what a
Spectroscopic experiments will be presented. Novel pathway of transformation and sequestration of heavy
metal contaminants will be discussed with respect to their interaction with minerals, nanominerals, and
microorganisms.

Understanding the fate and transport reactions of heavy metal contaminants in the natural environment
is important since they pose serious health and environmental problems. More importantly, the speciation
of heavy metals in soils is of special importance since it determines the availability of metals for
plant uptake and the potential for contamination of groundwater following the application of municipal
sewage sludge to agricultural land. Hence, studying the factors affecting the release and bioavailability of
contaminants and toxic metal ions is essential to accurately predict and identify the different species of
them in soil systems. Furthermore, it has been shown that nanoparticles are widespread in aqueous
environmental systems and play a significant role in natural geochemical processes such as the
sequestration of metal contaminants and change in the redox conditions for microbial activity. While a
number of these unique features of synthetic nanoparticles have been extensively studied with respect to
their industrial and medicinal applications, comparatively little is known about their fate in the
natural environments once released into the aquifer. Studies on the properties of natural nanoparticles
in their native environments (e.g., enhanced adsorption coefficients and chemical reactivities) are also
lacking due to the difficulty in obtaining the relevant samples and limitations on appropriate technical
approaches. From an environmental perspective, enhancing our understanding on colloidal property of
nanoparticles and their behavior under environmentally relevant conditions is necessary and essential
to gain the holistic and comprehensive view of geochemical cycling of different species of toxic metals
and contaminants. I will present several different model systems which illustrate the important role of
nanoparticles in sequestration of heavy metals and in geochemical cycling of the metals. In addition,
studies on transformation of toxic metals, such as mercury and selenium, by microorganisms will be
presented to elucidate role of microorganisms in speciation of heavy metal contaminants under various
environmental conditions with zinc (Zn) will be presented to demonstrate the precipitation of
mixed phase new minerals in enhancing the removal of Zn from solution -Fe2O3 interaction with gram-
negative bacteria, S. oneidensis, will be presented to identify the important role of the colloidal property
of nanoparticles in microbial activity in reducing iron. Lastly, mercury transformation by anaerobic
bacteria under reducing conditions will be presented to identify elemental mercury as the new source
of methyl mercury. This novel pathway of mercury transformation will change the global cycling budget
of mercury. Both spectroscopic and batch uptake experimental results will be presented in depth to
demonstrate the effectiveness of interdisciplinary approaches to solving environmental problems.

John Gruesser
English
1) Quoth the Raven: “Eat My Shorts”: The Life, Literature, and Legacy of Edgar Allan Poe
2) The Origins of “The Cask of Amontillado,” or Some Words about Poe and a Mummy

These are lectures I have presented at libraries and high schools in New Jersey and New York in my
capacity as president of the Poe Studies Association.

Although several sources have been proposed as the inspiration for Poe’s “The Cask of Amontillado,”
none resembles it as closely as Joel Tyler Headley’s 1844 sketch “A Man Built in a Wall.” In attempting to
verify Headley’s story of a skeleton in a church wall, I discovered that the skeleton in question is actually
a mummy that has been on public display in a church south of Florence since 1820. So why is this
significant? 1) Given Poe’s status as a pop culture icon to whom everyone from Hollywood to the Beatles
to the writers for the Simpsons to the National Football League has paid homage (and the fact that
Halloween is unthinkable without him), the revelation that one of his best-known stories was very likely
inspired by a real “mummy” is certainly news. 2) People around the world, including primary, secondary,
and college students in the US, have read and studied “The Cask of Amontillado”; however, they do not
know that it was very likely inspired by a real “mummy” on public display for two centuries, that the
mummy’s images can be accessed on the internet, and that there is even a YouTube video about the
“mummy.” Knowledge of such materials can enhance a multimedia approach to this famous story by Poe,
that most visual of literary artists. 3) In the fall of 2011, much of the film Terroir, a modernized version of
“The Cask of Amontillado” starring the Hollywood actor Keith Carradine that is scheduled to be released
in 2013, was shot in Montevarchi, which is a mere five miles from the mummy’s location in San Giovanni
Valdarno. However, the people working on the project were unaware of the Poe-Headley connection to the
region. 4) Exploring the links between Headley and Poe during the years 1844 to 1846, I have been able to
device a new interpretation of Poe’s story.

Juyoung Ha
School of Environmental and Life Sciences
From Nanoparticles to Rocks: Mineral interaction with Heavy Metal Contaminants in Nature

Fate and transport behavior of heavy metal contamination in the environment has been a significant
issue during the last decades due to the potential detrimental hazards of the contaminants to the health
of animals, plants, and humans. One of the major chemical reactions which determines the distribution
of the heavy metal contaminants in the natural environment is sorption reaction. The partitioning of
toxic heavy metal contaminants from aqueous solutions onto mineral surfaces and microorganisms has
played a major role in determining their fate and transport behavior in natural waters. Interestingly,
nanomaterials have been the subject of extensive research for the last decade, especially because of their
exceptional surface properties. These properties indeed confer that nanoparticles have an important
role in pollutant dynamics via sorption and precipitation reactions, colloidal transport, and redox
surface reactions. Experimental and theoretical results from a number of different macroscopic and
spectroscopic experiments will be presented. Novel pathway of transformation and sequestration of heavy
metal contaminants have been the subject of extensive research for the last decade, especially because of their
toxic heavy metal contaminants from aqueous solutions onto mineral surfaces and microorganisms has
played a major role in determining their fate and transport behavior in natural waters. Hence, studying the factors affecting the release and bioavailability of
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of methyl mercury. This novel pathway of mercury transformation will change the global cycling budget
of mercury. Both spectroscopic and batch uptake experimental results will be presented in depth to
demonstrate the effectiveness of interdisciplinary approaches to solving environmental problems.

Connie Hassett-Walker
Criminal Justice
Co-Pls: Dr. Gilbert Gee, Fielding School of Public Health at University of California at Los Angeles; and Dr.
Katrina Walsemann, Dr. Bethany Bell and Ms. Danielle Gentile, Arnold School of Public Health at the University
of South Carolina
Effects of Criminal Justice System Exposure on Youth’s Substance Use Trajectories

Preliminary results of the investigators’ NIH R15 study (grant #1R15DA032875-01; 2012-2015) will be
presented by Dr. Hassett-Walker. In this study, we are analyzing longitudinal survey data (NLSY97) from
a nationally representative sample of youth to examine the association between criminal justice system
involvement and trajectories of substance use in early adulthood.

The goal of this study is to examine how exposure to the criminal justice system influences substance
use during the transition from adolescence to early adulthood. We adopt a life course perspective and posit that there is no single pattern of substance use and justice system involvement. Rather, it is likely that there are numerous trajectories. A trajectories approach emphasizes that behaviors change over time (i.e., increase, decrease, fluctuate, accelerate, decelerate) and contends that the course of these behaviors is determined by changes in the individual and their social circumstances. We will test three specific aims using 13 years of nationally representative, prospective data from the National Longitudinal Survey of Youth (NLSY97). The NLSY97 is a nationally representative sample of 8,984 males and females who were 12 to 18 years old when they were first interviewed in 1997. Respondents have been interviewed annually since 1997, with data collection ongoing. The data will be analyzed via advanced statistical models—latent class growth analysis (LCGA) and cross-domain analysis of change (CDAC)—using Mplus statistical software. First in Aim #1, we will identify and describe trajectories of justice system involvement, and trajectories of substance use (i.e., alcohol, tobacco, and illicit drugs) from adolescence to early adulthood. We hypothesize that they will be at least three trajectories of justice system involvement, and at least four major trajectories of substance use. Further, we hypothesize that these trajectories will be associated with covariates such as race, ethnicity, and gender. Next in Aim #2, we will examine how trajectories of criminal justice involvement influence substance use trajectories from adolescence to early adulthood. In Aim #2, we propose to examine a trajectory about which nothing has been previously published—youth who only use substances post-justice system involvement. Finally in Aim #3, we will examine how educational attainment and employment affect the relationship between criminal justice involvement and substance use. We hypothesize that individuals who were incarcerated for more serious crimes will be less likely to complete secondary or post-secondary school once they are released, and that lower educational attainment will mediate the relationship between criminal justice involvement and substance use trajectories. We also theorize that individuals who were incarcerated will have more difficulty procuring employment once released, and lack of employment will be associated with increased recidivism and substance use. The study of the relationship of substance use with justice system involvement is of critical concern to public health because (1) the reduction of substance use is an objective of Healthy People 2020; (2) identifying the predictors that increase or decrease youths’ initiation of substance use during and/or after their involvement with the justice system, including entering prison, can help inform interventions; and finally (3) racial and economic disparities exist in terms of which youth are exposed to the justice system and how substance use may evolve over time.

DAVID JOINER
NJ Center for Science, Technology and Mathematics
Detecting and Validating Planets around Other Stars: A Stability Analysis of GJ 581

This presentation will be an overview of the primary technique used in the detection of extrasolar planets, Doppler spectroscopy, and of the primary technique for validating Doppler shift data from exoplanetary systems is N-Body modeling, in which the motion under gravity of planets in the central star. One technique used to help differentiate between possible interpretations of Doppler shift data from exoplanetary systems is N-Body modeling, in which the motion under gravity of planets in the given system are tracked and their paths are predicted at high precision over a duration of millions of years to determine if the systems are gravitationally stable. We have applied the N-Body symplectic integrator “Mercury” and have performed Monte Carlo studies of GJ 581 on Kean’s supercomputer. We present results showing that the currently accepted eccentricities for a 4 planet GJ 581 system are not gravitationally stable, and place bounds on the orbitals eccentricities for the 4 planet model. Additionally, we investigate the stability of GJ 581 with the inclusion of GJ 581 I, and find that a low eccentricity 5 planet system is consistent with gravitational stability, and place bounds on orbital eccentricities in a 5 planet model.

DENNIS KLEIN
MA in Holocaust and Genocide Studies
Co-Ps: Frank Esposito, Sue Gronewold, Robert Sitelman
Living with Genocide

This presentation is a panel of graduate faculty in the Master of Arts in Holocaust and Genocide Studies. Four panelists will explore the problems and challenges of living in a post-genocide world. The range of subjects offers insight into the ways genocide shadows contemporary global civilization. This panel anticipates a travel-learn study delegation this July to Poland and former Yugoslavia convened by Kean’s MA in Holocaust and Genocide Studies in association with the International Network of Genocide Scholars.

Evidence of the inescapable repercussions of genocide is discernible everywhere: in East Asia, the Middle East, Europe, and the United States. Four members of the MA in Holocaust and Genocide Studies (HGS) graduate faculty will explore the legacy of genocide and how it is shaping the culture and politics of our contemporary civilization. One aim of this panel is to stimulate interest in how our contemporaries negotiate their post-genocide realities—a subject that inspires the HGS mission to Poland and former Yugoslavia this July.

The panel: Dr. Frank Esposito (History and HGS) “The Legacy of the U.S. Government’s Organized Genocide against the American Indian” will look at the long-term and ongoing legacy of the US government’s planned attempts to destroy the American Indian, with a focus on treaty violations, destruction of Indian resources, and Indian sterilization efforts. Dr. Sue Gronewold (History and HGS) “The Necessity and Challenges of Exercising Justice in the Aftermath of Genocide: The Case of Cambodia” An analysis of the impact of an international tribunal’s ongoing proceedings on the Cambodian people 33 years after the end of the purported Cambodian genocide under the Khmer Rouge from 1975 to 1979. The tribunal is
limited to trying only a handful of identified perpetrators, yet Cambodians are riveted to their television screens. Will the resulting national catharsis constitute a national healing? Dr. Dennis Klein (History and HGS) “Poland, 2012: The Culture of Absence” is an examination of the palpable Jewish absence in Poland and the impact of that lost culture on that nation today. Dr. Robert Stelman (Philosophy & Religion and HGS) “Repercussions of the Holocaust in International Affairs: The Middle East Conflict and Responses in Israel” will look at the conflict in the Middle East between Israelis and Palestinians that evokes parallels in Israel to the Holocaust. They are hard to miss: anti-Semitic expression is rife and the war involving Gaza seems intractable.

SUE KOZEL

History
Lessons in Race and Equality - Quakers Anthony Benezet and Richard Waln on the Abolition of Slavery and Rights

Humanitarian Anthony Benezet worked in Quaker and non-Quaker circles tirelessly to promote the abolition of slavery in the greater Philadelphia region and the world until his untimely death in 1784. Fellow Quaker Richard Waln followed in Benezet’s footsteps as a local New Jersey man operating a successful plantation business while advocating for manumission cases pending before the New Jersey Supreme Court and researching slave ownership held by Quakers and Waln’s neighbors. This paper’s contents will be incorporated into Kozel’s presentation during the International Conference celebrating the life of Anthony Benezet in Paris, France that will mark the 300th anniversary of Benezet’s birth. Kozel will demonstrate how ordinary colonists and later Americans like Waln implemented anti-slavery strategies in their daily lives, following the visionary advocacy of Benezet in areas of black citizenship, education, freedom, and rights.

Sometimes an ordinary man or woman walking in the footsteps of a great spiritual and activist mentor can change individual, community, and political practices and laws. This presentation will combine a brief analysis of local, state, federal, and global strategies of abolition and freedom, with a focus on New Jersey and the abolitionist work of Quaker Richard Waln. New Jersey, as part of the greater Philadelphia region, represents a key state in the movement from the gradual abolition of slavery to its ending in state laws and local practices. Philadelphia and Quaker international humanitarian Anthony Benezet served as a spiritual and abolitionist colleague of New Jersey Quaker Mystic John Woolman and greatly influenced many Quakers abroad and within the British colonies up to his death in 1784. Former Philadelphia Quaker Richard Waln relocated his business to upper Freehold, New Jersey just before the start of the American Revolution, and with his brother, itinerant Preacher Nicholas Waln, they opposed slavery and worked on manumission efforts for individual African Americans via freedom papers issued by Quaker owners or intelligence gathering to support legal cases pending before the New Jersey Supreme Court. Nicholas worked with Benezet directly, while Richard seems to implement business practices and activism strategies that appear influenced by his brother, Benezet, and others. The 300th anniversary of Benezet’s birth provides an important international venue for a fresh investigation of new levels of race relations resulting from the abolitionist efforts in New Jersey and greater Philadelphia. Additionally, the ideas of equality and citizenship rights can be further investigated by Kozel’s comparison of Waln’s writings on “liberty” with those of Founder Thomas Jefferson as he is articulating an alternative solution to ending slavery, the removal of free blacks and/or slaves through colonization to Africa. Benezet’s evolving vision of race and equality sharply contrasts with that of Jefferson, and Waln provides an insight into how average people viewed these important issues of black citizenship and rights on a local level.

In showcasing Waln’s vision, she will contrast his ideas of African American rights with that of Benezet, Woolman, and Jefferson to see how national and international viewpoints translated (or not) into local action and support by ordinary citizens like Waln.

KENNETH MAY

Teacher Performance Center
Co-Pi: Mrs. Pat McFall and Mr. Joseph Engesser
The Plainfield Satellite Professional Development School Model

The purpose of this presentation is to inform the Kean University and school-based educators regarding an innovative teacher preparation program offered by the College of Education and the Teacher Performance Center. This program is called the Plainfield Satellite Professional Development School Model. It is orchestrated in the Plainfield Public Schools through a PDS collaborative relationship. The Plainfield Satellite PDS is a non-traditional PDS that began in the fall 2010 semester and has expanded and developed with input from many members of the school community. This new PDS model could have implications on the governance and organization of teacher preparation programs. Using the evaluation tools identified in previous research abstracts; further study needs to be completed to validate the early perceptions of program successes.

The purpose of the presentation is to share the components, organization, and positive results of the Plainfield Satellite PDS model that is being applied in some of the Plainfield Public Schools. The Plainfield Satellite PDS model morphed from the basic PDS blueprint into its current form because of input from program participants and regular program evaluation and modification to meet program requirements and the needs of the program stakeholders. The new PDS model came from a composite of field based experiences and researched practices. This merger created a dynamic Theory into Practice pedagogical model. Many of the district principals and classroom teachers have embraced the Satellite PDS model and have an ongoing request for additional PDS pre-service placements and PDS support services. The PDS program is having a positive impact on the instructional climate, opportunities for staff development, and input in curriculum development. The Plainfield Satellite PDS is different from other PDS models because of: (1) the on-site Kean University support staff and the unique roles they have created and tasks they perform; (2) the preparation of pre-service teachers using theoretical to practical training methods; (3) the ongoing professional support and development opportunities for educators; (4) the positive impact on daily classroom instruction and student achievement; (5) the positive impact the PDS members have on the school climate and environment; (6) the continuous encouragement for the improvement of teaching and student learning; (7) a more effective and efficient assignment of university staff to maximize their support role in pre-service teacher preparation. Because of the early successes in applying the new PDS model, the program designers applied for and were granted an opportunity to present their findings at the William Paterson University Symposium on “Best Practices in Teacher Preparation” held in the spring 2012 semester. The components and dynamics of the new approach were shared and well received by attendees.
Multiple myeloma (MM) is an incurable cancer resulting from malignant transformation of plasma cells, terminally differentiated B cells that reside in the bone marrow (BM). CCR1, a G-protein coupled receptor (GPCR), is expressed on myeloma cells and osteoclasts, and has been suggested to play a role in MM progression. Our group has synthesized novel small molecules which are potent antagonists of CCR1. Many of these molecules are able block chemotaxis of human MM cells.

Multiple myeloma (MM) is an incurable cancer resulting from malignant transformation of plasma cells, terminally differentiated B cells that reside in the bone marrow (BM). Responsible for about 2% of cancer related deaths, the BM allows reciprocal interactions between the different components of the BM microenvironment and the MM cells necessary for migration, differentiation, proliferation and survival of the malignant plasma cells. The end result is osteolytic bone disease. The chemokine CCL3 appears to play a role in promoting differentiation and increased activity of osteoclasts (bone resorbing cells). Expressed by both myeloma cells, and osteoclasts, CCR1 and CCR5 are the primary chemokine receptors for CCL3. This study focused on synthesis and evaluation of more than twenty novel small molecules via competitive binding assays that utilized membranes prepared from a multiple myeloma cell line. These molecules were based on a previously published series of CCR1 antagonists defined by a unique pyrrolidine motif. Various structural changes have been incorporated into this motif. Compounds found to competitively inhibit binding of 125I-CCL3 were further evaluated using functional cell based assays. Many of these compounds were potent inhibitors of human multiple myeloma cell chemotaxis. Structure-activity relationships will be discussed. This research is a collaborative endeavor between medicinal chemistry faculty and students at Kean and biological researchers at Midwestern University. Some of these results were previously disclosed by Kean students who presented at the National American Chemical Society Meeting in August 2012.

The difficulty Mormons have in being accepted in America is complicated by the fact that their religious views have always been seen as the paramount difference between them and other Americans. How Mormonism has been perceived and reported in the media has influenced individual, communal, and political attitudes and decisions towards them. One of the earliest non-Mormons to spend time in Utah and who had a major influence on general American attitudes towards Mormonism was J.D. Gillilan, a Methodist preacher and missionary. Gillilan kept diaries, sermons and letters relating to his time there. He outlined his ambitions and his arguments, and explains his frustrations about Mormonism, Dr. Nicholson’s work is a detailed analysis of the primary sources which allow a look into pre-statehood Utah, specific Methodist Mormon religious rivalries, and into a time when the Federal Government sent an army to Utah, prepared to begin a civil and religious war.

When in the year 2000, the American United Methodist Church affirmed that the Church of Jesus Christ of Latter Day Saints (Mormons) did not “fit within the bounds of Christian faith,” and that Mormons were “not part of the historic, apostolic tradition,” and that the LDS Church had a “separateness,” the United Methodist Church renewed a long standing religious dispute between the two. This involved a long and complex nineteenth century theological and political battle that was fought out in Utah, Washington D.C. and elsewhere, which resulted in actual bloodshed, threats of violence, and a judicial and political campaign which ultimately involved Mormons forgoing polygamy in order to gain statehood. This paper deals with nineteenth century relations between Mormons and the Methodist Church in Utah. Most of my material for this paper comes from the diaries and letters of J.D. Gillilan which are found in the Methodist Archives, though I also use some other Methodist publications from the time period. Methodist/Mormon relations had been strained since the Mountain Meadows Massacre in 1857, when a wagon train which included a Methodist minister, had been attacked and murdered by members of the LDS Church. The murder of the minister was deemed particularly heinous, as he was described as old, grey-haired and had, according to accounts of the few surviving eye-witness accounts, led a group in prayer the night before. In an attempt to show Mormons the error of their ways, and to convert as many of them as possible to Methodism, the Methodist Church set about an ambitious missionary program in Utah. J.D. Gillilan was one of the first Methodists sent there with the specific missionary task of conversion of the Mormons. He came in the wake of CP Lyford and Thomas Iliff whose anti-Mormon attitudes resulted in them writing a barrage of anti-Mormon literature. Gillilan was different in that while clearly anti-Mormon, he wrote of the death of Mormonism coming, and he reveled in his conversion successes, nevertheless he was also involved in prison visits to numbers of Mormon men arrested because of polygamy, even organized books and other reading material for these men while they were in jail. When Utah was granted statehood in 1896, Gillilan was included in the celebrations in Utah, and was asked to offer a prayer of thanks on the steps of the new Capital Building. Gillilan kept a journal throughout this time — daily giving accounts of his church work, his family life, and his thoughts on Mormonism. His was also a regular contributor to various Methodist missionary journals giving accounts of life amongst the Mormons, and even wrote pieces on Brigham Young, and John Taylor, both early Presidents of the LDS Church. His criticism of Mormonism did not go unnoticed in Utah and some of the more interesting pieces in his papers, are the threatening notes from self-declared polygamists, assuring Gillilan that they were the true sons of God who would win out in the end! When Gillilan finally left Utah in 1913, he was still considered the Mormon expert within the Methodist Church and his views of these “murderous Mormons” form a vital link in understanding the complicated relations between Mormons and the Methodist church and indeed the wider world.

Once a neglected cellular organelle, cilium has been uncovered for the last decade as a “cellular GPS” and is the missing link of many seemingly unrelated human diseases.

The primary cilium is a small (1 micrometer in length), cylindrical membrane protrusion found on the surface of most cell types of an animal. Partly due to its miniscule size, the function or importance of this organelle remained largely unknown. Despite its ubiquitous presence, it is absent from most college-level biology textbooks. The first view into the function of primary cilium came from the research into the molecular mechanisms underlying polycystic kidney disease, characterized by the presence of numerous...
cysts that prevent smooth fluid flow and defective primary cilium function. The essential sensory function of the primary cilium has further been established in other human conditions and diseases, including polycystic and spina bifida. My own research, conducted at Princeton University and supported by Kean University, is the first to pinpoint a role for primary cilium in mammalian eye formation. Using advanced genetics and molecular biology techniques, a protein essential for cilium formation is removed in transgenic mice. Abnormal cilium formation in turns disrupts the formation of eye vesicle during embryonic development, causing the complete absence of eyes and embryonic lethality.

Research supported by: 2011 Kean University sabbatical program and Department of Molecular Biology, Princeton University

LEILA SADEGHI
Co-PI: Kathe Callahan
Educational Leadership
TEACHNJ: Opportunities and Challenges for Effective Teacher Evaluation

This presentation will explore the Teacher Effectiveness and Accountability for the Children of New Jersey (TEACHNJ) Act (2012), which calls for new teacher evaluation systems to be implemented in school districts throughout New Jersey. The TEACHNJ act links the tenure process for teachers to annual evaluations that, for the first time, are aligned with individual student performance data. This exploratory research is designed to monitor the changes in teacher evaluation over the next five years to develop a more robust understanding of the impact TEACH NJ has on teacher reappointments, the granting of tenure and the professional development strategies offered to improve the effectiveness of underperforming teachers.

This presentation focuses on the effective implementation of the Teacher Effectiveness and Accountability for the Children of New Jersey (TEACHNJ) Act, and will include a discussion on the opportunities and challenges associated with a more rigorous evaluation system for teachers. The overarching question that informs our research is what impact will TEACH NJ have on the overall quality of teacher evaluations? More specifically, we want to determine if there is significant change in the percentage of teachers who receive “highly effective” or other comparable rating. We will also present the results of our 2011/12 survey, which provides us with baseline data, on the current statewide teacher evaluation practices; those prior to the implementation of TEACH NJ.

WENLI YUAN
Communication
The Internet and Democratic Development in China

The rapid diffusion of the Internet in China has provoked heated discussion about its impact on democratic development in the country. Some predict that the Internet will greatly contribute to political transformation in China, while others worry that the Internet may be turned to the advantage of the authoritarian regime. In light of such controversy, this study examines the political impact of the Internet in China based on a comprehensive analysis of literature and real life incidents. In particular, I will discuss the development of the Internet, online civic activities and censorship in China, as well as factors that mediate the democratizing power of the Internet.

Since the advent of the World Wide Web in the early 1990s, the Internet has drastically changed traditional means of communication and transformed the daily habits of individuals. The anonymous, decentralized, borderless, and interactive characteristics of the Internet open windows of opportunities for people to express opinions, disseminate information and organize collective actions. Many analysts, scholars, and activists, especially those in the West, have predicted that the Internet will facilitate the development of democracy on a global scale. Yet, some observers remain cautious and worry that the strict censorship in certain countries, such as China, Cuba, and Iran, will instead help maintain those countries’ authoritarian regimes. In light of such controversy, I will discuss the political impact of the Internet in China based on a comprehensive analysis of literature and real life incidents. China currently has the largest number of Internet users (over 538 million) in the world. The Chinese government has enthusiastically harnessed new technology to foster economic growth and promote national interests. Meanwhile, it is highly alert to the potential threat posed by the Internet to its regime. The Chinese government is known to exercise strict online censorship by controlling all the interconnecting networks in the country, and monitoring, blocking or deleting sensitive information online. In addition, the government doesn’t hesitate to crack down on those who break the rules. Unlike the government’s love-hate attitude toward the emerging media, Chinese citizens embrace the advantages brought by such kind of media. Both political dissidents and non-politically-zealous people are enjoying the greater opportunities to voice their opinions and engage in civic activities. They have utilized various new media platforms to expose corrupted party officials, misconduct of civil servants and incidents of social injustice, as well as to organize protests and collective actions. These online activities have, at times, forced the Chinese government to take action and even change some policies. No doubt, Chinese Internet users’ aspiration for democracy has been rising. Yet, to what extent the Internet can contribute to democratization in China depends on a number of factors, including the political and social contexts in the country as well as the international environment. In recent years, some Chinese Communist Party (CCP) officials initiated discussion of democracy and political reform; however, the CCP won’t risk losing its grip on power by taking drastic measures. Moreover, although the Chinese government won’t easily bend to international pressure, it can’t turn a deaf ear to the mounting criticism of the country’s human rights record. Taking various factors into consideration, I concluded that the Internet will not lead to revolutionary political change in China. Instead, it is more likely to facilitate incremental changes during China’s democratization process. This presentation has relevance to academic areas such as communication and media, political science, social justice and public administration.
Information Literacy (GE S5) in Research and Technology and the Capstone: Addressing the Gap
Craig Anderson, Librarian; Linda Cifelli, Librarian; Dawn Marie Dowd, School of General Studies; Janette Gonzalez, Librarian; Melda N. Yildiz, School for Global Education and Innovation

The General Education student learning outcome for information literacy (GE S5) is currently one of the SLOs required in the Research and Technology (GE 202x) course. Other courses also list GE S5 as an SLO. Anecdotal comments from Kean faculty, however, have noted that students, including those enrolled in capstone courses, need to improve their information literacy skills. For capstone students, soon to graduate, this is a very important concern, because information literacy is typically regarded as an essential skill for lifelong learning and is increasingly noted as a skill sought by employers in their job candidates (Head, 2012). It is important that steps be taken to strengthen the integration of information literacy into the curriculum at all levels.

This poster describes several collaborative efforts to integrate and assess information literacy in the GE 202x course. For instance, the course has a required Annotated Bibliography Assignment utilizing an Information Literacy Rubric, scheduled library instruction sessions, and opportunities for project-based learning and utilization of multimedia learning objects. Data derived from a number of information literacy assessments -- including the Project SAILS (standardized assessment of information literacy skills) test, the Annotated Bibliography Assignment / Information Literacy Rubric, and formative and summative assessments from project-based learning -- suggest additional opportunities for closing-the-loop activities that will enable information literacy to be mapped to the curriculum not only in GE courses but also in 3000- and 4000-level courses of major programs.

The Use of Projects to Develop Quantitative Reasoning Skills
Leslie Dacosta, General Education

Quantitative reasoning goes beyond basic math concepts. It is about applying the concepts to real life. It has been my experience that a student can better develop quantitative reasoning skills through the use of a project. By collecting, analyzing and interpreting data that matters to the student, he/she is in control of the learning process and connecting it to life.

In studying the effectiveness of the project in my statistics course, I have found this process to produce better understanding, retention and reasoning skills. This is evident not only by above average grades on the project and presentation, but by tests grades as well. Students scored higher on the test containing project material than on other tests in which the material was delivered by traditional lecture.
Recreation Administration Program Review Experience  
*Fran Stavola Daly, Physical Education, Recreation & Health*

The Program Review process can be a challenging and rewarding experience for any academic program. This poster examines the Recreation Administration program’s experience of completing the program review process. It identifies that this process is a collaborative experience that requires detailed organization skills; open dialogue among faculty, the administration, students, and staff, and a shared sense of commitment by all involved. Essential to a successful program review is identifying key sources of information that will support your efforts. These sources may exist within your own program or in university departments such as Institutional Research, Registrar and Office of Assessment. Multiple categories of data were examined including graduation rates, diversity profiles, native and transfer student statistics, and graduating student, alumni and current student surveys. Student field work evaluations, field work supervisor written comments and follow up phone interviews with field supervisors were also reviewed.

A well-constructed program review report should be clear, concise and connected to future academic program initiatives and budget requests. Successful completion of the process can reap numerous benefits to the future directions of a program. As part of the assessment experience, program review serves as a starting point for exploring past initiatives, current program outcomes and looking forward to future endeavors. The ultimate benefactors of the process are our Kean University students.

Measuring Outcomes for a Communication Speech Lab  
*Deborah Johnson and Christopher Lynch, Communication*

Communication apprehension is one of the greatest fears students bring to the college classroom. Kean’s Communication Department has sponsored a Speech Lab (CAS 114) with the support of the Center for Academic Success. The Lab also has an outreach to classes seeking a speaker on topics such as how to manage fear or how to deliver a presentation. The poster shows how we have tried to measure student needs and progress and then report back to instructors so they can adapt to teaching needs.

Raising the Assessment Bar through National Accreditation  
*Claudia Knezek, General Education; Patricia Morreale and Dennis Santomauro, Computer Science*

According to a study on national higher education assessment (NILOA, 2009), there are major differences in assessment information being collected at the institutional and program levels. Institution level data involves the use of national surveys, alumni feedback, and general knowledge testing to compare student-learning progress between academic institutions. On the program level, pre/post test examinations, external judges (certifying agencies), local surveys, rubrics, portfolios, alumni, and employer feedback are used to successfully assess student learning outcomes. Frequently, college and universities participate in attaining national accreditation to ensure that graduates are adequately prepared for post-graduate careers.

The College of Natural, Applied, and Health Sciences (CNAHS) maintains thirteen external accreditations. Currently, the Department of Computer Science is pursuing a national accreditation through the Accreditation Board for Engineering and Technology (ABET). The process begins with the submission of a self-study before the formal submission of a Request for Evaluation (RFE) and the internal preparation begins. Once accepted, the internal scope of work involves:

1. linking all course objectives to student learning outcomes,
2. collecting student work examples, and
3. demonstrating the existence of a faculty-driven continuous improvement loop.

Preliminary results from the Computer Science Department have shown that course objectives are meeting students’ learning needs in several areas.

Program Review: Lessons Learned from the Counselor Education Department  
*J. Barry Mascari and Blaire Cholewa, Counselor Education*

Program review is more than putting a document together. It is a process that requires the involvement of every member of a department or program if it is to be valuable and successful. This poster provides “lessons learned” about the program review process in the Counselor Education department at Kean University.

SMART Objectives  
*Mariann Moran, Occupational Therapy; Chad K. Austein, Graduate Admissions and Student Services*

It is challenging to write goals for an administrative unit such as Graduate Enrollment Management using SMART objectives and ensure that the objectives are reaching the goal stated. This poster will show the transformation of general goals to SMART Objectives with specific measurable data, that is feasible, with the resources available, with a certain time, that is relevant to the goal, and reflect accrual department effectiveness.

Creative Thinking: Culturally and Linguistically Diverse Students  
*Mahchid Namazi, Communication Disorders & Deafness*

The research reviewed here shows that the manifestation of creativity may be culture specific and is sensitive to linguistic differences, creative thinking should be measured using nonlinguistic tasks. Furthermore, the diversity of our classrooms requires us to re-evaluate creative thinking as a construct emphasizing originality in thinking as this may be a Western mainstream perspective of creativity. These latter facts, combined with the evidence that bilingual individuals have enhanced abilities in divergent thinking, means that the measures of creative thinking we develop must be culturally and linguistically appropriate. Irish & Scrubb (2012) report that diverse instructional groupings, for example, allow students to learn about individual differences and to reflect on their own assumptions and beliefs, which in turn leads to looking at issues from different perspectives resulting in enhancement of creative thinking. In conclusion, the research on creativity and the measurement of creativity will be reviewed in the context of our multicultural and multilingual classrooms. Solutions will be proposed for measuring creativity in a culturally and linguistically unbiased fashion such that the individuals who make up 46% of our student population are not inadvertently placed at a disadvantage.
Assessment as Opportunity: Synchronize Program Outcomes with Student Learning Objectives with Focus on Globalization, Critical Thinking and Creativity

Julia Nevarez, Sociology

Assessment is an ongoing process that draws from experience to application and vice-versa. The critical perspective by which self-assessment occurs is informed by the general approach to a specific academic program in tune with the institution’s mission. This presentation will include strategies developed in the Sociology program to better synchronize program outcomes and student learning objectives. I plan to share exercises that have been developed for students in our program that help enhance students’ learning experience embedded in the context of globalization, critical thinking and creativity.

Assessments of Students’ Learning Outcomes & Social Agencies: Lessons Learned

Josephine Norward and Alan Lightfoot, Social Work

Approaches and results to classroom and field-based learning outcomes assessment using fourteen practice behaviors as indicators of professional competency in nine areas of social work practice are presented. In addition, results of online surveys of social agencies in the community used by the MSW program for students’ field education are discussed. Results from both surveys of students’ learning outcomes and social agencies have served as a catalyst to ongoing program review to adequately prepare students to meet present day challenges as professional social workers.

Assessing Student Learning Outcomes Using Pre- and Post-tests

Rongsun Pu, Biological Sciences; Claudia Knezek, General Education; Roxie James, Biological Sciences

The biology program has established a set of student learning outcomes that highlights the knowledge and skills expected of students to demonstrate by the end of their program of study. In Fall 2012, a pilot pre- and post-test study was conducted in three courses of the BA Biology program to assess student learning outcomes. The three courses included two in the first-year sequence (BIO2200 – Cell Biology, and BIO2400 – Genes, Organisms and Populations), and BIO3704 – Genetics Lecture. In the pre- and post-test study, a common set of 10 multiple-choice questions was developed and used as the pre-test for all sections of the three courses. Another common set of 10 multiple-choice questions was used as the post-test. The pre-test results provided a benchmark for which instructional efforts and focus were to be directed throughout the semester. Additionally, the data should provide insight into the significance of pre-requisite courses on cognitive development and conceptual understanding.
Purna Patel was brought up on a farm in a small village in India, where she was taught in school that girls can only choose the liberal arts as a career path and that mathematics was not the appropriate field for her. Meanwhile, as she grew, she became passionate about henna and embroidery and would constantly draw geometric figures in her notebooks to guide her in her crafts. When she moved to the United States with her family eight years ago she discovered her mathematical ability while an ESL student and became determined to be a math teacher. Over a year ago, while enrolled in Dr. Ray Viglione’s Euclidean Geometry course, she became curious about a particular diagram from class and began modifying it. For days, she couldn’t stop thinking about her drawings and finally approached Dr. Viglione with her findings. Their subsequent collaboration produced a new theorem with an elegant proof and ultimately led to a paper that was published in March 2013 in one of the most well-known and selective journals in mathematics, The College Mathematics Journal!

In nominating Purna for this award, Dr. Viglione wrote, “I have been teaching undergraduate and graduate level geometry here at Kean for 10 years now and Purna is one of the few students I’ve met who has a true passion for geometry. Not only that, she has a special insight into the subject that I haven’t seen before. Posing problems in mathematics is a cherished talent and she has a knack for finding surprising geometrical relationships that I honestly have never noticed, even after years of staring at the same diagrams!”

Purna will be graduating in January 2014 and will begin teaching high school. In the meantime, Purna and Ray continue their quest for geometry gems, with the hope of future publications.

Samantha Mahmoud was brought up on a farm in a small village in India, where she was taught in school that girls can only choose the liberal arts as a career path and that mathematics was not the appropriate field for her. Meanwhile, as she grew, she became passionate about henna and embroidery and would constantly draw geometric figures in her notebooks to guide her in her crafts. When she moved to the United States with her family eight years ago she discovered her mathematical ability while an ESL student and became determined to be a math teacher. Over a year ago, while enrolled in Dr. Ray Viglione’s Euclidean Geometry course, she became curious about a particular diagram from class and began modifying it. For days, she couldn’t stop thinking about her drawings and finally approached Dr. Viglione with her findings. Their subsequent collaboration produced a new theorem with an elegant proof and ultimately led to a paper that was published in March 2013 in one of the most well-known and selective journals in mathematics, The College Mathematics Journal!

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Samantha Mahmoud (Sam) is a graduate student in BS/MS Biotechnology program at the NJ Center for Science, Technology and Mathematics. She has been conducting research in analytical chemistry using UHPLC-HRMS techniques to develop novel methods to understand and improve the issues that are related to mass spectrometer (MS) scan speed, liquid chromatography (LC) separation speed, MS sensitivity, MS and LC resolution. UPLC-HRMS techniques are used in many industries such as pharmaceutical, environmental, food, and fragrances. This powerful instrument allows scientists to characterize, quantify, and identify drugs, metabolites, contaminants, and additives.

Sam completed several projects as an undergraduate using the UHPLC-HRMS. Currently, through a series of analyses, she is working to answer the question, “Does HRMS detect as fast as UHPLC delivers?” Unlike conventional LC, UHPLC efficiently separates and delivers components with 3 to 7 seconds peak width. It is important to optimize the MS scan speed to acquire maximum information from an LC peak.

Upon completion of this research, Sam will present her findings at the American Society of Mass Spectrometry National Conference and Eastern Analytical Symposium. She has also been invited to present at the Delaware Valley LC Conference. In May 2012, she won a travel award to present her research at the international Mass Spectrometry Conference in Vancouver, Canada. Before she graduates in May, 2013, Sam will have given 20 presentations, both oral and posters, at many national and local conferences. She has also co-authored two publications. One is currently under review by Biomedical Chromatography and the second is in preparation.

In addition to challenging course loads, Sam began research with Dr. Dil Ramanathan during the second semester of her freshman year. She received the prestigious Merck-AAAS Scholarship in the summers of 2010 and 2011. In 2012, she was selected for a summer internship at Bristol Myers Squibb (BMS), a leading pharmaceutical company based in New Jersey. This is a highly competitive program and students were selected nationally based on their academic and research performance. Sam used the ultra high pressure liquid chromatography instrument and developed methods to improve the selectivity of methods transfer between HPLC and UHPLC. Improving selectivity of instruments helps researchers to obtain reliable qualitative and quantitative data pertinent to drug discovery and development processes.

Sam is a member of the American Society for Mass Spectrometry and the American Chemical Society. After graduating in May 2013, Sam is planning to work as a research scientist in a biotechnology or a pharmaceutical company.
Jacqueline Ahrens
Christopher Alcaide
Jennifer Allen
Kyla Allen
Marvin Andujar
Luis Angoitia
Ashley Arnao
Teobaldo Arruategui
Amanda Aster
Janice Autera
Kelly Bachovchin
Sana Baig
Christina Barrasso
Enrico Basso
Natasha Baxter
Holly Bein
Elizabeth Bosque
Rebecca Bowe
Susan Butterfoss
Tara Calafiore
Jacquelyn Cali
Michele E. Canfield
Laura Casado
Sui-Yan Chan
Kristin Checchi
Daniel Church
Elizabeth Clancy
Jack Conway
Christine Cortese
Carissa Costa
Jessica Coty
Andrew Cowan
Mario Da Costa
Maureen Dalton
Nicole De Mattia
Jessica DeGaetano
Anastasia Dekantios
Josh Denne
Katelyn Desch
Courtney Di Bona
Curti Dunmore
Brady Dupre
Adam Eckart
Angela Estevez
Doris Fakhf
Brad Fechter
Quintin Ferraris
Nechama Florans
Samantha Fong
Jasmin Forestier
Adalberto Freaya
Nathaniel Friedlander
David Garcia
April Gaunt-Buitler
Rachel Gentile
Mary Gergis
Nancy Gleason
Stephanie Godwin
Allan Goncalves
Diana Gorthy
Jennifer L. Green
Michael Grohowski
Jinping Guo
Shilai Hargrove
David Heer
Steven Holtz
William Horfacher
Shira Houghton
Jessica Hunmeder
Aisha Htfkar
Dianna Jabaily
Luis Jimenez
Yerika Jimenez
Kelly Johnson
Craig Judge
Julie Kalyna
Edward Kelly
Jackie Kempel
Margaret Kennedy
Kyuhiw Kim
Karolina Kowarz
Jennifer Latham
Dana Lebowic
Erin Lee
Michael Lee
Kimberly Leigh
Lindsay Len
Agnes Lenda
Jordyn Lentini
Christa Leyesa
Xiaoting Liang
Lindsay Liotta
Meghan Liskowski
Joshua Lisgo
Carolina Londono
Megan Loneker
Nathaly Lozano
Maureen Mahler
Rewan Mahmoud
Samantha Mahmoud
Brianne Mahoney
Patricia Matejek
Sabrina Mazuzuco
Phyllis McCabe
Kathleen McGee
Erin McGreevy
Meggan McGuire
Michael Mierzejewski
Brian Mizeski
Lindsay Moran
Robert Muller
Steven O’Brien
Michael O’Brien
Angelina Okwuego
Joseph Olidavodi
Matthew Oshinski
Angie Ossa
Magdalena Ostrowski-Hilton
Christine Otobiti
Chinmayi Parikh
Heena Patel
Purna Patel
Rutika Patel
Lia Pazuelo
Megan Perillo
Reggie Permy
Altacgracia Petela
Nico Peters
Nicole Peterson
Abigail Petritzch
Jessica Petrizzi
Meredith Pfister
Zaharo Plawner
Jill Potochney
Raymond Protasiewicz
Brian Pugliese
Rameez Qureshi
Marissa Radice
Eldho Raju
Gretchen Ramos
Jonathan Reilly
Amy Reinholtz
Michael Rizzo
Gabriela Rocha
Melissa Rodriguez
Valerie Romano
Marguerite Romano
Hedy Roth
Tevin Rouse
Jennifer Russo
Shaina Sadi
Dejana Salaj
Sarah Salter
Melissa Santiago
Lisa Scarpa
Brett Schwarzrebek
Devon Sepe
Jessica Serfin
Patrick Serpico
Tiffany Shamy
Matthew Shaw
Brian Sheldon
Kendall Shortway
Carlos Silva
Nancy Siracusas
Amber Smith
Christopher Smith
Rebecca Smith Casey
Elizabeth Smythe
Lena Soukieh
Lauren Speth
Marissa Tavers
David Torosian
Meilyn Torres
Patricia Toto
Chris Varsanyi
Robert Venezia
Roxana Verde
Keri Wanner
Eric Ware
Jamie Wasco
Kelly Williams
LaKesh Woodley
Theodore Woubneh
Joe-Louis Yarfi
Darren Yeh
Jennifer Yong Yow
Elana Youssef
Jessica Zivi
STUDENT POSTER PRESENTATIONS

BIOLOGY

ASHLEY ARNAO
Faculty Advisor: Brian Teasdale
**A Study on the Integration and Efficacy of Distance Learning Environments for Biology Laboratories**

Science education in undergraduate institutions aims to successfully expand students’ learning skills with active learning and hands-on instruction. However, online instruction has become increasingly popular in challenging students’ cognitive abilities at different levels of effectiveness and accessibility. Virtual labs embrace technology with intricate designing that allows students to be completely immersed in online learning stimulations. This study evaluates three separate lab packs, Labinet Labs and Learnsmart Labs, with the possibility of adding an online introductory course for non-science majors at our undergraduate institution. Labinet Labs and Learnsmart Labs are completely online virtual labs that allow teachers to individually design their own customized lab schedule. Labinet Lab is different than the other two lab packs because it uses hands-on labs with the online utilization of course textbooks and instructions. In this research, we will directly assess the contents of these three laboratory packs and compare not only on their quality of instruction, but how well they align with our current introductory biology course for non-majors.

SANA BAIG, CHRISTINE OTOKITI
Faculty Advisor: Daniela Shebitz
**The Effects of Nuda Bamboo on Surrounding Native Plant Life and Soil Acidity within New Brunswick, New Jersey**

A bamboo grove is not a common sight within the state of New Jersey, yet the evergreen nuda bamboo, Phyllostachys nuda, was planted at Rutgers Gardens in the 1950’s in order to create a shelter for honeybees. Since then, that bamboo plant has grown into a unique grove that continues to expand nearly seventy years later. As beautiful as the bamboo grove is, it may also be destructive and invasive to an area’s native species. Here we present a study conducted in Rutgers Gardens that measured the effects of the bamboo on native plant species. We compared the number of plant species/m2 and soil pH level in three different forest stands: the bamboo stand, a pine stand, and a hardwood stand. Soil samples, soil temperature, elevation, canopy cover, and the number of different plant species per square meter were taken from each forest habitat. We collected these results five times within a thirty-foot range within each stand. This procedure was repeated sixty-five times within each stand to ensure accuracy. With these results, we performed descriptive statistical tests and ANOVA through the computer program, SPSS Statistics. Our results showed that there is a significant difference in soil pH between all three forest stands. They also showed a significant difference between the pine forest stand compared to the bamboo and hardwood stand. We came to the conclusion that bamboo does affect the environment, but it can actually help support the growth of some native types of plant life rather than destroy it.

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

LENA SOUKIEH, RUTIKA PATEL, ELIZABETH BOSQUE
Faculty Advisor: Angela R. Porta
**Intestinal Cadherin-17 Levels in Lactating Mice**

The purpose of this study is to test the effect of lactation on the cell junction protein, cadherin-17. During lactation calcium deficiency occurs, and the body adapts by increasing vitamin D to allow for increased intestinal calcium transport. Vitamin D works through a steroid hormone mechanism of action by increasing the transcription of calbindin-D9K, a calcium binding protein, thought to be involved in the transport of intestinal calcium by a transcellular mechanism. This study shows that lactating mice have increased levels of calbindin-D9K compared to nonlactating both fed mice normal diets; the greatest increase is seen in the duodenum, cecum, and colon. Vitamin D is also thought to work via a paracellular mechanism in which calcium is transported in between the intestinal cell. Cadherin-17 is a cell junction protein thought to be regulated by vitamin D. In lactating mice, cadherin is expressed in the cecum and colon, and is down regulated in lactating mice. These results support the hypothesis that vitamin D works to mediate intestinal calcium transport only through a transcellular mechanism, but also via a paracellular mechanism.

Research supported by: National Institutes of Health AREA grant 1R15DK088052 to Angela R. Porta and Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

CHRIS VARSANYI
Faculty Advisor: Evros Vassiliou
**Synergism of Aspirin and Docosahexaenoic Acid in Oxidative Stress**

Fatty acids are the basic building blocks of triglycerides which are the basic building blocks of fat. The level, as well as the nature of unsaturation of fatty acids, has been shown to influence a variety of physiological processes. One of the physiological processes which fatty acids exert at the cellular level is that of oxidative stress. Docosahexaenoic acid exhibits a high level of unsaturation and is particularly effective in inducing oxidative stress and augmentation of glutathione production. Aspirin, on the other hand, is known to reduce oxidative stress and to inhibit production of prostaglandins. The combination of these two molecules, docosahexaenoic acid and aspirin, provides an attractive pharmacological venue. The properties of these two molecules are relevant to anti-inflammatory and anti-mitotic processes. In these sets of experiments, oxidative stress in the context of intracellular glutathione is evaluated utilizing flow cytometry.

BUSINESS: GLOBAL MBA

RAMEEZ QURESHI, JINPING GUO
Faculty Advisor: Xiaoyun He
**Examining the Use of Online Social Media in SMEs: An Empirical Study**

Recent years have witnessed the phenomenal growth of online social media. While Small and Medium Enterprises (SMEs) often face the challenges of financial constraints, online social media potentially offer a cost effective way that allows companies to create two-way communication and interactions with their customers, market their products and services, and build their brands. Online social media are here to...
stay. Yet, their impacts on SMEs at large are to be seen. Hence, in this project, we take the first steps to empirically examine the adoption and use of online social media in SMEs. In particular, we have collected data on the use of Facebook by SMEs. Our current findings provide the evidence that it is not always easy for SMEs to capitalize on the new social media phenomena. In addition, even after a business has adopted social media, it typically exhibits the dynamics in terms of their usage and effectiveness.

**Communication Disorders & Deafness**

**JACQUELINE AHRENS**

Faculty Advisor: Barbara Glazewski

*Cops’ Ability to Differentiate between Communication Disorders and Persons Under Influence*

Due to the numerous modalities in which communication can be impaired, it is important that people who will need to communicate and judge persons with communication disorders (CD), such as law enforcement officers (LEO), be able to have a knowledge base about this population. There are a number of different types of CDs, which can lead to this population easily being mistaken for a person who is under influence. Therefore, it is important for professionals in the field of speech-language pathology to learn how much law enforcement officers know about CD, so that we may provide valuable training for them in this area to avoid an unfavorable incident from occurring. An in-service training was presented on communication disorders to sworn officers at a North Jersey Police Academy. Participants included men and woman ranging in age from 18-40 of different ethnic backgrounds. The participants completed a pre-test, listened to the principal investigator present information and then completed the post-test to measure amount of knowledge gained from the presentation. Results were analyzed and suggested further training curricula were needed.

**Synthesis and Characterization of Asymmetric Bimetallic-Ruthenium (II) Complexes**

**MARIO DA COSTA, MEGAN LONEKER, DEJANA SALAJ, MEGHAN LISKOWSKI**

Faculty Advisor: Matthew Mongelli

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

A series of asymmetric bimetallic-ruthenium (II) complexes have been synthesized and purified. The complexes have the form [(TL)2Ru(BL)RuCl(tpy)]3+, where TL is the bidentate ligand 1,10-phenanthroline (phen) or 2,2’-bipyridine (bpy), tpy is the tridentate terminal ligand 2,2’-6’,2”-terpyridine and BL is a bridging ligand 2,2’-pyridimidine (bpm), 2,3-bis(2-pyridyl)pyrazine (dpp) or 2,3-bis(2-pyridyl)quinoloxaline (dpq). The complexes were characterized using electronic absorption spectroscopy, cyclic voltammetry, and emission spectroscopy.

**Spontaneous Resolution of Atropisomers, Reasoning Through Computation**

**ANGELA ESTEVEZ, DAVID GARCIA**

Faculty Advisor: Jeffrey Toney

Research supported by: Students Partnering with Faculty Summer Research program, Kean University

Combating Antibiotic Resistance: Exploring Visualization of NDM-1 Metallo-β-Lactamase as a New Drug Target

Bacteria such as Klebsiella, Escherichia and Acinetobacter are known to develop resistance to antibiotics causing a significant public health risk. In this example, an enzymatic mechanism destroys the β-lactam ring in carbapenem type antibiotics rendering them useless. The protein used by the bacteria is a class B, Metallo-β-lactamase (MBL) called NDM-1 named after New Delhi, India, the city in which it was first discovered. Through the use of three-dimensional software and a virtual reality environment, a set of potential inhibitors were found that could reverse antibiotic resistance and enhance effectiveness of antibiotics. These inhibitors were found to be capable of blocking the di-zinc active site of NDM-1. In addition, The Johns Hopkins Library of FDA approved drugs were tested against NDM-1 to explore whether prescription drugs can be repurposed for treating antibiotic-resistant infections.

**Synthesis of Biofuels of Cooking Oils through Transesterification**

**MEILYN TORRES, MICHAEL LEE, CHRISTOPHER ALCAIDE**

Faculty Advisor: Matthew Mongelli

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

The ability to find alternative sources for fuel has been of great importance in our society. Biodiesel is an important alternative energy that can be synthesized from triglycerides found in organic material. The synthesis of the biodiesel involves the transesterification of the triglyceride in the presence of a base and methanol. The synthesis, purification and characterization of the biofuels made out of cooking oils will be presented.

**Spontaneous Resolution of Atropisomers, Reasoning Through Computation**

**ADALBERTO FREAYA, BRIAN SHELDON, MICHAEL LEE**

Faculty Advisors: Yeung-Gyo Shin, Heather Stokes-Huby, Dale Vitale

Research supported by: Students Partnering with Faculty Summer Research program, Kean University - awarded to Dr. Dale Vitale

Synthesis and Characterization of Asymmetric Bimetallic-Ruthenium (II) Complexes

A series of asymmetric bimetallic-ruthenium (II) complexes have been synthesized and purified. The complexes have the form [(TL)2Ru(BL)RuCl(tpy)]3+, where TL is the bidentate ligand 1,10-phenanthroline (phen) or 2,2’-bipyridine (bpy), tpy is the tridentate terminal ligand 2,2’-6’,2”-terpyridine and BL is a bridging ligand 2,2’-pyridimidine (bpm), 2,3-bis(2-pyridyl)pyrazine (dpp) or 2,3-bis(2-pyridyl)quinoloxaline (dpq). The complexes were characterized using electronic absorption spectroscopy, cyclic voltammetry, and emission spectroscopy.

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

### Chemistry

**ANGELA ESTEVEZ, DAVID GARCIA**

Faculty Advisor: Jeffrey Toney

**Combating Antibiotic Resistance: Exploring Visualization of NDM-1 Metallo-β-Lactamase as a New Drug Target**

Bacteria such as Klebsiella, Escherichia and Acinetobacter are known to develop resistance to antibiotics causing a significant public health risk. In this example, an enzymatic mechanism destroys the β-lactam ring in carbapenem type antibiotics rendering them useless. The protein used by the bacteria is a class B, Metallo-β-lactamase (MBL) called NDM-1 named after New Delhi, India, the city in which it was first discovered. Through the use of three-dimensional software and a virtual reality environment, a set of potential inhibitors were found that could reverse antibiotic resistance and enhance effectiveness of antibiotics. These inhibitors were found to be capable of blocking the di-zinc active site of NDM-1. In addition, The Johns Hopkins Library of FDA approved drugs were tested against NDM-1 to explore whether prescription drugs can be repurposed for treating antibiotic-resistant infections.

Research supported by: Students Partnering with Faculty Summer Research program, Kean University

**Synthesis of Biofuels of Cooking Oils through Transesterification**

**MEILYN TORRES, MICHAEL LEE, CHRISTOPHER ALCAIDE**

Faculty Advisor: Matthew Mongelli

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

The ability to find alternative sources for fuel has been of great importance in our society. Biodiesel is an important alternative energy that can be synthesized from triglycerides found in organic material. The synthesis of the biodiesel involves the transesterification of the triglyceride in the presence of a base and methanol. The synthesis, purification and characterization of the biofuels made out of cooking oils will be presented.

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

**Spontaneous Resolution of Atropisomers, Reasoning Through Computation**

**ADALBERTO FREAYA, BRIAN SHELDON, MICHAEL LEE**

Faculty Advisors: Yeung-Gyo Shin, Heather Stokes-Huby, Dale Vitale

Spontaneous Resolution of Atropisomers, Reasoning Through Computation

In chemistry, it is often the case that molecules can exist in pairs that are mirror images. These are called chiral pairs, similar to how each person has a left and a right hand. In the human body, through unknown routes over our evolutionary past, only one from of a chiral pair is often seen. For example, our bodies only incorporate L-amino acids into protein building and the D-amino acid form is entirely excluded. In chemistry, it is a very challenging task to selectively retrieve one form of a chiral pair from a mixture, a process of resolution. We investigate through computation the possibility for certain types of molecules to spontaneously resolve into their left or right handed forms without any external selection process. It has been shown that certain molecules have the ability to resolve to some extent. We have chosen 1,1’-binaphthalene as the classical example for this modeling project, and extend it to possible other molecules which may show the same resolving capability.

Research supported by: Students Partnering with Faculty Summer Research program, Kean University - awarded to Dr. Dale Vitale

**Synthesis and Characterization of Asymmetric Bimetallic-Ruthenium (II) Complexes**

**MARIO DA COSTA, MEGAN LONEKER, DEJANA SALAJ, MEGHAN LISKOWSKI**

Faculty Advisor: Matthew Mongelli

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

A series of asymmetric bimetallic-ruthenium (II) complexes have been synthesized and purified. The complexes have the form [(TL)2Ru(BL)RuCl(tpy)]3+, where TL is the bidentate ligand 1,10-phenanthroline (phen) or 2,2’-bipyridine (bpy), tpy is the tridentate terminal ligand 2,2’-6’,2”-terpyridine and BL is a bridging ligand 2,2’-pyridimidine (bpm), 2,3-bis(2-pyridyl)pyrazine (dpp) or 2,3-bis(2-pyridyl)quinoloxaline (dpq). The complexes were characterized using electronic absorption spectroscopy, cyclic voltammetry, and emission spectroscopy.

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation
**JENNIFER ALLEN**

Faculty Advisor: Mary Jo Santo Pietro  
*Introducing Physical Activity during Language Therapy of Individuals with Aphasia*

The purpose of this study was to determine if the addition of physical, aerobic exercise to speech and language therapy sessions would improve the language production of people with acquired aphasia. There is strong evidence that physical exercise has been shown to improve cognition in many populations, including older adults and those with neurological impairments. To date, there has not been a study that explored the possible benefits of incorporating physical activity with traditional speech and language therapy for aphasia. In this study, several measures of language were examined during the individual therapy sessions of three individuals with aphasia. Tasks of verbal fluency were performed under three different conditions; before, during, and after 20 minutes of exercise. Data from the individual therapy sessions were also obtained retrospectively and analyzed. The results of this study were inconclusive in determining if the addition of aerobic, physical exercise improved the speech and language of individuals with aphasia. All three participants demonstrated improved percentages on their speech/language therapy goals on the weeks during which the exercise intervention was being conducted. However, only one out of the three participants demonstrated improved scores on the verbal fluency task that was administered concurrent with the exercise intervention. These results suggest that the exercise intervention was not detrimental to the therapy process and future research should explore this relationship between language and exercise using alternative procedures and outcomes.

**KYANNA ALLEN**

Faculty Advisor: Karen Kushla  
*Code Switching: Perceptions of Standard American English versus Non-Standard American English*

This study was designed to gather information about perceptions toward individuals who speak with an accent, a dialect, speech impediment, and/or improper/non-standard American English in comparison to those who speak standard American English using a survey distributed through Qualtrics. This survey, which looked at the need for and/or ability of individuals to code-switch to improve understanding in their respective environments, recruited undergraduate and graduate students enrolled in the School of Communication Disorders and Deafness as participants. Survey results were examined statistically using Chi-square nonparametric analyses to determine significance. As a result of this study, speech-language pathologists and other professionals (e.g., business, education, English as a second language, and early intervention) may provide necessary supports and resources to improve intelligibility in individuals who do not speak Standard American English. This study references and compiles information regarding the importance of speech intelligibility; job readiness; usage of Standard American English (S.A.E.); perceptions of S.A.E. versus accents and dialectal differences in different professional settings; supportive education; barriers to acceptance of those with accents and dialectal differences; and speech disorders.

**SUSAN BUTTERFOSS**

Faculty Advisor: Alice Chiarello  
*The Effect of Specific Components of Rhythm on the Articulation of Multisyllabic Words in Acquired Apraxia of Speech*

Expressive Aphasia, in particular acquired Apraxia of Speech (AOS), is a communication disorder that although has received much attention with treatment research, is still limited by lack of testing of the efficacy of specific aspects of therapies on specific behavior. The purpose of this study was to examine specific aspects of rhythm/rate and inter-systematic approaches to treat the production of multisyllabic words in those with AOS. A clinician’s model that incorporates an audibly stressed syllable which affects intonation by rising pitch due to increase in sub-glottal pressure was used. An external focus of attention, which incorporated a forward rocking movement of the upper torso and head on the stressed syllable of a multi-syllabic word was used in conjunction with the audible intonation change. Results indicated positive changes in all measured criteria in both participants in response to stimuli presented during and after treatment as compared to baseline.

**LAURA CASADO**

Faculty Advisor: Mahchid Namazi  
*Phonological Patterns Exhibited in Discourse by Dominican Preschoolers Living in New York and New Jersey*

According to the U.S. Census Bureau (2010) there are 1.4 million Dominicans residing in the nation today. Dominicans are currently one of the fastest growing Hispanic populations, with more than three-quarters of them living in the northeastern region of the U.S. The majority of Dominicans reside in New York and New Jersey, making them the largest Hispanic community in these two states. These demographic changes have increased the probability of speech-language-pathologists (SLPs) assessing and treating Dominican-Spanish speaking children. Identifying phonological disorders in Spanish-speaking children presents a great challenge for SLPs. Proper diagnosis requires assessment of several components, with a knowledge base of dialectal differences. Disregarding dialectal differences may lead to (a) overdagnosis, meaning children receive unnecessary services, or (b) underdiagnosis, which means children will not receive therapy services and be at risk for developing reading disorders and academic failure. This study served three purposes: 1) To describe the phonological patterns exhibited by Dominican Spanish-speaking preschoolers at the discourse level, 2) to add to the existing body of literature on whether or not to recognize dialectal differences, in order 3) to better assist in the assessment and diagnosis of this population. Children retold a story in Spanish. The narrative transcriptions were coded for dialectal differences. Weak syllable deletion, substitutions of liquids /l/ and /r/ and omissions of syllables in different positions of a word were marked dialectal differences observed in this population.

**KRISTIN CHECCHI**

Faculty Advisor: Jeannine Carlucci  
*Activities Influence on Discourse in Adults with Aphasia*

This study aimed to determine if the inclusion of activities in group therapy increased the episodes of discourse of adults with aphasia in group therapy. The study utilized a mixed method design and within-subject approach. Quantitative and qualitative measures were used including descriptive observation, Likert scale, and open-ended questions. Findings of this study support the efficacy of conversation groups in the treatment of adults with aphasia. Although the inclusion of activities did not increase discourse, research supports that leisure activities offer therapeutic qualities including building competency and self-efficacy from being self-determined and in control.

**ELIZABETH CLANCY**

Faculty Advisor: Mary Jo Santo Pietro  
*Determining Place of Speech Therapy at the Time of Service Delivery in Schools for the Disabled*

There is a deficit in the literature with respect to the examination of compelling factors that change the location of speech and language services at the time of service delivery in schools for students with
moderate-to-severe disabilities, ages 3 to 11 years old. This perceptual survey study of Speech Language Pathologists (SLPs) examines the compelling factors at the time of service delivery that change the place speech-language services are provided. It is hypothesized that factors outside of those stated in the individual student’s Individualized Education Plan (IEP), which cause last minute changes in the planned place of service delivery, may confound timely success, or even ultimate success, of a student’s potential mastery of communication. By learning more about the considerations SLPs take into account at the time of service delivery in schools for students with moderate-to-severe disabilities, improved planning of services and personnel within the educational environment may be implemented to achieve optimal communication development.

CHRISTINE CORTESE
Faculty Advisor: Barbara Glazewski
Non-Clinical Skills Required of Potential Employers of Entry Level Speech-Language Pathologists
The purpose of this study was to gain insight into which non-clinical skills current employers are looking for in entry-level speech language pathologists (SLPs). This non-experimental research study surveyed local professional SLPs from the Central New Jersey area through face-to-face interviews where they were asked to complete a questionnaire. The questionnaire addressed quantitative and qualitative data. The local-area SLPs were asked to answer four open-ended questions and then were asked to rank certain skills in order of importance, including the following: administrative competencies, communication competencies, team building competencies, cognitive competencies, and interpersonal competencies.

JESSICA COTY
Faculty Advisor: Alice Chiarello
Effects Of Mnemonics and Visual Imagery On Memory for Healthy Older Adults
Memory loss is one of the symptoms that is most often associated with aging (Warren, 2008). While long-term episodic, procedural, and semantic memories often remain stable, age can reduce short-term memory. Short-term memory is involved in recalling day-to-day details (Levy, 2001) such as forgetting names and faces, location of objects, and appointments (Small, Larue, Komo, Kaplan & Mandelkern, 1995). As a result, investigations have been conducted to decipher not only the source and severity of these memory declines but also into the various forms or restorative and preventative care for memory in older adults (Small et. al., 1995). Previous research showed that memory function in healthy elderly adults can be improved or even repaired through training and support (Lou & Craik, 2008). As indicated by Rebok, Carlson, and Langabauom (2007), two techniques researchers use most frequently with older adults are the methods of loci and mnemonics (Rebok & Balcerak, 1989; Verhaehgen & Maroone, 1996; Yesavage & Rose, 1984). Memory training techniques implemented with older adults who are just beginning to experience memory decline, but who do not yet suffer from profound memory loss, can help prevent future memory decline. Learning techniques to enhance memory at the early stages may be a crucial aspect of future memory training research. The purpose of this study was to demonstrate to healthy aging older adults that the use of mnemonics and visual imagery could lead to an improvement in their short-term memory. Concurrently, this study determined which memory training technique led to a larger increase during the memory assessments. Through a participant questionnaire the researcher also determined how each of the participants felt about the new learned technique. Results indicated that the memory training technique of mnemonics lead to a greater increase in short term memory functioning.

MAUREEN DALTON
Faculty Advisor: Barbara Glazewski
Caregiver Use of Communication Strategies in Alzheimer’s Disease and Dementia Relative to Severity
Many communication strategies have been developed to provide caregivers of dementia patients effective tools to use in communicating with their family members. Although there are a variety of documented strategies and research into their effectiveness, little research exists in regard to the severity level of the patient with whom they are used. Caregivers of Alzheimer’s/dementia patients were surveyed regarding their use of the most commonly recommended strategies and their opinion about the effectiveness of these approaches during both activities of daily living and social communication. Caregivers provided variable responses which leads to the conclusion that the development of communication strategies must be made unique and individualized to the patient and caregiver.

KATELYN DESCH
Faculty Advisor: Alice Chiarello
Effects of Verbal vs. Non-Verbal Praise in Adults with Aphasia
The purpose of this study is to measure the relationship between verbal praise as compared to non-verbal praise and the results of the achievement of therapy goals. This study is a mixed-method design including both quantitative and qualitative data. It is a post-test only randomized treatment groups design. There are three groups for this study including a group A, the control group, group B, the group receiving verbal praise as reinforcement, and group C, the group receiving non-verbal praise as reinforcement. The quantitative data that will be measured is the data collection sheets that each clinician will use during the first ten minutes of therapy. The qualitative data will be represented by the principal investigator’s (PI) observations of the speech therapy sessions, as well as individual student clinician’s observations of the client regarding the reinforcement and participants. The seven participants (3 males and 4 females) in this study will be randomly assigned to one of the three groups. The achievement in therapy will be explored during therapy sessions in adults with aphasia at Keans University’s Center for Communication Disorders. The use of both verbal and non-verbal praise will likely be the most effective reinforcement strategy for adults with aphasia.

SAMANTHA FONG
Faculty Advisor: Mary Jo Santo Pietro
Do Speech-Language-Pathology Graduate Students Receive Adequate Instruction About Adverse Drug Reactions and their Implications in Therapy?
The purpose of this study is to assess if graduate students in speech-language pathology are sufficiently educated on the impact adverse drug reactions may have upon speech and language therapy. The questions posed by the researcher include, “How much do speech-language pathology students know about adverse drug reactions and their implications in therapy?” and “Do universities offering master’s degrees in speech-language pathology prepare students to work with caseloads of patients taking a broad range of medications?” Participants will be recruited via a questionnaire posted on the National Student Speech Language Hearing Association (NSSLHA) electronic announcement service “In the Loop” and via the ASHA Community, a social networking website available to NSSLHA and American Speech-Language Hearing Association (ASHA) members. Qualtrics and a third-party administrator will be utilized to administer the survey. Participants will be asked to take a two-part questionnaire examining their educational experience in regards to pharmacology and their knowledge of adverse drug reactions’ impact in speech therapy. The results of this survey will be analyzed to determine if sufficient education...
is provided to speech-language pathology students regarding the impact of adverse drug reactions on their therapy.

**RACHEL GENTILE**
Faculty Advisor: Alice Chiarello
*The Effects of Varying Reinforcement Schedules for Clients with Aphasia in Individual Therapy*

Verbal feedback provides clients with useful information regarding their performance in therapy; however, researchers continue to disagree as to which schedule of feedback provision has more positive effects on client success. There is research to support both immediate and delayed feedback schedules; however, there is limited research regarding aphasia clients and the effects of feedback on their success in therapy. This study examined the effects of immediate and delayed feedback on client achievement in therapy for clients with aphasia. Participants were randomly assigned to one of three treatment groups: treatment group A (immediate feedback), treatment group B (delayed feedback) or the control group and data was collected by the participants’ clinicians during the first ten minutes of each session, for eight sessions. Review of the data revealed that the control group and the immediate feedback group made the most progress towards achieving their short term objectives and that the delayed feedback group demonstrated a negative progression toward achieving short term objectives. These findings however, are not statistically significant due to the limited number of participants.

**DIANA GORTYCH**
Faculty Advisor: Jeannine Carlucci
*The Effects of Parent Training on Children’s Expressive Language Abilities with Autism*

Auditory processing disorders impact an individual’s communication in various language domains: semantics, syntax, and pragmatics. Parents who have children with autism are often unaware of how to effectively communicate with their child. Training parents to be key roles in their child’s intervention process is crucial in promoting communication. Previous research has been conducted that teaching parents strategies on ways to communicate with their child with autism results in positive gains for their child. However, insufficient evidence-based research has provided information about what specific strategies result in improvements in the child’s verbal output. This study is conducted to observe: a. What are the effects of training parents on strategy use when communicating with their children with autism when provided a manual and/or intervention combined with a manual? b. Does the implementation of latency time and modeling lead to an increase of verbal skills from the child? c. What are the changes in the parent’s awareness on communicating with their child with autism? The participants in this study included six mothers and their sons with autism. The parents completed a questionnaire about their current knowledge of autism. The two groups were divided: Group A received a manual about strategy use in combination with an intervention implemented by the principal investigator and Group B received the same manual to review. Both groups were videotaped for baseline information and videotaped again two weeks after to observe changes in the child’s verbal output and mother’s use of strategies. Overall, there was no statistical significance found between groups at the p<.05 level. However, all of the children’s mean length of utterance increased post study.

**SHIRA HOUGHTON**
Faculty Advisor: Machid Namazi
*The Efficacy of Using Visual Biofeedback to Elicit Correct /r/ Production in Persons with Residual Phonological Errors*

This study examined whether receiving visual biofeedback, through the use of the Say-N-Play computer game, increased the accuracy of /r/ production at the word and phrase level in children with residual phonological errors. Three third grade boys were identified (through parental report, by spectographic analysis and through speech sample analysis) as having difficulties producing /r/ in given words and phrases. Each subject participated in speech sessions using the Say-N-Play computer game. The game was calibrated to identify each subject’s individual strengths and weaknesses and to generate /r/ words and blends in ascending order of difficulty. During the first four sessions the boys received visual biofeedback from the game, along with syllabic emphasis, rate, and oral-motor positioning cueing from the student clinician. Over the course of the study clinician cueing was gradually diminished. This was done to ascertain how well the boys responded to the game, and whether they improved in their ability to produce /r/ using visual biofeedback as their main source of positive reinforcement. Speech sample analysis was done at the fourth week, and spectographic analysis and speech sample analysis were collected during the final session. Results from the final session were measured against analysis of the baseline data collected to gauge the efficacy of this method of treatment.

**JESSICA HUNNEMEDER**
Faculty Advisor: Mahchid Namazi
*Narrative Abilities of a Child with an Auditory Processing Disorder*

Auditory processing skills were first assessed in the early 1950’s to determine how noise affects the input of language in academic learning environments. Researchers found that children suspected of poor auditory processing skills exhibit difficulty in one or more of the following auditory tasks: auditory closure, bimodal interaction, auditory separation and integration, temporal processing, bimodal interaction, auditory short-term memory, and auditory discrimination” (Neville, Foley, & Gertner, 2010). Poor performance in any of the aforementioned areas may lead to a diagnosis of an Auditory Processing Disorder (APD). Children diagnosed with an APD tend to have difficulty with comprehension of incoming auditory stimuli, thus leading to difficulty with language and learning tasks. It is generally accepted that an APD interferes with the input of auditory stimuli, but what is not understood is the output of linguistic material. Therefore, the purpose of this study is to assess the output of language, given a narrative task in varying environments. Participants were recruited for this study through flyers sent to NISHA members and a local audiology office. Participants needed a diagnosis of APD from a board-certified audiologist to perform in the study. Once a case history and short language assessment were performed, participants were required to listen to four stories. After each story, participants completed a story re-tell task in four different conditions: quiet, white noise, single-talker babble, and multi-talker babble. The results of this study may be clinically relevant to current knowledge about the interaction between noise and learning in children with an APD.

**AISHA IFTIKHAR**
Faculty Advisor: Alice Chiarello
*Semantic Feature Analysis Treatment Effects on Discourse in Adult Group Aphasia Therapy*

Individuals with aphasia, regardless of etiology, often experience episodes of word-retrieval difficulties. This consistent feature of aphasia not only disrupts the continuous flow of natural discourse but often
acts as a barrier in social communication. Semantic feature analysis (SFA) is an evidenced-based treatment approach, utilized by speech-language pathologists to improve the lexical capabilities in these individuals. Unfortunately, the efficacy of SFA and the majority of the literature has focused on individual aphasia treatment, and has yet to establish its basis in a group aphasia environment. The purpose of this study was to examine whether using SFA in group aphasia treatment will reduce the frequency of lexical retrieval impairments over the course of treatment, and whether the treatment will result in broad functional and/or social changes which will enhance participants’ overall communication skills. A mixed methods experimental design (within subjects) was used to converge both quantitative and qualitative data. Participants (n=4) pre-and-post-scores on the Boston Naming Test (BNT), and overall frequency of lexical retrieval difficulties through data collection were used to measure the effects of SFA in group aphasia therapy. In addition, communicative benefits were evaluated through pre-and-post assessment of the ASHA Quality of Communication Life Scale (QCL). Results revealed a scattered trend between SFA treatment and improved lexical retrieval capabilities in discourse; however, the participants’ abilities to name semantic features for a target word increased. Improvements were noted on both the BNT and ASHA-QCL indicating that SFA treatment positively impacted the participants’ word-finding deficits, and social communication. These findings provide preliminary support for the hypotheses that SFA group aphasia treatment can be used as a means to strengthen the semantic knowledge of individuals with aphasia. Future research may be directed toward investigating whether the severity of aphasia impacts treatment, and may compare SFA treatment with other communication therapies such as Promoting Aphasic’s Communication Effectiveness (PACE; Albyn, 1980) to determine the best service delivery model.

**DIANNA JABAILY**
Faculty Advisor: Jeannine Carlucci

*The Knowledge and Awareness of Aphasia and Other Neurological Disorders Among Bank Employees*

Bank employees are on the front line in one activity of daily living that persons with a disability may choose to participate in; therefore, for communication to effectively occur, their knowledge and awareness of aphasia and other common neurological disorders is vital. The Life Participation Approach to Aphasia (LPAA) focuses on reengaging a person with aphasia into daily life by enhancing the environment in which a person with aphasia communicates (Boles and Lewis, 2003). This approach can also be generalized to other neurological disorders. For reengagement to occur successfully, it is imperative that members of the general public know how to effectively communicate with a person who has a disability. This is a quantitative research study that utilized a quasi-experimental research design. It evaluated the awareness and knowledge of aphasia and neurological disorders among 14 bank employees before and after being presented with a PowerPoint training program or lecture training program. The impact each disorder has on speech and communication, as well as the bank employees’ self-perceived communication competence of various disabilities was evaluated. Overall, the results indicated that both types of training programs yielded an increase of knowledge, and neither was proven more effective than the other. Furthermore, significant differences were reported in both groups in regard to their self-perceived communication competence following each of the training programs.

**DANA LEOVIC**
Faculty Advisor: Alice Chiarello

*Effects of Presentation Modalities on Vocal Hygiene Training in Undergraduate Students*

Voice disorders may occur as a result of excessive usage of the vocal mechanism. Prevalence rates, the amount of voice disorder cases within a particular group in time, were higher in professional voice users. Teachers, who directly credit their problems to their occupation, comprised the largest group of professional voice users (Roy, 2004). Roy, Gray, Simon, Dove, Corbin-Lewis, and Stemple (2001) introduced proper vocal hygiene training, which emphasized proper care of the vocal mechanism to eliminate harmful behaviors. A lack of voice training during their schoolwork contributed to the high prevalence of voice disorders in teachers (Hazelton, 2009). These findings stressed the importance for vocal hygiene educational programs for future teachers (Van Houtte Claey, Wuyts, & Van Lierde 2010). For this study, the participants were randomly assigned to one of two groups. Both groups were introduced to common voice disorders. Participants in the combined visual and lecture group were shown a two-dimensional image, which displayed each vocal pathology and received a lecture; participants in the control group only received a lecture. Pre and post assessment questionnaires were used to measure perceived behavior modifications. The purpose of this study was to determine the effectiveness of vocal hygiene education programs for students and assess the likelihood of behavior modifications overall. It is hypothesized that the students in the combined visual and written lecture group will have higher perceived behavioral modifications after completion of the study. Results and implications will be discussed.

**LINDSAY LEN**
Faculty Advisor: Jeannine Carlucci

*Teachers’ Awareness, Perceptions, Attitudes, and Knowledge of Students Who Stutter*

The study evaluated teachers’ perceptions, attitudes, awareness, and knowledge of stuttering before and after being presented with a PowerPoint presentation, and identified the role of the SLP in educating other school professionals. Because teachers are key communication partners to their students, it is essential for teachers to be educated about the appropriate way to communicate with a student who stutters. Six private elementary school teachers were recruited. An intake survey was completed by each participant. Next, the participants were verbally presented with a stuttering PowerPoint presentation. Lastly, each participant completed an exit survey involving the same survey items as the intake survey. There was no statistically significant difference found between the intake and exit surveys. The results suggest that teachers have general knowledge about stuttering but lack the information needed to make modifications for students who stutter. This exhibits the lack of collaboration and education between the SLP and teachers, which is vital for students’ success in intervention.

**JORDYN LENTINI**
Faculty Advisor: Jeannine Carlucci

*The Effectiveness of Social Stories vs. Comic Strip Conversations on Social Deficits*

Deficits in the area of social skills almost always characterize young children with Autism Spectrum Disorders (ASD). One commonly used method to remediate behaviors in social situations is through the use of individualized stories, Social Stories and Comic Strip Conversations are two similar but different intervention strategies in order to remediate social deficits in children with ASD. Therefore, the intended research question became: Which method is more effective in improving social deficits, Social Stories or Comic Strip Conversations? The methods used in this study included a pre-questionnaire that was administered to the participants’ parents in order to identify demographics and a social skill that would be targeted during therapy. The participants were divided into two groups. Group A received therapy using Comic Strip Conversations. Group B received therapy using Social Stories. The principal investigator met with the participants once a week for forty minutes for a total of four weeks. During the session the participants read the story, completed a reinforcer activity and closed out the session by re-reading the
SABRINA MAZZUCCO
Faculty Advisor: Mary Jo Santo Pietro

How Typically Developing Siblings Perceive Communication in Sibling Dyads Where One Sibling Has Limited Verbal Output Due to Severe Disability

The sibling relationship is complex, and it is complicated further when one sibling has limited verbal output due to a severe disability. According to the American Speech and Hearing Association “Guidelines for Meeting the Communication Needs of Persons With Severe Disabilities” (1992) it is essential to include the client’s communication partners who he/she interacts with on a daily basis when considering assessment and intervention. Therefore, a speech-language pathologist should have a general knowledge of how clients with limited verbal output due to various severe disabilities communicate with their siblings. Currently, there is no research done on this topic. The purpose of this study was to investigate communication between siblings in a sibling dyad where one sibling has limited verbal output due to a severe disability by interviewing the typically developing sibling. Participants included five girls between the ages of 8 and 10 each of whom had a sibling with limited verbal output due to a severe disability. The interview consisted of 15 questions that pertained to various types and methods of communication between siblings. Themes observed in the results of this study included: a general appreciation for the knowledge of what it is like to have a sibling with a disability, career aspirations to be in a “helping profession,” modifying activities to their siblings’ abilities for play, and an understanding of how to best communicate with their siblings according to their skill level.

MICHAEL O’BRIEN
Faculty Advisor: Mary Jo Santo Pietro

Professional Singers’ Knowledge of Vocal Hygiene and How this Knowledge is Represented Across the Musical Genres

With professional singers like Adele, Keith Urban, and John Mayer undergoing vocal cord surgery, it is clear that these artists did not successfully maintain adequate vocal hygiene and abused their voice. This led me to question whether other professional singers know how to maintain vocal hygiene, and whether their lack of knowledge was related to the genre of music that they sing in or if this is common amongst the majority of singers across the major music genres in the U.S. Does an artist’s knowledge of vocal hygiene have a direct relationship to the genre in which the singer sings? This study’s aim is to identify which singers, in what genres pose the greatest risk for vocal abuse. The participants who partook in this study filled out a 30-question survey that asked general information about vocal hygiene. The survey was distributed through the Qualtrics online survey site and was accessible through a link that was advertised on MySpace, Backstage, and Craigslist websites. The results indicate that the level of singers’ knowledge and application of vocal hygiene differs significantly from genre to genre as well as having degrees of difference amongst singers within the genres. A further analysis was done and compared the singers by the years involved in voice lessons. It is clear that a singer who has had voice lessons is less likely to have vocally abusing behaviors, a voice disorder, and is more knowledgeable on vocal hygiene. Knowing which singers are at potential risk will help speech-language pathologists better identify potential abusers. This identification can lead to an earlier intervention that can help save their voices and reduce or eliminate the risk of further damage.

MEGAN PERILLO
Faculty Advisor: Alice Chiarello

Effective Communication and Dementia Knowledge Training of Ancillary Staff at a LTC Facility

This quantitative experimental design was implemented in order to obtain information regarding the communication and dementia knowledge of ancillary staff members of a long-term care (LTC) facility. The study was designed to examine the research question that a 20 minute PowerPoint presentation with the opportunity for a question and answering period is of greater benefit to ancillary staff as compared with solely an informational handout. Ancillary staff members that volunteered for this study were randomly divided into two groups, Group A and Group B. Group A received a formal intervention with a PowerPoint presentation, handout, and question and answer period; whereas Group B received only an informational handout. A pre/posttest questionnaire was administered to 12 participants and their scores compared. The results show that the formal intervention of PowerPoint presentation, along with a handout and question and answer period, yielded greater scores for the participants.

JESSICA PETRIZZI
Faculty Advisor: Mahchid Namazi

Preschool Children and Fine Motor Skills

The present study is a replication and extension of Diamond et al.’s (1998) study. The current study sought to ascertain whether a relationship exists between deficits in fine motor skills and deficits in speech and language. Preschool children with and without speech and/or language deficits between the ages of 3 and 5 without any other diagnosis were recruited. The children’s language skills were assessed using the CELF-P2, and their fine motor skills were assessed using the beading task from the DST-S and Diamond et al. (1998) criteria for assessing fine motor skills. The results revealed a possible task specific link between performance on fine motor tasks and language.

MEREDITH PFISTER
Faculty Advisor: Mary Jo Santo Pietro

Commonalities of Adults with Aphasia in Relation to Long-Term Speech and Language Treatment at a University Speech and Hearing Clinic: A Qualitative Study

A literature review indicated that contrary to general beliefs, long-term treatment has been effective for most individuals with neurological damage. Long-term speech-language treatment provided to persons with aphasia, traumatic brain injury, dysphagia, and dementia has also been shown to improve communication and enhance overall quality of life. Despite evidence that recovery occurs in the chronic stages post stroke in patients who had appeared to plateau during initial recovery, once these individuals are discharged from the hospital, many of them are unable to afford long-term treatment. Some patients desiring long-term treatment are referred to university clinics, where the cost of therapy is far less. This study sought to determine commonalities of adults with aphasia who have received long-term speech and language treatment at a university clinic. Records were examined in an attempt to retrospectively identify trends among adults with aphasia treated long-term post-stroke. Demographics, types and severity levels of aphasia treated, reason for referral, other medical conditions, and communicative ability of the clients from beginning of treatment to present or discharge, were studied.
How Much Do “Cover Band” Singers Know About Vocal Hygiene and Vocal Abuse?

The purpose of this study is to evaluate “cover band” singers’ knowledge of vocal abuse and to further educate singers on how to prevent voice disorders. “Cover bands” are bands that do not write their own music or lyrics but attempt to imitate other bands’ music and singing styles. “Cover band” singers sing a variety of different music, some involving different techniques to sing each genre. Some singers are professionally trained; however, they may not know how to prevent hurting their voices especially in certain situations (i.e. singing multiple nights in a row, in different atmospheres, etc.). Since singers need to use their voices for purposes other than just singing, it is important to be aware of vocal abuse symptoms and take preventative measures, so they can still use their voices in everyday situations.

There have been several studies on vocal hygiene and vocal abuse among singers. However, none of the previous studies have specifically targeted “cover band” singers, which is why I have chosen this demographic as the target population for this study. This study’s research questions are: 1. Do “cover band” singers abuse their voices while singing? 1a. Do they know what abusive behaviors are? 1b. Do they engage in behaviors that are abusive? 2. Do “cover band” singers report voice disorders? 3. How do “cover band” singers manage difficulties with their voices? This study collected data through an anonymous online questionnaire. The results of this study may add to the current knowledge about singers’ awareness of vocal abuse behaviors and vocal hygiene. With this information, speech therapists may provide education and resources to improve the public’s knowledge about vocal abuse, especially to singers. This study gathered information on whether or not “cover band” singers abuse their voice while singing, familiarity of “cover band” singers with ways to prevent hurting their voices and prevalence of “cover band” singers to voice disorders.
JENNIFER RUSSO
Faculty Advisor: Alice Chiarello
The Effects of Implementing iPad Applications into Articulation Therapy with Children
The increased interest and implementation of the iPad into speech-language pathology generates an immense need for evidence-based research. Evidence-based practice ensures accountability, professional responsibility, and ethics, and is crucial when choosing therapy approaches and tools in therapy (American Speech-Language-Hearing Association, 2005). In part one of this study, data was collected through a student clinician survey regarding the use and general knowledge of the iPad and its applications among university graduate students. In part two of this study, an iPad application was implemented into therapy sessions by the participants’ student clinician and information was collected regarding the progress made by clients. In addition, the participant’s student clinician completed a questionnaire that assessed the advantages and disadvantages of using the iPad in therapy. The results are not statistically significant due to the limited number of participants; however, patterns and consistencies within the results indicate that the iPad can be an effective tool within articulation therapy with children.

MELISSA SANTIAGO
Faculty Advisor: Jeannine Carlucci
The Effectiveness of Discrete Trial Teaching vs. Pivotal Response Teaching When Educating Preschool Children with and Autism Spectrum Disorder to Ask “Wh” Questions
In typical conversations, adults and children alike often encounter information that is unclear, leading to misunderstandings. When this happens, conversation partners use conversation repair strategies to clarify the intended message. A conversation repair strategy provides clarification about information through question-asking. Researchers have found that it is often common for children diagnosed with an autism spectrum disorder (ASD) to fail at using conversational repair. For children with an ASD who have impairments in the ability to ask questions spontaneously, teaching “wh” questions could provide techniques to use as conversation repair strategies (Geller, 1998). Question-asking is critical for language learning as it allows an individual to obtain important unknown from the environment (Shillings, Valentino, Bowen, Bradley, & Zavatkay, 2010). According to researchers, question-asking increases social interaction, correct completion of tasks and may assist in expanding vocabulary. This study was conducted to investigate the effectiveness of discrete trial teaching versus pivotal response teaching when educating preschool children with an autism spectrum disorder to ask “wh” questions. It was also conducted to determine which teaching method is most effective in prompting preschool children with an ASD to acquire the skill of question-asking. The study involved six preschool students who have impairments in the ability to ask questions spontaneously. Results were interpreted to conclude that pivotal response teaching was more effective than discrete trial teaching during generalization phrases.

HEDY ROTH
Faculty Advisor: Mary Jo Santo Pietro
An Examination of Knowledge Regarding Sensory Integration Dysfunction in Children with Autism Spectrum Disorder Among Speech-Language Pathology Graduate Students
The purpose of this study was to determine how much knowledge speech-language pathology (SLP) graduate students have regarding sensory integration dysfunction in children with autism spectrum disorder (ASD). Studies have shown that sensory integration dysfunction in children with developmental disorders and their ability to sustain attention and acquire language (Mauer, 1999) however, there are no studies to date about how much knowledge SLP students possess about the concomitant sensory issues these children may have. Possessing knowledge about how to identify and address presenting sensory issues in children with autism may result in more effective speech-language therapy sessions. Sixty-eight SLP graduate students across the United States completed surveys to determine how much knowledge SLP graduate students felt they had about sensory integration dysfunction in children with ASD, compared to how much knowledge they actually did have in identifying and addressing sensory integration dysfunction in this population. The results of this study indicated that participants ages 21-25 felt the more unprepared and lacking in knowledge regarding identifying and addressing sensory integration dysfunction than participants who were age 40 or over. The latter, post graduate group’s knowledge was primarily due to experience/self-taught, rather than their graduate coursework. Results also indicated that while participants reported they lacked sufficient knowledge and felt uncomfortable addressing sensory integration dysfunction, they actually did possess an adequate amount of knowledge regarding identifying and addressing sensory issues in this population.

JENNY RUSSELL
Faculty Advisor: Alice Chiarello
The Effects of Implementing iPad Applications into Articulation Therapy with Children
The increased interest and implementation of the iPad into speech-language pathology generates an immense need for evidence-based research. Evidence-based practice ensures accountability, professional responsibility, and ethics, and is crucial when choosing therapy approaches and tools in therapy (American Speech-Language-Hearing Association, 2005). In part one of this study, data was collected through a student clinician survey regarding the use and general knowledge of the iPad and its applications among university graduate students. In part two of this study, an iPad application was implemented into therapy sessions by the participants’ student clinician and information was collected regarding the progress made by clients. In addition, the participant’s student clinician completed a questionnaire that assessed the advantages and disadvantages of using the iPad in therapy. The results are not statistically significant due to the limited number of participants; however, patterns and consistencies within the results indicate that the iPad can be an effective tool within articulation therapy with children.

VALERIE ROMANO
Faculty Advisor: Alice Chiarello
Oral Motor Exercises as Warm-up Activities for Articulation Disorder Treatment
The purpose of this study was to examine the use of oral motor exercises as warm-up activities prior to completing traditional articulation therapy, and the effect of these exercises on the achievement of therapy goals for children with articulation disorders. Due to an emphasis on the importance of evidence-based practice (EBP) as compared to reliance on clinician experience by the American Speech Language-Hearing Association (ASHA), the efficacy of oral motor exercises for treatment of articulation disorders in children has been questioned. Yet, despite research questioning its widespread use, speech-language pathologists continue to include these exercises as part of their treatment plans, citing clinical experience as support. While research generally does not support the use of oral motor exercises as a sole intervention for articulation disorders, there has been little research conducted to evaluate the use of such activities as warm-up activities, in conjunction with another type of intervention. This study was an investigation into the effect of these exercises on progress in therapy when implemented as warm-up activities. The use of these exercises as warm-up activities was minimally, if at all, effective in treatment of articulation disorders, which raises concerns regarding their widespread use.

LISA SCARPA
Faculty Advisor: Barbara Glazewski
The Role Of “Textisms” In Relationship To Phonological Awareness Skills Of 13 - 15 Year Olds
This study examined the correlation between teens’ use of “textisms” and phonological awareness skills. This new language of “textisms” seems to be infiltrating every aspect of a teen’s life. From their use “textisms” in their verbal speech to peppering their school papers with acronyms, it seems that...
take this survey. The results of this survey will determine if kindergarten teachers have the knowledge to discriminate between stuttering like disfluencies and normal disfluencies, and weather or not they make the appropriate referral for that student. It will also determine if this population of teachers needs to become more informed about stuttering.

MARISSA TAVERAS
Faculty Advisor: Barbara Glazewski

Spanish Phonological Patterns and Dialectal Features in Typically-Developing Bilingual Children of Dominican Descent

Spanish dialects are broadly categorized as either conservative or radical. Both categories differ significantly in their phonology. Conservative applies to Spanish dialects with a phonology that remains comparatively close to the spelling. Radical dialects vary significantly in their syllable rhyme and post-nuclear consonantal behavior. However, these terms do not do explain the idiosyncratic variations that occur within each Spanish dialect. Few studies have researched the phonology of radical dialects (as it relates to speech- language pathology), and the only studies that do exist are based on the Puerto Rican dialect (e.g., Fabiano-Smith & Barlow, 2010; Goldstein & Iglesias, 1996; Goldstein, Fabiano, & Washington, 2005). There are currently no studies on the phonology of the Dominican dialect, a culture that has quickly become the number one Spanish community in New York and second in New Jersey (U.S. Census Bureau, 2010). The purpose of this study was to investigate the phonological differences between the Dominican and Puerto Rican dialects. This study presents a qualitative description of the phonological patterns in Spanish- English-speaking preschoolers of Dominican descent who reside in New York and New Jersey. Phonological features were observed in 15 Dominican adults, in order to establish normative adult phonology for this population. The phonology of 15 Puerto Rican adults was also analyzed in order to differentiate phonological features between the two radical dialects. Afterwards, phonological processes were analyzed for five 3-year old and five 4-year old, Spanish-English-speaking Dominican children. Analyses were made and compared to the Goldstein & Iglesias’ (1996) study of the Spanish phonological patterns found in typically-developing, Puerto Rican preschoolers. The Dominican and Puerto Rican adults yielded similar phonological features in regards to fricatives, stops, nasals and glides, however, the Dominican adults demonstrated significant variations within the liquid class. The order of phonological acquisition also differed between the Puerto Rican and Dominican children.

MATTHEW SHAW
Faculty Advisor: Jeannine Carlucci

The Effects of Interacting on Facebook for an Individual that Communicates through an Augmentative Device

Currently, there are approximately 900 million Facebook members. Social networking websites, such as Facebook, can lead to building a stronger determination to communicate with other people. While Facebook may be easily accessible to most people, there are various barriers that prevent many populations from not gaining access to this social networking website. Individuals that are physically handicapped, in specifics, individuals with severe cerebral palsy that use Augmentative and Alternative Communication (AAC), may not have direct accommodations to fit their needs to gain access to Facebook. This population may not have the ability to type on a keyboard or click a mouse with their hands. Rather, these individuals would need technological adaptations to allow them to gain access to Facebook. By presenting these individuals with such accommodations, it would attempt to break social barriers for this population, in an effort for them to join and participate in a huge social trend such as Facebook. The purpose of this study is to examine the potential effects that Facebook may have on an individual with cerebral palsy that communicates through an AAC device. A questionnaire was given to the participant before and after his experience using Facebook. The questionnaire included questions about the participant’s knowledge of the Internet, his thoughts on his communication, his personality, and his interests. Comparing and searching for differences between the two questionnaires before and after learning and interacting on Facebook led to the conclusion that Facebook is helpful in breaking down the speech and language barriers that the participant faces.

AMBER SMITH
Faculty Advisor: Mary Jo Santo Pietro

Kindergarten Teachers’ Awareness of Stuttering

The purpose of this study will be to determine if kindergarten teachers have the appropriate knowledge and awareness of stuttering to decide if a child needs to be referred to a speech-language pathologist. In most cases, the disorder of stuttering will begin sometime between the ages of 3-6. Identifying stuttering at such an early age may improve the chance of eliminating any secondary or associated behaviors that may develop, and may also teach the client at an early age how to manage their speech. This research takes a look if kindergarten teachers can identify a child who is at risk for stuttering by having the ability to distinguish between stuttering-like disfluencies, and normal disfluencies. It will also take a look at if these teachers refer children for further evaluation. A twenty-question survey was designed to assess kindergarten teachers on their knowledge of stuttering-like disfluencies, and if these teachers make referrals for their students based on the disfluencies. The questionnaire was distributed through an on-line forum, AtoZteacherstuff.com, where kindergarten teachers around the country had access to take this survey. The results of this survey will determine if kindergarten teachers have the knowledge to

PATRICIA TOTO
Faculty Advisor: Barbara Glazewski

Aerobics Instructors’ Awareness and Knowledge of Vocal Hygiene

Previous research indicates a general lack of knowledge of vocal hygiene in the general population, despite the common occurrence of voice disorders, especially in subdivisions of the population in which the voice is heavily used in professional functioning. Aerobics instructors receive limited, if any, training in the area of vocal hygiene. Aerobics instructors are susceptible to voice disorders because of the tremendous amount of strain they place on their voices during instruction. People with voice disorders may not be able to communicate effectively in their line of work and the results can impact their vocal health and potential livelihood due to missed work. This study aimed to examine aerobics instructors’ knowledge of vocal hygiene to prevent or alleviate voice disorders before and after a training program on voice disorders and vocal hygiene.

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AMBER SMITH
Faculty Advisor: Mary Jo Santo Pietro

Kindergarten Teachers’ Awareness of Stuttering

The purpose of this study will be to determine if kindergarten teachers have the appropriate knowledge and awareness of stuttering to decide if a child needs to be referred to a speech-language pathologist. In most cases, the disorder of stuttering will begin sometime between the ages of 3-6. Identifying stuttering at such an early age may improve the chance of eliminating any secondary or associated behaviors that may develop, and may also teach the client at an early age how to manage their speech. This research takes a look if kindergarten teachers can identify a child who is at risk for stuttering by having the ability to distinguish between stuttering like disfluencies and normal disfluencies, and whether or not they make the appropriate referral for that student. It will also determine if this population of teachers needs to become more informed about stuttering.

MARISSA TAVERAS
Faculty Advisor: Barbara Glazewski

Spanish Phonological Patterns and Dialectal Features in Typically-Developing Bilingual Children of Dominican Descent

Spanish dialects are broadly categorized as either conservative or radical. Both categories differ significantly in their phonology. Conservative applies to Spanish dialects with a phonology that remains comparatively close to the spelling. Radical dialects vary significantly in their syllable rhyme and post-nuclear consonantal behavior. However, these terms do not do explain the idiosyncratic variations that occur within each Spanish dialect. Few studies have researched the phonology of radical dialects (as it relates to speech- language pathology), and the only studies that do exist are based on the Puerto Rican dialect (e.g., Fabiano-Smith & Barlow, 2010; Goldstein & Iglesias, 1996; Goldstein, Fabiano, & Washington, 2005). There are currently no studies on the phonology of the Dominican dialect, a culture that has quickly become the number one Spanish community in New York and second in New Jersey (U.S. Census Bureau, 2010). The purpose of this study was to investigate the phonological differences between the Dominican and Puerto Rican dialects. This study presents a qualitative description of the phonological patterns in Spanish- English-speaking preschoolers of Dominican descent who reside in New York and New Jersey. Phonological features were observed in 15 Dominican adults, in order to establish normative adult phonology for this population. The phonology of 15 Puerto Rican adults was also analyzed in order to differentiate phonological features between the two radical dialects. Afterwards, phonological processes were analyzed for five 3-year old and five 4-year old, Spanish-English-speaking Dominican children. Analyses were made and compared to the Goldstein & Iglesias’ (1996) study of the Spanish phonological patterns found in typically-developing, Puerto Rican preschoolers. The Dominican and Puerto Rican adults yielded similar phonological features in regards to fricatives, stops, nasals and glides, however, the Dominican adults demonstrated significant variations within the liquid class. The order of phonological acquisition also differed between the Puerto Rican and Dominican children.
ROXANA VERDE  
Faculty Advisor: Barbara Glazewski  

Does Prenatal Bilingual Exposure have an Effect on Infant Language Preference after Birth?

In a long series of studies, it has been demonstrated that the first steps toward bilingual language acquisition have already begun at birth. Current research in the area of fetal development has established that fetuses as well as neonates exhibit many perceptual sensitivities that are essential for the acquisition of language. For example, third trimester fetuses hear and are behaviorally responsive to sound (DeCasper, A., & Spence, M. 1986). Newborns can discriminate between rhythmically different languages such as English and Japanese and demonstrate a preference toward their native tongue over an unfamiliar one (Gervin, J., & Werker, J. 2008). The current study looked to identify whether a language preference is noted in a newborn who received significant exposure to both the English and Spanish language while in utero. Preference was assessed through the comparison of how much time it took the subject to be soothed in one language over the other. This evaluation then yielded an average number in minutes that was then interpreted as a preference score. It was noted that a preferential pattern toward English was present during soothing sessions under specific infant states of consciousness. The active alert and crying states exhibited the greatest changes, taking about 1.5 times longer to soothe in Spanish over the more frequently used language, English. In line with former literature, the results showed that newborns who have heard two rhythmically dissimilar languages throughout gestation can discriminate between the two. Interestingly, the subject exhibited a preference for English over Spanish during most soothing sessions despite having similar exposure to both languages prenatally.

JESSICA ZIVI  
Faculty Advisor: Mahchid Namazi  

Functional Cooking Tasks and Executive Functions In Chronic Aphasia

Executive functions (EF) are what allow people to generate plans, organize, regulate/consider consequences, modify/consider substitute options, or resolve solutions (Chevignard et al., 2009). It has recently become more accepted that EF’s are necessary for language (Purdy, 2002). When language skills are impaired, individuals rely on other cognitive skills to understand and produce language (Purdy, 2002). Research has suggested that communicative achievement in patients with aphasia depends on the capacity of their EF abilities. Research indicates that EF skills such as: working memory, self-monitoring, applying strategies, sequencing, planning, attention, etc. are all needed for functional communication (FC). Fridriksson et al, 2006 found that EF’s and FC are closely related in individuals with aphasia. It was also found that an increase in language impairment was related to a decrease in FC ability. It was hypothesized that by working on FC tasks, such as cooking, EF skills would improve in the subject’s with aphasia due to the close link between EF and communication. The investigator hoped to contribute to the limited body of research regarding cooking tasks in patients with aphasia. During the current study, a measure was used in order to assess divided attention, planning, and problem solving during cooking tasks in three participants with aphasia. Data was analyzed to establish a baseline as well as measure progress between EF skills and functional cooking tasks. An increase in two of the three EF skills during functional cooking tasks, suggesting targeting functional cooking tasks may have therapeutic implications for some individuals with aphasia.

COMPUTER SCIENCE

DAVID HEER  
Faculty Advisor: Patricia Morreale  

The UNIX Time Epoch

At approximately midnight on January 1st, 1970 GMT, the UNIX operating system designed by Dennis Ritchie and Ken Thompson at Bell Laboratories in Murray Hill, New Jersey began storing time as a 32-bit signed integer value. At approximately 03:14:07 January 19th 2038 GMT the same 32-bit signed integer value that has been ticking away ever since its inception on January 1st, 1970 will run out of available memory to store its integer value, ending 32-bit UNIX time as we know it on January 19th, 2038 which is known as the “Year 2038 Problem.” or “The UNIX Time Epoch.” This research project will explore the possibilities and what needs to be done to prevent the UNIX time epoch.

STEVEN HOLTZ, ALLAN GONCALVES  
Faculty Advisor: Patricia Morreale  

Data Mining and Analysis of Large Scale Time Series Network Data

Large amounts of data are readily available and collected daily by global networks worldwide. However, much of the real-time utility of this data is not realized, as data analysis tools for very large datasets, particularly time series data are cumbersome. This research presents a comparative study of three data mining tools using a large scale time series dataset from NOAA for analysis and mining. Meteorological data, gathered daily, if used at all, is useful for a very short period of time, both to help determine current weather conditions and to predict upcoming weather events. Current weather prediction methods can only guess at what the conditions will be in the near-term future, approximately one week at a time. The goal of this research project was to take large amounts of archival NOAA weather data and use appropriate data mining algorithms to identify patterns that could help predict future weather events. The results of this work identify the merits of the RapidMiner tool over Weka and Orange, and provide future direction for data mining on massive data sets gathered from global networks.

LUIS JIMENEZ, MARVIN ANDUIAR  
Faculty Advisors: Juan Gilbert (Clemson University)  

Reader Engagement

The purpose of this research is to help increase a reader’s level of engagement using a multimedia approach. Previous studies have shown that active reading encourages readers to keep reading as an interactive way of learning. However, reading is a very personal experience for each reader due to differences in individual understanding and points of view. This project focuses on giving a reader the best reading experience even in cases when the reading is not interesting and or boring and the reader’s attention may wander. An interactive multimedia reading approach is used in this research in order to increase the reading engagement level of the research subjects. Using Brain-Computer Interface (BCI) devices for measurement of the engagement level among the participants, a video is triggered to pop out when a reader’s engagement level is measured as “low.”

Research supported by: Ronald E. McNair Post-baccalaureate Achievement Program, U.S. Dept. of Education and Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation
YERIKA JIMENEZ  
Faculty Advisor: Patricia Morreale  
**Design and Evaluation of a Predictive Model for Smart Phone Selection**  
This poster discusses a research study conducted to find a predictive model for smart phone selection. Selecting a mobile phone has become very subjective in recent years; consumers often base their decisions on advertising and their personal expectations for the device. In order to provide the consumers with simpler and more objective information, a predictive model for smart phone selection was developed. Four of the most popular mobile devices were used for the development of this model: Apple’s iPhone, Google’s Android, Microsoft’s Windows and Research In Motion’s Blackberry. Everyday tasks, common to smartphone users, were identified and modeled, using the Keystroke Level Model (KLM). Fitts’ Law was used to provide additional objective data based on the dimensions and layout of the mobile phone screen. These objective measures were integrated with user preferences, to identify which smartphone would provide superior operation and performance for the features most desired by the smartphone consumer. Research outcomes from this project include identification of mobile devices that performed common tasks with efficiency and a user-task model predicting user smartphone selection based on individual utility and task frequency.  
*Research supported by: Ronald E. McNair Post-baccalaureate Achievement Program, U.S. Dept. of Education and Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation*

NATHALY LOZANO, JENNIFER LATHAM, JENNIFER L. GREEN  
Faculty Advisor: Carolee Stewart  
**Influencing Middle School Girls to Study Computer Science Through Educational Computer Games**  
The shortage of females in computer science has been studied before. Computer games have long been one way teenage boys find an interest in Computer Science, but most of those games are not appealing to teenage girls. The objective of the study is to find ways to influence middle school girls to pursue the male dominated field of computer science in high school and college. We created an educational computer game geared toward young girls. Our game “Gram’s Grocery Shop” is designed to change the image of computing among middle school girls, and to instill confidence by teaching real computer science concepts through puzzles. Through the use of our educational computer games we gathered statistics to determine if the girls were learning the computer science concepts. We were able to get the girls at Roselle Park Middle School interested in playing and designing computer games, and to think about pursuing computer science in their future.  
*Research supported by: Students Partnering with Faculty Summer Research program, Kean University and Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation*

HEENA PATEL  
Faculty Advisor: Patricia Morreale  
**Comparative Study of the Utility of E-books vs. Traditional Books**  
This research project investigates the usage of e-books versus traditional books for academic use and compares the two mediums for popularity based on their usefulness, accessibility, memorability, and usability. In this research study participants were exposed to reading material in both e-book and printed formats for two different study areas and were then tested on the reading material to gauge individual memory retention. The results of this study suggest that the usefulness and usage of electronic and printed textbooks can differ from person to person based on individual preferences and the subject matter studied.

CARLOS SILVA, DANIEL CHURCH, JOSHUA LISOJO, ALLAN GONCALVES  
Faculty Advisor: Patricia Morreale  
**Comparative Case Study of Mobile Application Design: Apple iOS vs Google Android**  
Mobile application design is a new area of invention and innovation. Software designers have many choices to make in the design and development of mobile applications, as differences in operating systems and display devices can impact features and performance throughout the life of the mobile application. A research team at Kean University conducted a comparative case study of mobile application design in their development of a mobile app to support a NJ historic site. One set of specifications was developed, and two teams were deployed, side-by-side, to design and test the requested features and interactivity. This case study has resulted in a unique opportunity to compare the design experiences. Two operating systems, the Apple iOS system and the Google Android system, were selected for comparison. Apple iOS work was done in Objective C, while the Android development was conducted in Java. In order to provide users of the mobile app with a consistent ‘look and feel’, features and interactivity, including map navigation and database search, were replicated in the same manner in the two dissimilar environments. Results from this research include a better understanding of shared mobile app development challenges, common to both platforms, and unique mobile app development challenges, found only in one of the environments. Developer experiences are included in the research outcomes, as well as time estimates and “lessons learned” to guide future mobile application projects. Research on the comparative merits of iOS and Android systems continues. This work also includes the contributions of Jason Bonafide, Steven Holtz, Dev Das, Nathaly Lozano, Jugal Shah, and Harold Lia.  
*Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation*

DARREN YEH, JACK CONWAY  
Faculty Advisor: Jing-Chiou Liou  
**Dynamic Password Authentication**  
Authentication is a process to determine whether or not if someone is actually what he/she is declares to be. By far, the most common and popular method of authentication is user name and password, but it is also proven to be a very weak authentication technique. Not only can a hacker easily crack the password, they can also hijack the password during transmission to the server. Without a strong second factor, security can easily be compromised. One time password (OTP) is a good way to enhance security by adding another factor to further verify the user's identity. OTP is a function that will randomly generate a series of number over a short period of time. Even if the hacker cracks or hijacks the password, it will not compromise the account safety because the password will change and generate a new one. OTP can be presented physically on a small device and virtually programed on a computer or cell phone. Dynamic password authentication is also called virtual OTP, as it uses the same password to generate an OTP during network transmission. Having a virtual OTP will greatly increase the security and reduce the chance of getting compromise.

THEODORE WOUBNEH  
Faculty Advisor: Wolde Woubneh  
**Animation Rendering**  
In computer animation, how far can you go to create harmony with two differing art styles? It's important to create fresh, unique looks in the changing world of video games and movies. I expect to accomplish...
CRIMINAL JUSTICE

EDWARD KELLY
Faculty Advisor: Constance Hassett-Walker
The Training of Emergency Service Personnel to Recognize and Relate to Citizens with Hidden Disabilities

The goal of this research is to bring a further awareness of the issues related to autism, and specifically to examine the extent to which law A-1908 – which requires emergency service personnel to receive training in recognition of hidden and developmental disabilities – is being effectively implemented. Additionally, by identifying strengths and weaknesses of current training, how the law is applied can be re-evaluated to improve services to the autism community. An online survey will be administered via Kean’s Qualtrics software to obtain raw data from participating law enforcement and first responder agencies. A random sample of police, fire, and EMS departments will be selected from all 21 New Jersey counties representing a diverse mix of paid, volunteer, large or small agencies.

LAUREN SPATH
Faculty Advisor: Thomas Lateano
The Effects of Collateral Consequences on Criminal Convictions and Plea Bargaining

The impact of the sentencing phase in a criminal case is often underestimated. Specifically, defendants and their legal advocates typically focus upon the express sanctions and penalties associated with the specific criminal charge and the subsequent conviction. The focus neglects to take into consideration the additional and perhaps less obvious collateral consequences associated with that conviction. Collateral consequences are additional civil state penalties or restrictions, required by federal or state statute, that are tied with criminal convictions (Ewald & Smith, 2008). Such consequences may include but not be limited to database registration, restrictions on governmental subsidies, denial of tuition assistance, and limitation of access to firearms. Since the number and extent of collateral consequences has steadily increased over the past several years, it is necessary for them to be considered during the plea bargaining process. This poster session will set forth a current review of literature, federal and state statutes, and pertinent case law regarding collateral consequences of convictions and how it impacts the plea bargaining process.

DESIGN – GRAPHIC DESIGN

MICHAEL MIERZEJWSKI
Faculty Advisor: Rose Gonnella
Visual Solutions for Commerce and Culture

My work in graphic design involves problem solving through conceptual and visually expressive means. Graphic design is essential to driving competitiveness, innovation, and value for business. The design solutions I have created for IEGA, The Corning Museum, and PINJ, begin with research of the subject, the target audience, and the scope of the market. With this knowledge, I have a meaningful foundation from which I seek innovative and unique visual statements that address global trends and consider environmental, economic, and social aspects of the design solution. The graphic design presented has proven successful in that it gained full approval by each client for its implementation in the marketplace.

DESIGN – INDUSTRIAL DESIGN

JOSH DENNE
Faculty Advisor: Matt Johnson
The BÜRO

The BÜRO was developed as a means to decrease the storage space required by and the versatility of the standard school desk. As a design student, this chair/desk is important in that it requires the use of design and mechanical engineering to develop a product that can be used by a wide range of end consumers. The BÜRO was developed through the use of scale models and functioning models along with the sketches necessary to further flesh out the concept and mechanical aspects so that a functional full-scale model could be produced. The final product exceeded expectations with its ability to stack infinity for storage reasons, be utilized for any conceivable use in the classroom and in the home, and the space saved with its innovative folding capabilities. With space being an issue, folding up to 1/12th the full size is a real plus.
Sustainable Residential Design

The Sustainable Residential Design project, located in Montauk, NY, focuses on the principles of sustainable design, as well as, evidence-based design (EBD). The sustainable design solutions used focused on the use of non-renewable resources, minimizing environmental impact, indoor air quality, solar energy and waste water management. The EBD research explores the concept of “Aging in Place”, as the client requested an environment that would adapt to any health and physical challenges she might incur later in life. In addition, EBD research was conducted on the condition of severe asthma, as the client’s young son suffers from this ailment, and his health needed to be considered in the overall design solution through materials and finishes selections, as well as architectural details, such as window placement and air circulation. Conceptually, the project considers the beautiful site and its surroundings, the concept of nature in the form of a tree, and how tree branches traveling through space create a natural and flowing environment that provides a connection with the natural world.

Wave of Living: Sustainable Residence for Age in Place and Asthma Residents

The project entailed designing a sustainable residence on a cliffside in Montauk, NY. The client is a 45 year old professional woman that works from home as a writer, editor and publisher. She plans on using the residence as her retirement home and will live there during her aging years. Her 14 year old son, who suffers from asthma, would reside there on alternate weekends. The residence was designed using sustainable design principles, as well as, evidence-based design (EBD). The sustainable design solutions used focused on the use of non-renewable resources, minimizing environmental impact, indoor air quality, solar energy and waste water management. The EBD research explores the concept of “Aging in Place”, as the client requested an environment that would adapt to any health and physical challenges she might incur later in life. In addition, EBD research was conducted on the condition of severe asthma, as the client’s young son suffers from this ailment, and his health needed to be considered in the overall design solution through materials and finishes selections, as well as architectural details, such as window placement and air circulation. Conceptually, the project considers the beautiful site and its surroundings, the concept of nature in the form of a tree, and how tree branches traveling through space create a natural and flowing environment that provides a connection with the natural world.

Cloud Observations and Morphology Physical and Operational Storm Environmental Chase Clues

Based on severe thunderstorm chasing experiences, cloud structures and morphology in the pre-storm environment were understood to be directly related to the existence, breakdown, and elimination of boundary layer capping. Operational observations and model output were used to diagnose cap existence and behavior during each chase day in order to plan chases for the day. Radar and satellite imagery was collected to link the progress of convective initiation and cap evolution for each chase day. Ground-based cloud photographs obtained during chases reflected many atmospheric processes as expected according to basic principles of physical meteorology and were compared with forecasts from operational data and model output. These images suggest specific cloud types, layering, and other characteristics that may assist storm chasing by providing additional observational clues of severe weather outbreaks as related to cap evolution. The results of this preliminary study are intended to assist storm chasers in observing visible evidence of changes in boundary layer capping on space and time scales not otherwise available except through in situ cloud observations.

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

The Raritan and Passaic Watersheds in Relation to Atmospheric Changes in Winter/Spring

During a typical winter/spring water cycle there are certain expectations with regard to daily or weekly water flow (i.e. runoff, infiltration, storage, et cetera) as well as month to month and season to season variations. However, when atypical winter/spring cycles arise due to significant changes in the atmospheric flow — or potentially climate changes or variations are experienced — water flow and the risk of flooding changes. This is true whether a “mild winter” is followed by a “record warm and dry spring” as observed during 2011–2012, or when various combinations of temperature and moisture are observed. The implications downstream include flash and/or river flooding as well as potentially unexpected changes in groundwater flow and infiltration (e.g., given a lack of snow cover and/or frozen soils). To gauge these types of impacts, stream flow data were obtained for the Raritan and Passaic River Basins in New Jersey (a densely populated region with major transportation infrastructures) to examine flow and stage during the most recent five winter/spring seasons according to their meteorological conditions.
The intent of this preliminary investigation was to discover whether the impacts, and flooding risks, were more or less than expected given a highly unusual winter/spring meteorological season. Comparisons of water flow and flooding were made between each season for each basin and episodes of flooding identified. The potential use of this information to assess changes in hydrologic and geologic impacts with regard to risk management was also addressed.

**Research supported by:** Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

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**Exercise Science**

**ADAM ECKART**

**Faculty Advisor:** Walter Andzel  

**Acute Effects of Two Warm-Up Methods on Vertical Jumping**

The purpose of this study was to compare the acute effects of two warm-up methods on counter-movement vertical jump (CMVJ) performance and to determine whether training status had an influence on jump scores. Nine males and females with resistance training experience performed a single bout of functional-isometric squatting and isometric whole-body vibration (WBV) half-squatting on separate days. Following each warm-up, participants performed counter-movement vertical jumps immediately-post, 1 minute, 5 minutes, and 10 minutes-post warm-up to evaluate time-course effects. Each day was separated by one week. On day one, participants underwent familiarization in the barbell back squat and the counter-movement vertical jump and performed 1 RM testing for the back squat. On day two, all participants performed baseline counter-movement vertical jumps followed by functional-isometric squats with 100% of their back squat 1RM, followed by CMVJ immediately-post, 1 minute, 5 minutes, and 10 minutes post-warm-up. On day three, participants performed the same procedure with 60 seconds of whole-body vibration isometric half-squatting. Vibration was set at 50Hz and 1-2mm of amplitude.

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**ADAM ECKART**

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**KELLY JOHNSON, MEGGAN McGUIRE, DAVID TOROSIAN, JAMIE WASCO**

**Faculty Advisor:** Donald Moores  

**Human Flourishing: An Anthology of Eudaimonic Verse**

What are the defining qualities of a life well-lived? This question highlights a major concept of the eudaimonic turn, a relatively new area of study that focuses primarily on well-being. As this positive discipline gathers momentum, we have joined its ranks in the search for evidence of human flourishing throughout all media. As English majors, it was our goal to seek out poems that illustrate the many features of what it means to live well. In order to do this, we delved into the literary canon and continued our exploration beyond its borders so that we might foreground as many different types of positive human experience as possible. More than simply an anthology designed to capture a mood or convey a particular message, Touched With Fire celebrates often-overlooked aspects of well-being such as reason, character virtues, savoring, and synchronicity, to name just a few of our more than 35 categorical headings. As a result, we have compiled a manuscript of some of the most exceptional poetry the world has to offer, spanning thousands of years and reaching across the globe.

**Research supported by:** Students Partnering with Faculty Summer Research program, Kean University

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**MARISSA RADICE**

**Faculty Advisor:** Walter Andzel  

**Comparison of Three Stretching Techniques on Range of Motion and High Velocity Movements in High School Female Soccer Athletes**

The purpose of this study was to measure and compare the differences in hamstring flexibility, agility, and high velocity running 20-m sprint times in female high school soccer athletes utilizing one of three different stretching techniques: Static stretching, PNF stretching and self-myofascial release. Nine (n=9) student-athletes from Linden High School participated in this 10-week long study. Participants were evenly divided and randomly assigned to one of the three stretching protocols and remained in that designated group until the end of the study. Participants of each group performed their designated stretching protocol five times per week and baseline and post-intervention measurements were obtained at the onset and conclusion of the study. A mixed-between-within-ANOVA was the statistical test used to examine both the between-subject variable (treatment groups) and within-subject variable (time: pre- and post-test). For the within-subjects variable, a significant difference existed between pre-assessment and post-assessment in all three treatment groups for both right and left popliteal angles (hamstring length), and for significantly decreasing agility time. However there was no significant difference between any of the stretching groups on decreasing 20-m sprinting time. Between-subject variable ANOVA was used to compare treatment groups to one another in order to determine if a significant difference existed between the three stretching protocols. The results of this study indicated that there was no significant difference between any of the stretching protocols on improving hamstring length, agility, or 20-m sprint times when compared to each other. Therefore, the results of this study indicated that all three stretching protocols; static stretching, contract-relax proprioceptive neuromuscular facilitation and self myofascial release, were all equally effective at significantly increasing hamstring flexibility and improving agility. However, no significant improvements were found on 20-m sprint times. The results also indicated that all three stretching techniques were equally effective and that no stretching technique was statistically better than the other.

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**JENNIFER YONG YOW**

**Faculty Advisor:** Walter Andzel  

**Effects of Structured vs. Unstructured Warm-up Protocols on Anaerobic Performance in Younger Children**

This study was created to evaluate and compare the effect of warm-up protocols on anaerobic performance in younger children. While there are many studies that examine the effects of warm-up on adolescents and adults, there has not been any research on the effect of dynamic warm-up on younger children, aged 3-6 years. There were a total of 30 participants (15 girls and 15 boys), ranging in age from 3 to 6 years were selected from the Kinder Kamp and Kindergym class in the Old Bridge YMCA of western Monmouth County. There were three protocols being tested: no warm-up (NUW), unstructured warm-up (UWU) and structured dynamic warm-up (SWU). After the warm-up the participants performed a 20 meter dash and a broad jump. After each trial there was a week rest in between. Both ANOVA and Scheffe’s
BRIANNE MAHONEY, ALTAGRACIA PETELA
Faculty Advisor: Melda Yildiz
Promoting Healthy Eating Among Children and Engaging Educators in Developing Project Based Learning Activities

Health education is a very important aspect in fostering the overall education of students. However, in some school systems it is very often a subject that is overlooked. According to the U.S. Department of Health and Human Services, children living in highly educated households are less likely to become obese. Therefore, there is a strong correlation between education level and nutrition level. The research that was performed in the Global Kitchen Project shows that there is a strong correlation between nutrition level and socioeconomic status. This was shown through the use of contextual factors of one lower-socioeconomic area in comparison to that of a higher socioeconomic area. Data was collected in three schools, two in a lower socioeconomic area and one in a higher socioeconomic area. Upon analyzing this data it is evident that those students living in higher socioeconomic areas have better access to nutritional foods. This can be dependent upon factors such as cost of food, transportation and surrounding environment. Additionally, the research indicates that teacher’s have a high influence on the types of food choices that students make. Therefore, it is important to enhance the Health Education programs in each school and give students the knowledge needed to lead a healthy, active lifestyle. These values should be instilled in each student from a young age to better combat childhood obesity.

Research supported by: Students Partnering with Faculty Summer Research program, Kean University

ALTAGRACIA PETELA, BRIANNE MAHONEY
Faculty Advisor: Melda Yildiz
Global Kitchen Project: Developing 21st Century Skills and Global Competency in Teacher Education

This poster is based on an interdisciplinary Global Kitchen Project promoting healthy eating among elementary students though project based learning activities while re-learning and re-designing their curriculum using 21st century skills. The study was conducted in two elementary schools in four classrooms investigated over forty elementary students and four in-service teachers.

Research supported by: Students Partnering with Faculty Summer Research program, Kean University

ANDREW COWAN
Faculty Advisor: Jonathan Mercantini
The Experience of Woodbridge Township, NJ During the American Revolution

How did the residents of Woodbridge, New Jersey experience and affect the American Revolution? This project seeks to expand our current understanding of that experience and show how echoes of history - in this case, of Revolutionary Woodbridge - can be seen in the world around us today. The presenter worked as an intern for the Woodbridge Township Historical Preservation Commission under the supervision of the Local History Librarian at Woodbridge Public Library, also a Commission member. He conducted research using both original print and archived digital materials available at the local and state levels, with guidance from the Commission. On the same day as the signing of the Declaration of Independence, Gen. George Washington wrote in a letter that stationing troops in Woodbridge “would be very useful.” And as if to bookend the Township’s Revolutionary experience, he passed through in 1789 on the way to his first Inauguration.

NATHANIEL FRIEDLANDER, WILLIAM HORLACHER, BRADY DUPRE
Faculty Advisor: Brian Regal
The Discovery of America

For our project we researched the progression of the numerous figures throughout history that are recorded as discovering America. Our goal was to examine how often Christopher Columbus is acknowledged as the first person to set foot in the New World and to see if the author(s) make any note of earlier settlers such as the Norse. Resources used were those such as archives, libraries, and university databases. From our findings emerge a wide array of characters other than Columbus such as the Vikings, Vespucci, St. Brendan, John Cabot, and even some claim that earlier groups such as the Romans may have arrived. What we can derive from the extensive list of discoverers is that those that actually arrived first to the continent, the Native Americans, are marginalized and deemed not as significant as those that followed in their footsteps by many of the texts. Although Columbus remains an icon of discovery and is celebrated every second Monday in October we should make note and acknowledge that many others preceded him.

Research supported by: Students Partnering with Faculty Summer Research program, Kean University

CRAIG JUDGE, MICHAEL GROHOWSKI, ROBERT MULLER
Faculty Advisor: Frank Esposito
Lenape Migration Project

The purpose of our research was to test a thesis put forward by Myron Paine Ph.D. His thesis was that the Lenape Native Americans, native to the Northeast of America, are actually Norse Viking Christians from Greenland who were originally voyagers from Greenland between 1000-1350 C.E., and over time became the Lenape Native Americans as we know them today. Myron Paine Ph.D provides evidence through artifacts, biological, cultural, historical, and a linguistic means. To tackle this thesis we obviously had to ask the question, did the the Norse Christian voyagers actually become the people we call today the Lenape Native Americans. If this thesis were to be proven so, not only would it prove a more permanent existence of Vikings in North America, but also it would cause a paradigm shift in the history of Native Americans. We accomplished this through the use of linguistic decoding (by using the dictionary The
Viking and the Redman by Reider T. Sherwin), interviews and general research behind the evidence provided by Myron Paine Ph.D and our own research upon the topic. In taking a neutral stand point on the topic, Myron Paine’s thesis had shown some promise, but there was also much evidence that pointed to other conclusions on this epic story.

**MATHEMATICS**

**SUI-YAN CHAN**  
Faculty Advisor: Pablo Zafra  
*Analysis of Mathematics Achievement between Hong Kong and the United States*  
In his recent State of the Union address, President Obama re-energized his commitment to education and the need for a greater focus on the areas of Mathematics and Science. “No single person can train all the mathematics and science teachers for the future. …Now, more than ever, we must sew these things together, as one nation and one people.” The President clearly understood how important mathematics and science teachers affect the students’ achievement to lead United States as the top world power. In mathematics, it is found that Asian countries (e.g. Hong Kong, Shanghai-China and South Korea) generally performed better than United States in the Programme for International Student Assessment (PISA). This study analyzed mathematics achievement of middle school and high school teachers from the United States and Hong Kong. The author analyzed 60 survey responses to demographic and attitude questions. Based on the results of the survey, the author will compare participants’ instructions, learning environments, students’ performances and attitudes, and professional training thereby providing further insights into the disparity of mathematics achievement between both countries.

**DORIS FAKEH**  
Faculty Advisor: George Avirappattu  
*An Introduction to the Theory and Applications of Wavelet Transforms*  
Ever since Fourier succeeded in representing a function approximately as the sum of scaled versions of trigonometric functions, sines and cosines, the mathematics and applications of this idea keep finding their way into more and more scientific disciplines. The topic of this research is roughly a modern approach with the same goal but using functions called wavelets with seemingly superior qualities than sines and cosines (as claimed by current literature on this topic.) Applications of wavelets are many including data or image compression, signal processing, and data analysis. An exposition of how wavelets came about and how they can be used to analyze and compress a color image is what this paper is about. The core of this paper involves elementary linear algebra concepts and so is accessible to readers with basic mathematics background. Our treatment involves the classic Haar wavelets, the simplest variety.

Research supported by: Ronald E. McNair Post-baccalaureate Achievement Program, U.S. Dept. of Education and Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

**NECHAMA FLORANS**  
Faculty Advisor: Raymond Viglione  
*Edge Clique Covers of Complete Multipartite Graphs*  
The vertex clique cover number of a complete multipartite graph is known to be the vertex size of its largest partition. The edge clique cover number of a complete multipartite graph, however, is not as well understood. In this research, edge clique covers are constructed using mutually orthogonal latin squares and modular arithmetic. In particular, an algorithm is obtained that produces an edge clique cover for any complete tripartite graph.

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

**MARY GIRGIS**  
Faculty Advisor: Raymond Viglione  
*Circles, Triangles, and Euler*  
There are many beautiful relationships between triangles and circles, and many of them have sprung from the mind of one of the world’s greatest known mathematicians: Euler. Here, we take a tour of some of these profound results.

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

**SHEILA HARGROVE**  
Faculty Advisor: Louis Beaugris  
*Numerical Application of Generalized Monotone Method for Population Models*  
This paper provides a methodology to compute coupled upper and lower solutions. We will use mathematical modeling to examine population growth and decay of a single and dual animal species, of a nonlinear differential equations with initial conditions to compute solutions. In this work we provide a methodology to compute coupled lower and upper solutions on any given interval. We develop accelerated convergence results using generalized monotone method. We have both theoretical and numerical results.

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

**KUHWHI KIM**  
Faculty Advisor: Wolde Woubneh  
*Analysis of the Causes of Death in the United States from 1999 to 2010*  
There are many causes of human death. This research will explore the causes of death in United states from 1999 to 2010. Causes of death explored include: heart and other kinds of diseases, highway traffic accidents, and natural disasters. The research will explore deaths by gender, ethnicity and age. The source of the the data is CDC.gov and Census.gov. Graphs, plots and explanations will be provided.

**PURNA PATEL**  
Faculty Advisor: Raymond Viglione  
*On an Application of Finsler-Hadwiger Squares*  
A surprising construction is provided, wherein the centers of four Finsler-Hadwiger squares produce an unforeseen fifth square.

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation
SARAH SALTER
Faculty Advisor: Raymond Viglione
The Illumination Problem
Suppose you are standing in a room where all the walls are mirrors, and you light a candle. Will the light from the candle always reach every point of the mirrored room, regardless of its shape, or do rooms exist that guarantee unilluminable areas? We survey the latest results for this intriguing question.
Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

PATRICK SERPICO
Faculty Advisor: Wolde Woubneh
Pros and Cons of Playing Games and Learning Mathematics
Learning mathematics and playing games are essential to one’s intellectual development. But when do we know the balance between playing games and learning of mathematics? We need to understand mathematical concepts and theories of mathematics for our careers and in our lives and playing games is good once in a while. How do we determine the balance of time between playing games and learning of mathematics? Or can we flip these desires around and make it in such a way that we play games for life and only use math once in a while? Research shows that there needs to be a balance between these two events. The purpose of this study is to compare the two ideas and to explore ways for the two ideas to work together.
Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

NJ CENTER FOR SCIENCE, TECHNOLOGY, AND MATHEMATICS

TEOBALDO ARRUNATEGUI
Faculty Advisor: Mohamed El-Sherbeini
Anti-Inflammatory Effects of Uncaria Tomentosa
Inflammation is an immunological system response where swelling, pain and redness in the affected area are caused by a large number of reasons that range from bacterial infection to injury. While biotechnology and pharmaceutical companies are currently the biggest developers of this type of drugs little attention has been paid to herbal products. TNF-alpha regulates immune cells, and has many immune system functions, including antimumor activity, antimicrobial activity and mediation of inflammation, therefore the inhibition of this cytokine would convey that the treatment or product used worked as an anti-inflammatory. Uncaria Tomentosa, also known as Cat’s Claw is a plant widely used in South America, especially in Peru, to treat inflammation. LPS was used to induce secretion of TNF-alpha in cell cultures, levels of this cytokine were measured after treatment with the herbal product by ELISA assays. Toxicity assays were used to determine cell death. The preliminary evidence suggests that U. tomentosa might exhibit anti-inflammatory effects through modulating levels of TNF-alpha. U. tomentosa showed higher levels of toxicity than other herbal products used for comparison, more tests are needed in order to determine whether these results are dependent of the volumes used and the quantity of cells per well or if the first product is truly more toxic. Future plans include fractionating plant extract and determining the potency of different action in TNF-alpha ELISA assays.
Research supported by: Ronald E. McNair Post-baccalaureate Achievement Program, U.S. Dept. of Education and Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

KELLY BACHOVCHIN, JOE-LOUIS YARFI
Faculty Advisor: J. Robert Merritt
Synthesis and Evaluation of Pyrrolidine Derivatives as CCR1 Antagonists for In-Vitro Inhibition of Multiple Myeloma
Multiple Myeloma (MM) is an incurable cancer resulting from malignant transformation of plasma cells, terminally differentiated B cells that reside in the bone marrow (BM). The BM allows reciprocal interactions between the different components of the BM microenvironment and the MM cells necessary for migration, differentiation, proliferation, and survival of the malignant plasma cells leading to osteolytic bone disease. The chemokine CCL3 appears to play a role in promoting differentiation and increased activity of osteoclasts. Expressed by both myeloma cells and osteoclasts, CCR1 and CCR5 are the primary chemokine receptors for CCL3. This study focused on synthesis and evaluation of more than twenty novel small molecules via competitive binding assays that utilized membranes prepared from a MM cell line. These molecules were based on a previously published series of CCR1 antagonists defined from a unique pyrrolidine motif. Compounds inhibiting binding of I-CCL3 were further evaluated using functional cell based assays.

MUSIC

NANCY GLEASON
Faculty Advisor: Lily Chen-Hafteck
Effects of Singing versus Non-Singing Group Activities on the Well-Being of Older Americans
The study will investigate the impact of participation in singing and non-singing group activities on the health and well-being of senior citizens. The significance of this study is that it can help to identify and promote availability of activities that are most beneficial to older Americans. According to the US Dept of Health and Human Services Administration on Aging (USFIFARS, 2012), the older population in 2030 and representing nearly 20 percent of the total U.S. population. Yet research on how to promote their health and well-being of senior citizens. The significance of this study is that it can help to identify and functional cell based assays.

SAMANTHA MAHMoud, ANGIE OSSA
Faculty Advisor: Dil Ramanathan
Standard Free Quantitation of Metabolites: Impact of Mobile Phase Composition on HRMS Response
The drug discovery process requires the identification and quantitation of a drug and its metabolite(s). It is important to monitor if metabolite(s) of the drug is pharmacologically active or even toxic. It is vital
to accurately quantitate toxic metabolites due to the fact that if present at high levels the development of the drug can be discontinued. LC-MS (Liquid Chromatography-Mass Spectrometry) is the mainstream analytical technique used to identify and quantitate analytes of interest (i.e. drugs and metabolites) due to the sensitivity and selectivity it can achieve. Typically to quantitate an unknown concentration, a standard curve must be generated for the analyte. During the early ADME (Adsorption, Distribution, Metabolism and Excretion) analysis of novel compounds in drug discovery, metabolites are unknown, therefore standards are not available to quantitate. This research investigates alternative, standard free, analysis of drug metabolites to accurately detect, identify and quantitate. To perform this analysis equal concentrations of known drugs and metabolites were prepared and different parameters were explored to obtain equal signal response of drug and metabolite. Parameters investigated are organic mobile phase composition and flow rate. Once equal signal response is achieved these conditions can be considered optimal in quantitating these metabolites and used to accurately quantify similar ones of novel drugs (i.e. hydroxylated metabolite or demethylated metabolite). Equimolar concentrations of dextromethorphan, tolbutamide, caffeine, primaquine and their known metabolites, dextrorphan, 4-hydroxytolbutamide, 1, 7-dimethylxanthine, 2-methylquinoxaline, respectively were used. A generic UHPLC-HRMS (Ultra High Performance Liquid Chromatography-High Resolution Mass Spectrometry) method was developed to separate the drugs and its metabolite. To evaluate standard free quantitation, parameters such as decreasing the flow rate to 300μL/min, maintaining a set column temperature at 30°C, and simultaneous infusion of the reverse composition of mobile phases at the drug retention time with each set of drug and its metabolite were evaluated. These experiments were performed using LTQ-Orbitrap to observe the differences in MS responses. In these experiments, integrated peak areas were monitored in the chromatogram of the drug and its metabolite to determine if equal responses are achieved. Different concentrations of drug and the metabolite were introduced in the biological matrix such as plasma (rat, dog and human) and the best parameters that gives equal response is validated.

Research supported by: Students Partnering with Faculty Summer Research Program, Kean University

TEVIN ROUSE

Faculty Advisor: David Joiner

Web Based Supercomputing Interfaces: Helping to turn Modelware into Middleware

Advances in computing technology have revolutionized the process and methodology of modern science, but the hurdles of availability and training can prevent this from spreading across disciplines and into education. This research presents a way in which students and researchers can use a web-based platform to submit, control, and analyze supercomputing jobs. While such platforms have been designed for individual applications in the past, this project seeks to create a simple, scalable process that can be applied to a variety of applications. Initial work has included creation of a model for web controlled supercomputer simulations and initial testing of a standard framework for implementing applications.

Research supported by: Ronald E. McNair Post-baccalaureate Achievement Program, U.S. Dept. of Education and Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

REWEAN MAHMOUD

Faculty Advisor: Cheryl A. Krause-Parello

A Systematic Review of the Literature on Scoliosis

Scoliosis is a medical condition in which a spinal defect is characterized by an abnormal curvature of various degrees in an S or C shape. Because of its hereditary nature, idiopathic scoliosis (without a cause) is a growing concern. Individuals with family members diagnosed with scoliosis have a twenty percent chance of being diagnosed with the disease. Due to its complex factors that affect the severity of scoliosis, various treatments may be more effective to treat each diagnosed individual. This research project focuses on scoliosis and the incorporation of physical therapy treatment modalities for children. Furthermore, it goes in depth with the developmental challenges that an adolescent faces when diagnosed with scoliosis.

Research supported by: Ronald E. McNair Post-baccalaureate Achievement Program, U.S. Dept. of Education, Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

PHYSICAL EDUCATION, RECREATION & HEALTH

STEPHANIE GODWIN

Faculty Advisor: Consuelo Bonillas

Project Junta: Creating Healthy New Beginnings Together

Studies have demonstrated that gestational weight gain within a woman’s body mass index (BMI) category is associated with healthy pregnancy outcomes. Even though an estimated 33% of women in the U.S. are classified as obese, 55% of Hispanic women are believed to have a BMI of 30 or more. This three-year (2011-2014) study has developed educational, social, and lifestyle interventions that are culturally appropriate on helping 150 Hispanic obese/overweight women gain a healthy weight throughout the pregnancy. This study will help us understand how we can support women during pregnancy to improve maternal/infant outcomes, as well as to determine how to continue to support women during the 12-month postpartum period.

Research supported by: U.S. Dept. of Health and Human Services grant H59MC22657, “Healthy Behaviors in Women”, to Consuelo Bonillas

BRIAN MIZESKI

Faculty Advisor: Keir Howland

Pneumothorax and Pulmonary Trauma in a Collegiate Football Player

A 20 year-old male Division III collegiate football player suffered a contusion, pulmonary laceration, and pneumothorax after being hit during a play trying to secure a catch. Pulmonary contusions and lacerations occur most frequently with motor vehicle accidents and less than 15 dozen have been reported in sports. A pneumothorax is a condition where air is trapped in the pleural space, causing portions of the lung to collapse. Immediately after the hit, the athlete experienced shortness of breath and hemoptysis was present, but during an examination the athlete denied classic symptoms such as shortness of breath and chest pain that typically occur with a pneumothorax. The initial CT scan of the pelvis and abdomen revealed a pneumatocele, which occurs when a lung laceration, cut, or tear in the lung tissue fills with...
Successful in “bringing unity to the community” as one resident said and creating a dialog regarding

Joseph Olivadoti
Faculty Advisor: Keir Howland
Distal Bicep Brachii Tendon Rupture in Collegiate Football Player: A Case Study

While making a tackle, a 21 year-old male football player suffered an acute distal bicep brachii tendon rupture, with retraction to the myotendinous junction in his left arm. Initial assessment found a “Popeye” defect in distal 1/3 of anterior brachium. There was noticeable swelling and point tenderness along the bicep brachii, superior to the defect. The athlete had limited elbow range of motion (flexion/extension) with subsequent limited forearm supination apparent. A MRI confirmed a complete rupture of the distal biceps brachii tendon and surgery was performed to reattach the tendon twelve days post-injury. Typically, bicep brachii tendon ruptures occur to the proximal tendon, either the long head or short head tendon arising from the scapula. Very few injuries occur to the distal tendon of the biceps brachii; with approximately 3% cases reported, usually individuals aged 30-50 years old. It is not evident whether there were any predisposing factors influencing this injury. The athlete denied any previous injury to the biceps brachii muscle or tendon; he denied ever using anabolic steroids. A possible explanation of the acute tendon rupture is the sudden, forceful eccentric load of the bicep brachii, which produced a torque of magnitude too great for the biceps brachii resist. Additionally, the tendon’s elastic structure may have been deteriorated prior to injury, creating a deficiency of the musculotendinous unit to adequately resist the force created from simultaneous impact and muscle contraction.

Brian Pugliese, Christopher Smith, Rebecca Bowe
Faculty Advisor: Norma Bowe
Changing the Landscape for Peace One Garden at a Time

Newark is the largest city in New Jersey. As of the 2010 United States Census, the city had a population of 277,140. One of the nation’s major air, shipping, and rail hubs, the city was ranked as the nation’s 67th most-populous place in the United States as of 2010. The crime rate in Newark is considerably higher than the national average across all communities in America from the largest to the smallest, with a rate of 46 crimes per one thousand residents, The chance of becoming a victim of either violent or property crime in Newark is 1 in 22. Relative to New Jersey, Newark has a crime rate that is higher than 95% of the state’s cities and towns of all sizes. In fact, after researching dangerous places to live, NeighborhoodScout found Newark to be one of the top 100 most dangerous cities in the U.S.A. Be the Change Kean University is actively engaged in peace efforts by “adopting” vacant lots in dangerous Newark NJ neighborhoods and turning them into “peace gardens” for the community. The community directs our efforts on the lot. For example, on a street with active drug dealing and gang activity we constructed a safe place for children to play away from the street. These efforts have been highly successful in “bringing unity to the community” as one resident said and creating a dialog regarding peace and non violence as well as demonstrable drops in violent crimes.

Psychology

Christa Leyesa
Faculty Advisor: Verneda Hamm Baugh
The Effects of Technological Multitasking on Concentration

Dependency on electronic devices has increased significantly in the past several years. The rise in technology has led many to the practice of multitasking (Jackson, 2008). The youth of this generation have fallen into the myth of believing multitasking helps a person become efficient, especially in finishing school work. However, researchers have found that switching from one task to the other simultaneously has detrimental effects on one’s learning and concentration (Hill, 2010). The purpose of this research study is to understand how college students process information while multitasking on the computer with social networking sites such as Facebook, Twitter, and Youtube. Today’s generation of college students and teens depend on technology at higher levels. This experiment will examine how heavy multitasking affects one’s attention and learning process. It was hypothesized that heavy multitasking hurts a person’s ability to complete schoolwork.

Patricia Matejek
Faculty Advisor: Verneda Hamm Baugh
The Effects of Background Music Upon Task Completion

Background music can have both negative and positive effects on a person’s concentration when it comes to completing a task. In relation to reading comprehension, word recall, and test performance among students, there is evidence that supports both sides to this idea. Although music is said to be a cause of distraction for some students, it can also help shape their personality, emotion, social identity, and social behavior, and should not be taken lightly. Many studies have been done to further examine these points of view. The present study was designed to see whether or not two different types of music show significant differences in students’ concentration when trying to complete a word search. Half of the participants had John Mayer playing (slow, relaxing, and mellow), and the other half of the participants had Sean Paul playing (fast and upbeat). It was hypothesized that the participants who had John Mayer playing would have an easier time concentrating on the word search than the participants who had Sean Paul playing.

Steven O’Brien
Faculty Advisor: Verneda Hamm Baugh
Effects of Word Limits on Writing Tasks

A common practice in education is requiring students to complete writing tasks based on prompts. Often, these tasks are accompanied by externally imposed expectations such as length, content, etc. Of the multiple ways educators can guide students to have well thought out ideas, one of the most popular is the concept of a word limit. A word limit is defined as a maximum value of words or characters that can be used in a writing sample. Word limits can keep writing pieces short, or they can force the student to create more thought out ideas. This technique is often used in today’s classrooms, but not much is known how it affects the student. Motivation to complete the task may be affected by the expectation placed on the student. How the student responds to this added “pressure” may influence their ability to effectively complete the task. The present study was designed to explore the effect placing a minimum word limit or word count has on a student completing a writing task. It was hypothesized that placing a minimum word limit will decrease the amount of writing a student completes on the given assignment.
The Impression one makes on another at first meet may have a lasting effect. Impressions may influence judgments. For instance, judgments may be made based on personality, characteristics, clothing, body language, verbal expression, etc. First impressions however may be inaccurate and consequently, misguide behavior. First impressions may influence decisions in a variety of settings such as job interviews and dating. The present study was designed to examine how first impressions are influenced by the presence of visible tattoos. It was hypothesized that visible tattoos will lead to a more negative impression of an individual.

**REGGIE PERMY**
Faculty Advisor: Vernela Hamm Baugh  
*The Influence of Tattoos on First Impressions*

**GABRIELA ROCHA**
Faculty Advisor: Vernela Hamm Baugh  
*The Relationship Between Autogenic Training and Perceived Stress*

Stress is an enigmatic problem and a starting point for many medical conditions. Excessive stress is associated with medical conditions, unhealthy coping mechanisms, symptoms of anxiety and depression and overall poor quality of life. It is difficult to change the reality of someone suffering from stress; however, there are alternatives toward stress reduction (Prasad, Reedler, Cha, & Sood, 2011). Relaxation techniques have been increasingly used and positively affecting people at cognitive, physical, emotional, behavioral and spiritual levels. Previous studies have found the efficacy of both mindfulness and concentrative meditation in reducing stress and anxiety (Carlson & Garland, 2005). The purpose of this research is to understand the effectiveness of a relaxation technique called autogenic training in reducing stress levels, lessening students’ physical and mental tension. It is believed that these approaches can be used lifelong to promote a healthier lifestyle and stress reduction. It was hypothesized that those students participating in the autogenic training session will feel mentally and physically less tense and more relaxed.

**MELISSA RODRIGUEZ**
Faculty Advisor: Vernela Hamm Baugh  
*The Influence of Native Language on the Stroop Effect*

When coming to the United States from various countries, learning a whole new language (English) and processing new information may be challenging. The goal of this study is to determine if bilinguals would have faster time vs. English speakers when taking the Stroop Effect test. The Classic Stroop task involves having participants name the color of words instead of simply reading the color word itself. For example, if the word “red” was to be written in blue ink, participants would say blue not red. This task demonstrates that conflicting scenery data slows down reaction time and increases the chance of error. The goal of this study is to examine whether language barriers play a role in information processing speed. A bilingual speaker may find it challenging to read color names in English, whereas a native English speaker may find stating the color of words more challenging.

**KERI WANNER**
Faculty Advisor: Vernela Hamm Baugh  
*Education, Gender, and Attitudes Towards PTSD and Mental Counseling*

Post Traumatic Stress Disorder (PTSD) is a type of anxiety disorder that affects individuals who have witnessed or experienced a traumatic event; it can happen to anyone at any age. Although PTSD is a common term that goes hand in hand with war veterans returning from combat, it does not mean that veterans are the only people who can get PTSD. Individuals who have witnessed or experienced sexual assault and rape, abuse, terrorism, and/or natural disasters have also been known to exhibit PTSD symptoms. It has become a serious mental health issue in our nation, with a serious stigma attached to it. This stigma is characterized by fear, mistrust, dislike, and occasional violence towards those who may be considered mentally unstable (Gonzalez, et al., 2002). However, not everyone feels this way about PTSD. Studies have suggested that women view PTSD differently than men and that women are also more likely to seek help for mental conditions than men. In some military studies, researchers have also found that women have been more likely than their male counterparts to seek help for PTSD. Why do women feel more comfortable with seeking counseling and why do men view stigmas of PTSD and seeking mental help differently? The answer to this question may be because of gender socialization and gender roles. The purpose of this study is to examine whether education about PTSD will or will not have an effect on males and females towards the stigmas that are attached to mental illness and mental counseling. The data collected will then further be examined to see what the differences are between the two genders. It is hypothesized that those individuals who will be receiving information pamphlets on PTSD and treatment options will be more likely to respond favorably towards seeking mental counseling and the stigmas that are associated with it. It is also hypothesized that males who do not receive the information will be less likely than the ones who did receive the information to view stigmas of PTSD and mental counseling favorably.

**ERIC WARE**
Faculty Advisor: Jacqueline Massa  
*Asian Americans’ Concept of Self as it Relates to Acculturation*

This study examines how Asian Americans’ culture and style of acculturation can affect their sense of self-esteem and way of conceptualizing the self. Also, the validity of different self-esteem measures is assessed relative to the individuals’ style of self-conceptualization. This is important to help develop counseling techniques that help immigrants who have problems related to acculturation. This is correlational research based on responses to a survey consisting of the following measures: Rosenberg Self-esteem Scale, Suinn-Lew Self Identity Acculturation Scale, Collective Self Esteem Scale, and Promotion Oriented Validity Scale. No conclusions have been reached yet, the project is still ongoing.

**ADVANCED STUDIES IN PSYCHOLOGY COMBINED SCHOOL AND CLINICAL PSYCHOLOGY**

**AMANDA ASTER, REBECCA SMITH CASEY**
Faculty Advisor: Frank Gardner  
*Relationship Between Negative Affect and Affective Verbalizations in Court Mandated Violent Offenders*

The Anger Avoidance Model proposed by Gardner and Moore (2008) suggests that individuals who engage in non-instrumental violence do not and will not allow themselves to experience uncomfortable/ unpleasant emotions such as anger. As such, violence is seen as an escape behavior when avoidance
of the experience of anger becomes impossible. The present study examined the relationship between negative affect and affective verbalizations subsequent to exposure to a series of videos selected to elicit emotions related to anger in both a clinical and control group. It was hypothesized that: 1) the clinical group will significantly differ on outcome measures of negative affect as assessed by the PANAS, compared to the control group, subsequent to viewing anger provocation videos, and 2) the clinical group will significantly differ in the amount of affective verbalizations expressed as compared to the control group, subsequent to viewing anger-provocation videos. An independent-samples t-test was conducted to compare the Total Negative Affect Score of the PANAS at Time 1 and 2 of the clinical and control group. Another independent-samples t-test was also conducted to compare the total number of affective verbalizations expressed by the clinical and control group. Following viewing of the anger video provocation, there was a significant difference between mean scores of Total Negative Affect on the PANAS (Time 2), as well as the total number of affective verbalizations expressed between the clinical group and the control group. These results are supportive of and consistent with the Anger Avoidance Model proposed by Gardner and Moore (2008), suggesting that individuals with clinically relevant anger dysregulation do not allow themselves to experience emotions, such as anger. The results suggest that the control group experienced a more normal reaction to the anger provoking video clips, as compared to the clinical group who were able to avoid the experience of negative affect in response to the film clips.

JANICE AUTERA
Faculty Advisor: Frank Gardner
The Role of Emotion Regulation in Disordered Eating Pathology

Recent research suggests a relationship exists between eating disorder severity, emotion regulation skills, and perfectionism (Peck & Lightsey, 2008; Wade et al., 2006). Gupta et al. (2008) examined an undergraduate population and found an increase in severity of eating disorder pathology has been related to greater difficulties in emotion regulation. Literature suggests emotion dysregulation is linked to both anorexia nervosa (Harrison et al., 2009) and bulimia nervosa (Hayaki, 2009). The current study examined the role of emotion regulation skills in relation to the core processes in Fairburn’s transdiagnostic model. The present study further investigated the empirical basis of the transdiagnostic cognitive-behavioral model of eating disorders in a college student sample. Based upon the model, it is proposed that difficulty in emotion regulation plays a role in the core processes of eating pathology, including perfectionism and self-esteem. As such, it is hypothesized that difficulties in emotion regulation will mediate the relationship between perfectionism and disordered eating. Six hundred eighty-four undergraduate students recruited from one urban college and one suburban university in the northeastern United States completed a number of measures including the Difficulties in Emotion Regulation Scale and the Questionnaire for Eating Disorders. Mediation analysis supported the research hypothesis, suggesting emotion dysregulation does in fact mediate the relationship between perfectionism and disordered eating behavior. Therefore, difficulties in emotion regulation play a major role in the psychopathology of eating disorders where individuals who experience greater difficulties with regulation of emotion are at a greater risk for disordered eating pathology. Given these findings, in treating individuals with eating disorders, an important area of focus should be developing adaptive emotion regulation strategies to enable individuals to better tolerate and regulate emotion and mood states rather than resort to disordered eating behaviors in order to regulate their emotions.

AGNES LENDA, BRAD FECHTER, KAROLINA KOWARZ, CHRISTINA BARRASSO
Faculty Advisor: Jennifer Block Lerner
The Role of Mindfulness in the Association Between Affect and Facebook Use

The goal of this exploratory study is to determine whether Facebook use (operationally defined as time spent on the website daily) is associated with negative affectivity, e.g. depression, anxiety, and stress. In addition, the study aims to discover whether levels of dispositional mindfulness predict affective states over and above Facebook use. Participation involves completing a survey consisting of a demographic questionnaire, an investigator-created Facebook survey, the Depression Anxiety Stress Scale-21, and the Philadelphia Mindfulness Scale, all subsumed under a larger survey. Contrary to our hypothesis, preliminary results suggest that time spent on Facebook daily is not significantly related to user symptomology. This suggests that there may be other parameters of use (e.g., how users interact with the site) that are associated with mental health-related symptomatology. Further research is necessary in order to gain a deeper understanding of the connections between social media use, symptomatology, and mindfulness.

KENDAL SHORTWAY, LINDSAY MORAN
Faculty Advisor: Jennifer Lerner
Psychological Flexibility and Self-Compassion as Predictors of Campus Connectedness

This poster is coauthored with the following students who are co-investigators on the research project being conducted in a doctoral Research Design course and in collaboration with Dr. Edward Barboni, Director of Kean’s Office of Accreditation and Assessment: Angela Almeida, Justine Benedicks, Charles Borgen, Jessica Costa, Sara Glazer, Jillian Hasbrouck, Ariel Hochster, Meredith Story, and Alisha Thom.

Campus connectedness is the subjective sense of belonging that a student experiences in relation to the collective social, academic, and/or co-curricular environments of a campus (Summers, Beretvas, Swinicki, & Gorin, 2005). It has demonstrated relations with student self-esteem, anxiety, depression, social avoidance, life satisfaction, academic persistence, and campus participation (Elkins et al., 2011; DeNeui, 2003; Lee & Robbins, 1998; Prezza, 1998; Summers et al., 2005; Wolf-Wendel, Ward, & Kinzie, 2009). Investigation of mechanisms that may influence emotional connection (e.g., ways of relating to emotional experiences) may foster understanding of campus connectedness beyond student involvement and institutional characteristics. One such mechanism of interest is psychological flexibility (PF), or the process of fully contacting the present moment and recognizing and adapting to the present in accordance with one’s values (Hayes, Luoma, Bond, Masuda, & Lillis, 2006); another is self-compassion (SC), entailing self-kindness, a sense of common humanity, and mindfulness. The proposed study is the first step in a program of research designed to examine whether PF and SC predict campus connectedness and retention. Investigators will contact instructors of a randomly selected list of courses targeting first year students. Once instructors grant permission, two investigators will visit classrooms and invite students to complete a short battery of questionnaires assessing constructs of interest. Measures include an investigator-created demographic form, the Campus Connectedness Scale (Summers et al., 2005), the Acceptance and Action Questionnaire-II (Bond et al., 2011), and the Self-Compassion Scale (Neff, 2003). PF and SC as predictors of campus connectedness may garner implications for pedagogical approaches and campus interventions to improve student well-being as well as retention. Limitations and future directions will also be discussed.
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<td>STEM 318</td>
<td>Psy.D. Dissertation Symposium</td>
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<tr>
<td>10 a.m.</td>
<td>STEM 415</td>
<td>The Utility of iPad Apps in the Treatment of Social Communication Deficits in Children with Autism</td>
<td>Lia Pazuelo, Communication Disorders &amp; Deafness</td>
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<td>10:15 a.m.</td>
<td>STEM 415</td>
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<td>Education Regarding Rural Kenyan Girls</td>
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<td>STEM 318</td>
<td>“Just War” Student Panel, History: The Thirty Years War, Enrico Basso; The Irish Republican Army, Erin McGreevy; The Trials of Joan of Arc, Abigail Petritsch</td>
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<td>10:45 a.m.</td>
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<td>The Effect of Nurse Leaders on Nurses’ Perceptions of Patient Rounding</td>
<td>Courtney Di Bona, Michele E. Catfield, Maureen Mahler, Nursing</td>
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<td>STEM 415</td>
<td>Reducing the U.S. Debt-to-GDP Ratio</td>
<td>Carolina Londono, Mathematics</td>
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<td>A Data Analysis of the Variables that Affect Occurrences of Global Terrorism</td>
<td>Brett Schwarzenbek, Mathematics</td>
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<td>1:15 p.m.</td>
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<td>Assessment of Global Warming through the Analysis of Glacier Melting Rates over the Past Century</td>
<td>Anastasiia Dokantios, Mathematics</td>
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<td>1:30 p.m.</td>
<td>STEM 318</td>
<td>Cloud Observations and Morphology Physical and Operational Storm Environmental Chase Clues</td>
<td>Michael Rizzo and Nicole Peterson, Earth Science</td>
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<td>1:45 p.m.</td>
<td>STEM 318</td>
<td>Linking Soil Faunal and Fungal Community Structures with Carbon and Nitrogen Cycle Dynamics as Indicators of Ecosystem Condition in Three Habitats in the Northern Zone of Costa Rica</td>
<td>Kathleen McGee, NJCSTM</td>
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<td>2 p.m.</td>
<td>STEM 318</td>
<td>Speed vs Sensitivity: Does HRMS (High Resolution Mass Spectrometry) Detect as Efficiently as UHPLC (Ultra High Pressure Liquid Chromatography) Delivers?</td>
<td>Samantha Mahmoud, Quintin Ferraris, Jacquelyn Cali, NJCSTM</td>
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<td>2:15 p.m.</td>
<td>STEM 318</td>
<td>Evaluation of Centroid and Profile Mode Data Collection Method for High-resolution Accurate Mass Spectrometry (HRMS) Based Integrated Qualitative and Quantitative Bioanalysis</td>
<td>Eldho Raju, Chinmayi Parikh, NJCSTM</td>
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<td>2:30 p.m.</td>
<td>STEM 318</td>
<td>Isothermal Amplification of Mycobacterium Tuberculosis DNA</td>
<td>David Garcia, Chemistry</td>
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<td>2:45 p.m.</td>
<td>STEM 318</td>
<td>Survival of Staphylococci on BBL™ Culturettes</td>
<td>Elana Youssef, Biology</td>
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<td>3 p.m. – 4:30 p.m.</td>
<td>STEM 501</td>
<td>MA in Holocaust and Genocide Studies Student Panel: Forgotten Conditions of Genocide, Robert Venezia, Marguerite Romano and Holly Bein</td>
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<td>3:30 p.m. – 5 p.m.</td>
<td>STEM 318</td>
<td>Ed.D. in Urban Leadership Student Panel: Critical Issues In Urban Education, Natasha Baxter and Kelly Williams</td>
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<td>5 p.m. – 7 p.m.</td>
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PSY.D. DISSERTATION SYMPOSIUM

WEDNESDAY, APRIL 24, 2013 – STEM 318, 8:30 A.M. TO 10:00 A.M.

TARA CALAFIORE
Faculty Advisor: Andrew T. Wolanin
The Development of an Experiential Avoidance Scale on the MMPI-2-RF
The MMPI-2 RF is grounded in the theory that pathology is an additive condition. The theoretical foundation of the MMPI-2 RF restructured clinical scales speaks to the idea of underlying pathological processes, particularly the RCdscale, which is said to account for what has been considered shared pathology across disorders. The ability to identify common underlying processes while concurrently isolating symptom patterns enables clinicians to better assess, diagnosis and treat their clients. Current research supports experiential avoidance as a core mechanism and underlying process common to many forms of pathology. Experiential avoidance is conceptualized as an individual’s relationship to their distress or how one responds to their feelings versus how one experiences their feelings. There is strong support for the construct of experiential avoidance as a unique construct that has a direct relationship with many forms of pathology. There is some debate over how to best measure experiential avoidance. This study examines the relationship between MMPI-2-RF and the construct of experiential avoidance.

JESSICA DeGAETANO
Faculty Advisor: Andrew T. Wolanin
The Role of Psychological Flexibility and Mindfulness in Injury Rehabilitation
Research has identified a number of factors that impact the rehabilitation process, including cognitive appraisals, mental toughness, locus of control, personality, and social support (e.g., Brewer, 2010). However, these factors do not easily lend themselves to exploring core psychological processes that may exist for athletes having difficulty adhering to a rehabilitation protocol, nor do they lend themselves to the utilization of a concise intervention approach. It is hypothesized that psychological flexibility and mindfulness will mediate the relationships between depression, anxiety, and functional complaints and rehabilitation adherence. Injured student athletes will complete a number of forms related to psychological flexibility, mindfulness, and overall psychological and physical symptom complaints. At the end of rehabilitation, the Chief Athletic Trainer will complete a measure of adherence for each athlete. It is expected that psychological flexibility and mindfulness will play a significant role in adherence to a rehabilitation protocol.

JACKIE KEMPEL
Faculty Advisor: David Brandwein
Juror Perception of the Use of Personality Assessment Data in Expert Psychological Testimony
The use of psychological experts has become an increasingly common practice in both civil and criminal trials, influenced by research consistently demonstrating the powerful impact of expert testimony on juror decision making across a variety of legal issues. Although experts commonly rely on psychological testing to provide valuable information about the issue at hand, research suggests jurors often undervalue or misunderstand the information derived from these measures. In hopes of increasing our understanding of the way in which expert testimony is perceived, mock-juror perception of testimony based on different types of personality assessment measures (the MMPI-2 and the Rorschach) as well as clinical interview will be compared. Participants will be asked to fill out demographic questionnaires as well as a short personality inventory (NEO-FFI), which will be analyzed as moderating variable. By comparing mock-jurors’ perception of testimony based on a well-validated and frequently used forensic assessment measure, a widely-recognized but more controversial projective personality assessment, and testimony based simply on clinical opinion, we hope to develop not only a greater understanding of how jurors perceive and are influenced by assessment-based expert testimony, but to also increase our knowledge of how psychological tests can be utilized and presented most effectively in court, ultimately contributing to a better administration of justice.

ERIN LEE
Faculty Advisor: Andrew T. Wolanin
Preliminary Investigation of Juvenile Sex Offender Personality Assessment Inventory-Adolescent Personality Profile and the Predictive Power of Emotion Regulation and Experiential Avoidance in Nonsexual Recidivism Risk
Research has shown that juvenile sex offenders are three times more likely to commit general and/or nonsexual rather than sexual re-offenses. Professionals’ abilities, however, to accurately predict future offenses are low despite the evaluating an abundance of risk factors associated with criminal conduct. Personality has demonstrated to be one of the strongest predictors of recidivism (Hanson & Morton-Bourgon, 2005) indicating that personality assessment is vital when working with juvenile justice populations. Personality Assessment Inventory-Adolescent (PAI-A) is a commonly used objective personality measure, but there is limited empirical data on this measure with adolescent sex offenders. First purpose of this study is to examine personality differences between the PAI-A normative sample and juvenile sex offenders by utilizing single t-tests. A growing body of literature has shown that experiential avoidance and emotion dysregulation are dynamic variables associated with externalizing behaviors (Kingston, Clarke, & Remington, 2010) indicating that including these constructs in risk assessments will likely improve the prediction of re-offending risk. The second purpose of this research is to examine the unique predictive power of experiential avoidance and emotion regulation in the prediction of nonsexual recidivism risk. Thirty adolescent male sex offenders were administered the PAI-A, MEAQ, and DERS while clinical staff completed the YLS/CM as a measure of nonsexual risk. A simultaneous regression with bootstrapping will be conducted to determine whether or not personality traits, experiential avoidance, and emotional regulation have significant predictive power in the model of general reoffending risk.

LINDSAY LIOTTA
Faculty Advisor: Jennifer Block-Lerner
Child Sexual Abuse Treatment: The Evaluation of Two Treatment Modalities
Child sexual abuse (CSA) is linked to a host of aversive outcomes and is a major societal problem. In order to address this pervasive problem, it is imperative that effective and efficient treatment programs are investigated and disseminated. Since group therapy allows for concurrent dissemination of treatment across clients, the present dissertation aims to investigate whether the outcome of group therapy (GT) is significantly different when delivered in conjunction with individual therapy (GTI). In order to assess symptomatology, a battery of assessments have been administered pre- and post treatment to a diverse group of children with sexual abuse histories. Participants are being identified as either participating in the GTI condition or GT condition. A series of mixed model ANOVAs will be used to compare pre-test
and post test data between groups. It is hypothesized that group therapy alone will produce equivalent treatment outcomes as group and individual therapy combined, enabling more individuals to be efficiently and effectively treated.

**MAGDALENA OSTROWSKI-HILTON**  
Faculty Advisor: Jennifer Block-Lerner  
*Parental Experiential Avoidance in the Context of CBT for Adolescent Social Phobia*

Social phobia is both persistent and impairing. Youth diagnosed with social phobia are at risk for significant life impairment and further psychopathology. Parental factors have been implicated in the maintenance of childhood anxiety disorders, and parental experiential avoidance (PEA) may play such a maintaining role. PEA can be defined as parents’ unwillingness to experience and inability to manage their own reactions to their children’s distress. The Parental Action and Avoidance Questionnaire (PAAQ) is a new measure designed to assess experiential avoidance in the parenting context. The purposes of this study are to a) provide descriptive statistics on the PAAQ in a sample of parents of adolescents diagnosed with social phobia b) assess the relationship between the PAAQ and measures of adolescents’ diagnostic severity, parents’ social phobia symptoms and parents’ perception of their child’s coping ability, and c) assess the PAAQ’s sensitivity to change over the course of treatment with either CBT or non-specific intervention. Results will be discussed in terms of implications for the use of the PAAQ in future treatment research and the utility of examining the construct of parental experiential avoidance in the context of treatment for youth disorders.

**NICO PETERS**  
Faculty Advisor: David Brandwein  
*Exploring the Effects of Childhood Trauma: Differentiating Child Behavior Checklist Symptom Patterns as a Function of Trauma Type*

Recent literature supports the proposition that cumulative trauma exposure is associated with the complexity of symptoms in adults who experienced traumatic events as children, with specific types of trauma, such as childhood rape and physical abuse, serving as significant predictors of symptomatology and pathology, such as depression, trait anxiety, and social anxiety experienced later in life (Briere, Kaltman, & Green, 2008; Kuo, Goldin, Werner, Heimberg, & Gross, 2011). While the long term sequelae of traumatic experiences have frequently been examined in adulthood, research directly comparing the effects of specific trauma types immediately after the events is scarce. Consequently, the current research aims to examine the following hypotheses: 1. The Child Behavior Checklist will produce symptom patterns that are uniquely related to various types of childhood traumatic experiences; 2. Child variables, such as age at first trauma, gender, and perpetrator of the maltreatment, will further interact with the type of trauma experienced in predicting various symptoms exhibited on the CBCL.

**ELIZABETH SMYTHE**  
Faculty Advisor: Frank Gardner  
*The Relationship between Anger and the Manifestation of Aggressive and Violent Behavior within Intimate Relationships*

Anger and its relation to reactive aggression or violent behavior is an area that lacks sufficient research and clinical attention. Anger, aggression, and violent behaviors are associated with a myriad of long-term costs. Anger poses a significant health risk and has been related to the development of cardiovascular disease (Smith, Glazer, Ruiz, & Gallow, 2004). Research has shown that individuals who endorse high levels of trait anger are more likely to engage in violent acts, twice as likely to be arrested and three times as likely to serve time in prison (Tafrate & Kassinove, 2002). In the past, several researchers have proposed models that make an effort to account for the relationship between anger and aggression and violence. However, these models are often conceptually narrow and neglect to include constructs from related disciplines, fail to demonstrate a clear rationale for how the proposed constructs relate, and present general conclusions that are derived exclusively from theory or from studies that lack methodological rigor. The long-term costs associated with anger, aggression, and violent behaviors underscores the need for researchers to investigate the relationship between anger, aggressive and/or violent behaviors. The present study will investigate Gardner and Moore’s (2008, 2012) Anger Avoidance Model (AAM). Specifically, determining what and how relationships exists between specific temperaments, early maladaptive schemas, the experience of anger, emotion regulation deficits and the behavioral manifestation of aggressive or violent behaviors is essential to understanding, predicting, and ultimately treating the problematic behaviors often seen in individuals who have anger-related problems.
Isothermal Amplification of Mycobacterium tuberculosis DNA

Tuberculosis (TB) still remains one of the most deadly infectious diseases in the world. Reports indicate that yearly there are around 9 million cases related to TB and 1.7 million deaths. Therefore, there is an urgent need for the development of novel assays to rapidly and accurately detect TB and prevent further transmission in the community. These diagnostic methods must be cost effective and easy to use so that they can be implemented in high burden resource-limited settings to reduce the TB burden. In this study, two isothermal amplification techniques (loop-mediated isothermal amplification [LAMP] and thermophilic helicase dependent isothermal amplification [THEAD]) were used to detect Mycobacterium tuberculosis DNA as part of the development of a DNA-based urine test. Urine has been chosen as the body fluid sampled because of its relatively easy accessibility in clinical settings and its potential utility in cases of extrapulmonary and disseminated disease.

The Utility of iPad Apps in the Treatment of Social Communication Deficits in Children with Autism

Speech-Language Pathologists are an integral part of the interdisciplinary team working with children with autism whose core deficit is in social communication. New technologies such as the iPad are revolutionizing visual communication tools for children with autism. One of the goals of the iPad's apps is to teach various social communication skills. There are currently hundreds of special education apps that are being used by parents and professionals for children with special needs. Currently however there are no efficacy studies that have systematically investigated the effectiveness of the iPad apps for improving social communication skills in children with autism. The goal of the current project was to study the effects of using three iPad apps as a means of improving social communication skills in two children with autism following an 8-week intervention program. Pre and post-intervention data of the children's use of the targeted social communication skills were collected in two different, 10 minute, conversations as they interacted with an adult and during a game with a peer. The frequency of communicative initiations, eye contact, and number of turns was tabulated; in addition a Pragmatics Profile was completed. An increase in socially appropriate verbal communication was observed including initiation, asking questions and request for help and clarifications. The Pragmatics Profile also indicated an increase in the proper use of strategies for getting attention, appropriate use of sense of humor and less use of repetitive information. This exploratory study suggests that these iPad's apps: "Face-cards C with iGaze" (version 2.0), "Look in my eyes", and "Stories 2 learn" implemented by a skilled clinician can improve social skills in children with Autism if used in a structured, meaningful and guided way. The results of the study, clinical implications, as well as the role of the SLP in working with children with autism will be discussed.
girls, regarding the perils that female students face in continuing their education, and how the school can help the girls remain in school.

**EARTH SCIENCE**


Faculty Advisor: Paul J. Croft  
*Cloud Observations and Morphology Physical and Operational Storm Environmental Chase Clues*

Based on severe thunderstorm chasing experiences cloud structures and morphology in the pre-storm environment was understood to be directly related to the existence, breakdown, and elimination of boundary layer capping. Operational observations and model output were used to diagnose cap existence and behavior during each chase day in order to plan chases for the day. Radar and satellite imagery was collected to link the progress of convective initiation and cap evolution for each chase day. Ground-based cloud photographs obtained during chases reflected many atmospheric processes as expected according to basic principles of physical meteorology; and were compared with forecasts from operational data and model output. These images suggest specific cloud types, layering, and other characteristics that may assist storm chasing by providing additional observational clues of severe weather outbreaks as related to cap evolution. The results of this preliminary study are intended to assist storm chasers in observing visible evidence of changes in boundary layer capping on space and time scales not otherwise available except through in situ cloud observations.

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation.

**EDUCATIONAL LEADERSHIP**

**N A T A S H I A  B A X T E R,  K E L L Y  W I L L I A M S**

Faculty Advisors: Kathe Callahan and Leila Sadeghi  
*Critical Issues In Urban Education*

Critical issues confronting urban public schools are multi-faceted. Beyond social, economic and political factors, urban districts are faced with state and federal requirements that increase the administrative burden of urban educators. New legislation that transforms the teacher evaluation and tenure process is in the first phase of implementation. Urban districts are required to adopt rigorous teacher evaluation programs that have been approved by the New Jersey Department of Education. In addition, the new teacher evaluation requirements include more robust and targeted professional development opportunities for teachers in need of improvement. The student panelists are practicing administrators in three of New Jersey’s largest urban school districts. They will present key findings and recommendations based on their academic research and professional experience as it relates to the benefits and challenges associated with state and federal requirements on urban school districts.

**HISTORY**

**E N R I C O  B A S S O**

Faculty Advisor: Christopher Bellitto  
*The Thirty Years War*

The study examines whether or not the Catholic Church was justified in their attacks on the Protestants during the 16th and 17th century in Europe.  
*This research was part of a course made possible through a grant to Christopher Bellitto from the “Enduring Questions” pilot course grant program of the National Endowment for the Humanities.*

**E R I N  M C G R E E V Y**

Faculty Advisor: Christopher Bellitto  
*The Irish Republican Army*

Just war research is valuable because it leads to a better understanding of conflicts, such as the struggle for Irish independence. By looking at this conflict through the lens of just war theory, insight can be gained into the root causes and ultimate goals from the perspective of all parties involved, in this case the Irish revolutionaries and the British government. This project analyzes the history of the Irish Republican Army and looks at their mission from a just war perspective. Using just war theory, their motives and war tactics are examined to determine if their methods and purpose were justified and if they invoked just war theory in the process. Was this a struggle for liberation after centuries of British colonial rule or was it simply terrorism? This project attempts to uncover the answer to that question and others surrounding the Irish Republican Army.  
*This research was part of a course made possible through a grant to Christopher Bellitto from the “Enduring Questions” pilot course grant program of the National Endowment for the Humanities.*

**A B I G A I L  P E T R I T S C H**

Faculty Advisor: Christopher Bellitto  
*The Trials of Joan of Arc*

Joan of Arc is an important and fascinating figure of history. Yet, were her actions just? Using the traditional requirements for a just war and Joan’s own words via her trial transcripts, this question will be examined and explained. Ultimately, by looking at the three trials of Joan of Arc, it seems that Joan did in fact meet the criteria for a just war.  
*This research was part of a course made possible through a grant to Christopher Bellitto from the “Enduring Questions” pilot course grant program of the National Endowment for the Humanities.*

**H O L O C A U S T  A N D  G E N O C I D E  S T U D I E S**


Faculty Advisor: Dennis Klein  
*Forgotten Conditions of Genocide*

For the casual observer, genocide constitutes destruction of entire groups of people. Students of the subject look more deeply into genocide’s conditions and preconditions to offer clarity and explanation. By focusing on the Holocaust era as a case study, three degree candidates in Kean’s Master of Arts
in Holocaust and Genocide Studies are identifying the circumstances that abetted systematic killing: the power of mass suggestion and persuasion; the initial targeting of the most vulnerable; and the deterrent threat of reprisal. In Weimar Germany before the Nazis ascent to power, popular film production disseminated an influential “stab-in-the-back” theory that blamed Communists and Jews for the surprising German defeat in World War I. The secret Nazi “T-4” program – aka the “euthanasia” extermination program – represented the first time that the Nazi regime turned to mass murder. 

Claiming to purify the “master race” by eliminating those they saw as unfit for life and the life of the nation, the program killed the handicapped and those who were mentally challenged, becoming a significant early stage in the extermination of Europe’s Jews. During World War II, the Nazis destroyed the village of Lidice in Nazi-occupied Czechoslovakia as a measure of swift reprisal, known as “Operation Anthropoid,” for the underground’s assassination of Nazi SS officer Reinhard Heydrich. Once the Nazis announced their destruction of Lidice, the village briefly became a byword for Nazi atrocities.

**INDUSTRIAL DESIGN**

**RAYMOND PROTASIEWICZ**

Faculty Advisor: Matt Johnson

Lasur

The question was: Can I remotely measure lengths via trigonometric functions utilizing input from two laser range finders and a digital angle finder by combining them into a functional hand held measuring device? Tape measures and rangefinders have their limitations and there is a hole in the market for a device which offers the efficiency and versatility of both devices. Prototypes, sketch models, CAD models, and extensive research was used to determine the validity of such a product. Prototypes proved the math was sound and that the current technology could produce accurate measurements. I was able to create an ergonomic and potentially functional industrial design for this new hand held measuring device.

**MATHEMATICS**

**ANASTASIIA DEKANTIOS**

Faculty Advisor: Wolde Woubneh

Assessment of Global Warming through the Analysis of Glacier Melting Rates over the Past Century

Global warming is an urgent but controversial issue facing humanity. On one hand we have a need for a clean environment and on the other hand restrictions on carbon emissions may cause loss of jobs. One cannot deny the fact that average temperature raises cause ice caps and glaciers around the world to melt. Problems arising with the ice melting include but are not limited to the raise of the sea level, extinction of the Polar Regions species and release of methane that was trapped under the ice for centuries. This study is intended to assess the issue of global warming through analyzing the data on the ice melting over the years and building a model to predict future meltdown. As a part of this study some creative ideas and solutions to this problem will be offered.

**CAROLINA LONDONO**

Faculty Advisor: Mahmoud Affour

Reducing the U.S. Debt-to-GDP Ratio

The current national debt-to-GDP ratio has proved unsustainable in meeting the goal of a healthy U.S. economy. This research investigates how the U.S. debt-to-GDP ratio can be minimized to a percentage that represents a healthy economy and the length of time it will take to reach this goal. This study contributes to mathematical science by providing statistical data and formulating models that can be replicated to predict certain outcomes in real life situations. Discrete math models will be utilized to calculate the time (in years) it may take to reach this goal, and how the U.S. can maximize and/or minimize certain factors in GDP. The research aims to demonstrate how factors change in GDP, and how this will enable the U.S. to reach the equilibrium for a healthy debt-to-GDP ratio. (The research has not been completed)

**BRETT SCHWARZENBEK**

Faculty Advisor: Wolde Woubneh

A Data Analysis of the Variables that Affect Occurrences of Global Terrorism

Could demographic data be used to predict occurrences of terrorism? My research will attempt to answer just that question by presenting a statistical model based on a broad spectrum of variables. Data, unique to each country, such as population, religion, government, etc. will be used as independent variables for my analysis. Using the Global Terrorism Database (GTD), I will be analyzing data since 1991 pertaining to region, nationality, and type of attack. Pre- and Post-9/11 occurrences of terrorism will also be analyzed.

**SAMANTHA MAHMOUD, QUINTIN FERRARIS, JACQUELYN CALI**

Faculty Advisor: Dil Ramanathan

Speed vs Sensitivity: Does HRMS (High Resolution Mass Spectrometry) Detect as Efficiently as UHPLC (Ultra High Pressure Liquid Chromatography) Delivers?

Advances in High Performance Liquid Chromatography (HPLC) have been made to improve productivity and analysis speed with Ultra High Performance Liquid Chromatography (UHPLC). These advancements increase speed, sensitivity and resolution of the chromatographic separation with the higher LC pump pressure and reduced particle size and packing material of column to achieve narrower chromatographic peaks. This LC system was developed with the enhancement of UV/Vis photodiode array detectors with an increase in data acquisition rate. Resulting UHPLC chromatograms contained peak widths of about 3-5 seconds and a total separation time 1/10th of HPLC. Though an efficient and cost effective tool, these detectors are not sufficient enough to fully characterize unknowns, metabolites and impurities encountered during drug discovery and development. UV/Vis/Diode array detectors require reference standards to identify peaks of interest. Unambiguous identification of metabolites and impurities can occur due to co-eluting peaks as well as endogenous impurities that may be present in the sample matrix. Mass spectrometry (MS) as a detector is the most precise and accurate solution to resolve this ambiguity in LC analysis. MS detectors detect based on the mass-to-charge ratio of the analyte of interest present in the sample, therefore the masses of interest can be analyzed simply by knowing the mass of interest and unknowns and metabolites can be identified using the elemental compositions
predicted by the mass measurement. Recent advancements in MS detectors have increased mass resolution and allow identification of analytes with +/-5 ppm mass accuracy. But can these MS detectors detect as fast as the UHPLC can separate? This research will try to answer this question by performing a series of studies to compare different parameters in HRMS such as scan rate and resolution to optimize detection to ensure accurate quantitation and unknown characterization.

KATHLEEN McGEE
Faculty Advisor: William Eaton

Linking Soil Faunal and Fungal Community Structures with Carbon and Nitrogen Cycle Dynamics as Indicators of Ecosystem Condition in Three Habitats in the Northern Zone of Costa Rica

Development of secondary forests has recently been used as a remediation strategy in the Northern Zone of Costa Rica, following 40 years of extensive deforestation and conversion of primary forests into grasslands. However, the effects of such land use on both soil ecosystem biomass development and the critical soil biota associated with it is unknown. For this project, we examined the levels of carbon and nitrogen biomass development, the efficiency of carbon utilization, and Next Generation DNA sequencing-based composition and structure of the fungal and invertebrate communities in soils from an old growth primary forest in Costa Rica, and adjacent grasslands and secondary forests that originally were part of this forest. The primary forest soils showed greater rates of carbon and nitrogen biomass development and efficiency of carbon use, greater abundance of the more specialized invertebrate groups Collembola, Orbitalata, and Coleoptera critical to organic carbon processing, and fungal groups associated with decay of wood and complex organic carbon compounds while the grasslands showed the lowest levels of these metrics. It appears that prior land use strategies in this region altered the functionality of these soils, with regenerating secondary forests showing a more clear trajectory towards recovery of soil biotic and abiotic components than found in older grasslands.

ELODO RAJU, CHINMAYI PARikh
Faculty Advisor: Dil Ramanathan

Evaluation of Centroid and Profile Mode Data Collection Method for High-resolution Accurate Mass Spectrometry (HRMS) Based Integrated Qualitative and Quantitative Bioanalysis

Recently an analytical conflict has come about in the mass spectrometry community regarding the data acquisition modes obtained through high resolution mass spectrometry (HRMS). Many scientists acquire HRMS data in centroid mode instead of profile mode to maintain simplicity, and to conserve file size. This research investigates the effectiveness of centroid mode verses profile mode in data acquisition. Four pharmaceuticals and their metabolites were used to observe the effectiveness of centroid verses profile mode data acquisition using HRMS instrumentation, LTQ Orbitrap Discovery. This research also investigates mass resolving power, mass accuracy, and mass extraction window (MEW) to obtain accurate m/z measurement in both centroid and profile data acquisition modes. Some post data acquisition parameters were also investigated such as smoothening algorithms. A mass resolving power of 15 K FWHM was optimized for m/z measurements with sufficient mass accuracy in HRMS studies. An optimal MEW with a mass tolerance of 10 ppm and gaussian peak smoothening algorithm with 7 data points, were also found sufficient for the accurate quantitation of an analyte of interest in the extracted ion chromatogram. The application of internal calibration enhanced the mass accuracy in all data acquisition modes and cimetidine was found to be a good lock mass compound. Centroid data found to show better signal response, which cannot be further improved by manual processing which is preferred in industrial research. These conclusions can help scientists obtain accurate HRMS data necessary for both qualitative and quantitative bioanalysis.

NURSING

COURTNEY DI BONA, MICHELE E. CANFIELD, MAUREEN MAHLER
Faculty Advisor: Kathleen Neville

The Effect of Nurse Leaders on Nurses’ Perceptions of Patient Rounding

Hourly rounds (intentionally checking on patients at regular intervals) have re-emerged as standard practice among nurses in acute care settings, and there is the need to identify nurses’ perceptions regarding this increasingly mandated practice. The research question is: In nurses practicing in an acute care hospital, which is more effective in improving nurses’ perceptions of patient rounding, working the day shift with nurse leaders supporting rounding versus working evening and night shifts without nurse leaders? No research was identified exploring the differences in nurses’ perceptions of rounding between day shift, evening shift and night shift. This study is a replication study of a pilot study using the newly developed tool, Nurses’ Perceptions of Patient Rounding Scale (NPPRS) (Neville, 2010). This correlational descriptive study was conducted by distributing the NPPRS, a 42 question 5-point Likert scale with responses ranging from strongly agree to strongly disagree and 2 open-ended questions. The questionnaires were completed through a convenience sample of anonymous volunteer Registered Nurses from five units at Raritan Bay Medical Center in Perth Amboy and Old Bridge, New Jersey. The data derived from this evidence based research will be used to advance the state of the art knowledge on the nurses’ perceptions of rounding to improve nursing satisfaction with the care they provide and the quality of patient care.
CARISSA COSTA
Faculty Advisor: Sonja de Groot Kim
Play in Young Children with Autism
This action research project was conducted in a K-1 self contained program for children ages 5-7 with autism. Because children with autism exhibit difficulties in social interaction with their peers and with adults, it seemed useful to examine children’s social and cognitive patterns of play before and after the introduction of “social stories”. These social stories, specifically related to play, were introduced on a daily basis, and children’s play behavior was documented using videotapes, anecdotal records, and checklists. Parents participated by filling out surveys before and during the intervention. The results of using social stories with children with autism will be shared.

CURTI DUNMORE
Faculty Advisor: Sonja de Groot Kim
Investigating Gender Role Portrayal in the Dramatic Play Area of a Preschool Classroom
This action research study took place in an urban public preschool classroom, with three and four year old children. As preschool children are developing, their ideas about gender associations are often acted out through role-playing in the dramatic play area. The researcher introduced children’s books depicting a variety of gender role scenarios and documented how boys and girls expressed gender roles in their dramatic play alone and with others, after being exposed to gender oriented literature. Parental surveys to gather background knowledge were administered. Other data collection methods used were running records, checklists and audio recordings. The results and implications for practice will be discussed.

NICOLE DE MATTIA
Faculty Advisor: Sonja de Groot Kim
The Impact of the Teacher’s Role in Creating a Print-Rich Environment
This study explored the impact of the teacher’s role in creating a print-rich environment in a preschool setting located in a high school. A group of 20 high school students assisted in the implementation of this study. They organized the classroom books into labeled baskets and placed pencils and writing/drawing pads in every center. Centers included were Art, Science, Table Toys, Building, House and Library. The children freely explored these areas of the classroom during work time. The high school students created a bulletin board that frequently changed which encouraged the children to display their artwork and writing samples. A lending library was implemented to encourage reading at home. Both the high school students and preschool parents were surveyed to determine their view on literacy (reading and writing). Results of the study will be discussed.

JASMIN FORESTIER
Faculty Advisor: Sonja de Groot Kim
The Effect of Targeted Interventions on a Preschooler with Selective Mutism
The purpose of this action research was to learn more about a preschool child with selective mutism. The research included interviews with parents and speech therapist, as well as teacher home visits. Interventions were created, including classroom interventions and home interventions in cooperation with the family. Classroom interventions included the child being paired for activities with one other child two times a week for 20 minutes. Home interventions included one hour, biweekly play dates with the other child. All of the information received was documented and analyzed. The effect of these interventions on the child’s subsequent behavior will be discussed.

APRIL GAUNT-BULTER
Faculty Advisor: Sonja de Groot Kim
An Examination of a Male Preschool Teacher’s Interactions with Preschool Children
This research project took place in a preschool classroom of an urban, federally funded program. The purpose of this study was to examine the interactions of a male preschool teacher with the children in his classroom. The classroom consisted of 15 children, a teacher and an assistant-teacher. Two boys and two girls were selected for this study. The researcher was a non-participant observer and was not interacting with the children. Data collection methods included a parent survey, a teacher checklist, and anecdotal field notes. Anecdotal field notes documented the teacher’s interactions and conversations, including verbal and nonverbal communication. The researcher will report the results of the study.

MARGARET KENNEDY
Faculty Advisor: Sonja de Groot Kim
An Examination of Pretense in Children on the Autism Spectrum
This action research project took place in a self-contained classroom in a private school for children with disabilities. The children participating in the study were an eight year old and a seven-year old boy, identified as being on the autism spectrum. Both were limited in verbal ability. The purpose of the study was to examine the play behaviors of the two children after exposure to the modeling of pretend play scenarios. Data collection methods included a parent survey, the Parten-Piaget checklist, anecdotal observations, and a daily research log. The results of this study will be discussed.

XIAOTING LIANG
Faculty Advisor: Sonja de Groot Kim
An Examination of the Play Behaviors of Mixed-Age Children in the Dramatic Play and Block Building Areas of an Early Childhood Classroom
This action research project was conducted in a suburban child care center which has adapted a Reggio-inspired approach to education. The classroom consisted of a teacher, an assistant teacher, several part-time staff members, and 20 children, ages three to six years old. Children had free choice time where they could pursue their own interests. The action research project focused on children’s play in the dramatic play area and the block area. Both areas were in close proximity to each other and children frequently moved seamlessly from one area to the other. The data collection focused solely on children of mixed ages playing together to examine the social goals of the children. Data was collected using
materials were made available in the dramatic play center; and 2) the increase in writing engagement
had a dramatic increase in writing occurrences among the children in both classes when stimulating writing
performance based pre-school assessment system. The research reveals two main findings: 1) There was
a significant increase in the frequency of their writing occurrences and writing skill development (formation of letters and writing
capabilities) before and after the incorporation of stimulating writing materials. Data for this
research included children's work samples produced during role play within three different socio-
emotional development areas. The study was conducted in three different groups within the preschool years. This action research project took place in a self-contained special education classroom in a small, suburban town. The participating child was a nine year old boy with Autism Spectrum Disorder (ASD). The researcher was the teacher assigned to the child. The purpose of this study was to examine how sensory integration experiences in a sensory room might affect the child's subsequent behavior in the classroom. The child exhibited some disruptive and problematic behaviors in the classroom such as repetitive actions and speech. The researcher implemented sensory activities, recommended by the school's occupational therapist, and documented the child's subsequent behavior in the classroom using checklists and anecdotal records. Implications of the interventions will be discussed.

PHYLIS McCABE
Faculty Advisor: Sonja de Groot Kim
The Effect of Sensory Integration on a Child with Autism Spectrum Disorder
This action research project took place in a self-contained special education classroom in a small, suburban town. The participating child was a nine year old boy with Autism Spectrum Disorder (ASD). The researcher was the teacher assigned to the child. The purpose of this study was to examine how sensory integration experiences in a sensory room might affect the child's subsequent behavior in the classroom. The child exhibited some disruptive and problematic behaviors in the classroom such as repetitive actions and speech. The researcher implemented sensory activities, recommended by the school's occupational therapist, and documented the child's subsequent behavior in the classroom using checklists and anecdotal records. Implications of the interventions will be discussed.

JESSICA SERAFIN
Faculty Advisor: Sonja de Groot Kim
Using Readers Theatre in a Third Grade Reading Center
This action research project took place in a third grade classroom in an urban school district. Approximately 40 percent of the children were reading below the third grade level according to the Developmental Reading Assessment. Many are not readers and do not enjoy reading. The researcher documented the effect of incorporating Readers Theatre in a third grade Reading Center on children's reading fluency. Readers Theatre is a reading strategy that encourages a group of students to read cooperatively by reading aloud a story effectively, with expression and appropriate fluency. The study incorporated the use of two to four children's books, selected by the researcher, as scripts. Data was collected using student surveys, conferencing with students, observations and anecdotal notes, and National Assessment of Educational Progress's (NAEP) Oral Reading Fluency Scale. The results of this intervention related to reading fluency will be discussed.

TIFFANY SHAMY, JULIE KALYNA
Faculty Advisor: Jennifer Chen
Playing with Print: Its Effects on Preschool Children's Writing Engagement and Writing Skill Development During Choice Time
Previous research has demonstrated that play is vital in a child's development and learning during the preschool years. This action research examined whether providing preschool children with stimulating writing materials during socio-dramatic play would contribute to their writing engagement and writing skill development. Over the course of a six-week period, 12 children from two different classes (one with 3-year olds and the other with 4-year olds) were observed daily for the purpose of measuring the frequency of their writing occurrences and writing skill development (formation of letters and writing to convey meaning) before and after the incorporation of stimulating writing materials. Data for this research included children's work samples produced during role play within three different socio-dramatic play themes. The work samples were examined using Teaching Strategies GOLD, a reliable performance based pre-school assessment system. The research reveals two main findings: 1) There was a dramatic increase in writing occurrences among the children in both classes when stimulating writing materials were made available in the dramatic play center; and 2) the increase in writing engagement contributed to an increase in the children's development of emergent writing skills. Furthermore, there were virtually no gender differences in terms of writing frequency before and after the intervention. However, there were age differences, notably with the four-year-olds responding to the intervention by producing a higher percentage of writing samples than the three-year-olds.

NANCY SIRACUSA
Faculty Advisor: Sonja de Groot Kim
The Effect of Individualized Professional Development on Teacher's Interactions with Children with Challenging Behaviors
This action research project took place in a suburban prekindergarten classroom with four-year old children. The purpose of this study was to examine the effect on teacher and preschool children when modeling, conferencing, and reflection were used to address children's challenging behaviors in the classroom. The teacher identified dealing with children's challenging behaviors as an area to further explore. A recurring weekly model of individualized professional development was implemented using a sequence of modeling, conferencing, and reflecting, followed by the researcher's direct classroom observations. The results of this study and implications for practice will be discussed.

LAKIESH WOODLEY
Faculty Advisor: Sonja de Groot Kim
Supporting Emergent Writing Development in an Early Childhood Classroom
This action research project was conducted in a preschool classroom in an urban public school. The purpose of this study was to examine ways of supporting young children's literacy development in the area of writing. The researcher focused on the different stages of writing development and developed various ways to engage the children in purposeful writing behaviors during typical play activities, including environmental adaptations. Data collection methods included a parent survey, anecdotal records, time sampling, and checklists. The researcher will discuss the results of the study and share implications for practice in the area of writing development.
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The Students Partnering with Faculty (SpF) summer research program at Kean University, established in 2004, is designed to support and advance student-faculty research and creative activities. The SpF program is an intensive summer experience that continues into the next academic year and provides an opportunity for students to work together with a faculty mentor on a major project. The Kean University SpF program provided support for 16 students participating in Research Days 2013.

Brady Dupre, Adalberto Freaya, Nathaniel Friedlander, Jennifer L. Green, Jinping Guo, William Hrachcher, Kelly Johnson, Jennifer Latham, Michael Lee, Nathaly Lozano, Brianne Mahoney, Meggan McGuire, Angie Ossa, Altagracia Petela, Rameez Qureshi, Brian Sheldon
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