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Introduction and Welcome Message
In the hustle and bustle of everyday life, you might have missed that a major breakthrough in physics research was reported recently. One hundred years after Einstein published his general theory of relatively in 1915, scientists attempting to prove his idea of gravitational waves, or ripples in space-time, heard and measured the “death spiral” of two black holes. The collision of the black holes created a gravitational storm in which, as Dr. Kip Thorne of CalTech described, “the flow of time speeded, then slowed, then speeded.” Not an easy concept to get your head around.

This year’s Research Days keynote speaker is Dianna Cowern, an MIT scientist turned science communicator. Dianna has an incredible talent for explaining science, especially concepts in physics, in clear and memorable ways. With so much information and misinformation available, Dianna tells her audiences that it’s more important than ever to ensure that research is shared and accurately communicated by the academics behind the studies.

As an educator, you may be surprised by how little traditional teaching methods change students’ preconceptions. In the 1980s, David Hestenes, a physicist at Arizona State, and his colleagues developed the Force Concept Inventory, a test to measure students’ understanding of Newtonian mechanics at an intuitive level after they had taken an introductory physics class. Hestenes found that nearly all physics students could recite Newton’s laws but only about 15% of them fully understood and “believed” them. The test has now been given to thousands of students around the world with similar results. Physics, in particular, benefits from new technologies and the use of interactive simulations and video analysis tools. Dianna’s physics videos are a great example of how teaching and learning are linked to effective communication. Her YouTube channel, “Physics Girl,” has exceeded 15 million views.

Please join me again this year in celebrating Research Days, where our students communicate the evidence they’ve discovered — a perfect example of Kean’s motto “Semper Discens” (Always Learning).

Jeffery H. Toney, Ph.D.
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<th>Time</th>
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<td>10-11 a.m.</td>
<td>STEM Lecture Hall, 2nd Floor</td>
<td>Keynote: Dianna Cowern, star and chief content provider of the YouTube Channel “Physics Girl” Finding Your Science Voice</td>
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<td>11:30 a.m.-3:30 p.m.</td>
<td>STEM</td>
<td>Faculty Research Presentations See program for details of rooms and times</td>
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<td>2-3 p.m.</td>
<td>STEM 3rd Floor</td>
<td>Institute for Life Science Entrepreneurship Poster presentations of current research being conducted by ILSE Labs</td>
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<td>2-3 p.m.</td>
<td>STEM 317</td>
<td>Assessment Panel Assessment Update: Exploring Assessment of “Active Citizenship”</td>
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<td>3:30-5:30 p.m.</td>
<td>STEM 401</td>
<td>M.A. Holocaust and Genocide Studies Faculty Panel Negotiating Genocide: Tribunals, Reparations and Commemoration</td>
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### Wednesday, April 27, 2016

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<td>9 a.m.-11 a.m.</td>
<td>STEM 307</td>
<td>Psy.D. Dissertation Symposium</td>
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<td>9 a.m.-3 p.m.</td>
<td>STEM 3rd Floor</td>
<td>Student Oral Presentations</td>
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<td>See program for details of rooms and times</td>
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<td>10 a.m.-12 p.m.</td>
<td>STEM Atrium and 3rd floor</td>
<td>Student Poster Presentations</td>
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<td>Morning session</td>
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<td>10 a.m.-12 p.m.</td>
<td>CAS Lobby</td>
<td>Research &amp; Technology Showcase</td>
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<td>11:30 a.m.</td>
<td>STEM Atrium</td>
<td>Presentation of the 3MT Awards and Undergraduate Student Research Award</td>
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<td>1-3 p.m.</td>
<td>STEM Atrium and 2nd Floor</td>
<td>Student Poster Presentations</td>
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<td>Afternoon session</td>
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<td>1-3 p.m.</td>
<td>CAS Lobby</td>
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<td>4-4:30 p.m.</td>
<td>Kean Hall 127</td>
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<td>4:30-6:30 p.m.</td>
<td>Kean Hall 127</td>
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<td>5-6:30 p.m.</td>
<td>STEM 308</td>
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Keynote Presentation
“Finding Your Science Voice”

So you’ve designed a new invention, patented a prototype and published a paper. Now what? It’s time to tell the world about your research — and not just the academic world. With information and misinformation at our fingertips spreading easier than butter, it’s more important now than ever to ensure that research is shared and accurately communicated by the academics behind the studies. Learn about the myriad ways to communicate science in the 21st century from a scientist turned science communicator.

Dianna Cowern is an active member of today’s online and offline science community. With over 225,000 subscribers and 13 million views on “Physics Girl,” she posts educational videos all about the wacky side of science. Dianna received her B.S. in physics from MIT before researching low-metallicity stars at the Harvard-Smithsonian Center for Astrophysics. She then pursued her career in STEM outreach, working as an educator at the Reuben H. Fleet Science Center and as a physics outreach coordinator at University of California San Diego. Dianna won the 2014 grand prize in the Flame Challenge, a national science communications competition. Alan Alda started the Flame Challenge to get scientists and science enthusiasts to explain complex topics to 5th graders. “What is a Flame?” was the first question. Dianna won the competition by answering the question “What is Color?” with a video. Her work on “Physics Girl” has been featured on the Huffington Post, Slate Magazine, and Scientific American blogs.
Faculty Research Mentor of the Year 2016
Dr. Miguel Mosteiro joined the Department of Computer Science (CS) at Kean University in 2012. Leveraging his international collaborations, he has co-authored six papers with Kean University undergraduates. Three have been published, and three are currently in peer review. This pace of research and publication with undergraduate students, particularly in the field of theoretical algorithmic research, is outstanding. Dr. Mosteiro meets with his students individually, on a weekly basis, if not more frequently. From his initial introduction to CS majors in Data Structures (a required course for CS majors in their sophomore year) and continuing through Analysis of Algorithms, he is encouraging and supportive, suggesting topics and readings that will enhance student understanding. His office is frequently full during office hours, as students seeking “Miguel” are either talking with him or waiting their turn.

In his efforts to expose all Kean CS and IT majors to active researchers, Dr. Mosteiro has arranged for visiting scholars, such as Dr. Christopher Thraves (France, 2013) and Dr. Antonio Fernández-Anta (Spain, 2015), to visit the Department of Computer Science while in the area and speak with Kean students. Additionally, local collaborators such as Dr. Martin Farach-Colton (Rutgers, 2014) visit Dr. Mosteiro’s Kean classes and give invited talks on their research topics related to the course curriculum.

In the past three summers, Dr. Mosteiro was an invited visitor at the University of Liverpool (England) and the University of Bordeaux (France), as well as IMDEA Networks Institute (Spain). His experiences there are shared with his Kean students, and the exciting problems and approaches he identifies and contributes lead to accessible problem solutions that can be investigated and implemented with his Kean students during the academic year. Dr. Mosteiro will repeat this successful formula, visiting the University of Wroclaw (Poland) this summer, continuing into the academic year with his current students Maitri Chakraborty and Kerules Fareg. His previous students, Daniel Pareja (CS ’16, MS ’17) and Yulia Rossikova (CS ’15, MS ’16), were both recognized individually in 2014 and 2015 by Kean’s Phi Kappa Phi chapter. Daniel was selected for two NSF REU experiences: 2014 at the University of Maryland, College Park, MD, and 2015 at the University of Texas, Houston, on the strength of his work with Dr. Mosteiro. Daniel credits the mentoring he received from Dr. Mosteiro as the key factor in his decision to continue on to graduate school.

The Office of Research and Sponsored Programs is pleased to congratulate Kean University’s Faculty Research Mentor of the Year 2016, Dr. Miguel Mosteiro.
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<td>11:30 a.m</td>
<td>STEM 306</td>
<td>Estimating Sensitivities of the Price of a Stock Option Using Smoothing Splines</td>
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<td>Eunji Lim</td>
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<td>11:30 a.m</td>
<td>STEM 307</td>
<td>Liberty Hall Museum: Designed Experiences</td>
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<td>Ed Johnston</td>
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<td>11:30 a.m</td>
<td>STEM 308</td>
<td>Who Discovered America?</td>
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<td>Brian Regal</td>
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<td>11:30 a.m</td>
<td>STEM 324</td>
<td>Cartoons in the Classroom: J.R. Bray and the Origins of Educational Animation</td>
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<td>Brian Oakes</td>
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<td>11:30 a.m</td>
<td>STEM 401</td>
<td>Presidential Candidates’ Twitter Response to the 2015 Charleston, South Carolina, Church Shooting</td>
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<td>Connie Hassett-Walker</td>
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<td>12:15 p.m</td>
<td>STEM 318</td>
<td>Science and Nationalism in Twentieth-Century China: Paleontology as a Case Study</td>
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<td>Xiaobo Yu</td>
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<td>12:15 p.m</td>
<td>STEM 501</td>
<td>Trauma Counseling — Seen, Heard, but Not Written About: Exploring the Gap in Publications and Research</td>
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<td>Jane Webber, Robert Kitzinger</td>
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| 12:30 p.m | STEM 308 | Lectio for Living: Mindful Listening and the Cultivation of Psychological Flexibility  
          |          | Donald Marks, Jeffrey Beck                                                   |
| 1 p.m  | STEM 324 | Discovery of Small Molecules that Inhibit the Movement of Brain Cancer Cells  
          |          | James Merritt, Salvatore Coniglio                                             |
| 1:45 p.m | STEM 401 | Counting in Anonymous Dynamic Networks                                       
          |          | Miguel Mosteiro                                                             |
| 2:30 p.m | STEM 306 | Self-Adaptive Fortress for Enterprise (SAFE)                                  
          |          | Juan Jenny Li, Fernando Neto                                                  |
| 2:30 p.m | STEM 307 | Humility: A Global Biography of a Lost Virtue                                 
          |          | Christopher Bellitto                                                        |
CHRISTOPHER BELLITTO
History
“Humility: A Global Biography of a Lost Virtue”

In the early fifth century, the Christian theologian and North African bishop Augustine of Hippo identified the three most important virtues as “humility, humility and humility.” Dante, in the early Renaissance, called humility the first virtue. Studying and speaking about humility is fraught with danger, of course. As a Yiddish proverb puts it, “Too humble is half proud.” Indeed, Shakespeare’s prototypical tragic flaw — a vice — is often the flip side of a virtue. So Macbeth’s ambition becomes lust for ultimate power, for instance, or King Lear’s love of his daughters becomes blindness. It is the lack of humility — a lack that finds its self-generated power in the idea that one person has a monopoly on truth or on what is good for everyone else — that leads to self-righteousness, a dearth of charity, a sense of certitude (that may, in fact, be based psychologically in insecurity and fear of doubt), and at worst the ironic denial of basic human rights, respect and dignity to those a person identifies as the enemy. Jacob Burckhardt, the 19th-century Swiss cultural historian, could have been speaking of any age from antiquity to today’s tweeting teenagers when he wrote, “For each man regards all times as fulfilled in his own, and cannot see his own as one of many passing waves. Just as if the world and its history had existed merely for our sakes.” Or, to critique my own tradition, we might turn to the Southern Gothic novelist Flannery O’Connor who warned against smugness as the great Catholic sin. The goal of this project is the development of a major research and writing study tracing the transformation of the virtue of humility through a comparative global and cultural lens. The major contribution will be the recovery of humility as a virtue, especially as embodied in the monotheistic traditions of Judaism, Christianity and Islam.

CONNIE HASSETT-WALKER
Criminal Justice
“Presidential Candidates’ Twitter Response to the 2015 Charleston, South Carolina, Church Shooting”

Election season makes for entertaining, if sometimes misspoken, sound bites from politicians on a variety of issues. With Twitter and the various other social media, a careless comment can be instantly disseminated and live to haunt a politician for years to come. Tweeting about, let alone mentioning, guns — including in the wake of a horrific mass-shooting event — can put a legislator in the crosshairs of the gun lobby and gun owners. Politicians may have reason to fear not getting reelected if they cross the gun industry and its lobbyists. The National Rifle Association (NRA) lobbied against Vice President Al Gore in his unsuccessful bid for the Presidency because they held a grudge against him for breaking a tie on legislation in the Senate to close a loophole that allowed sales of firearms at gun shows. Even so, some politicians tweet about guns in both a negative and positive context. This study examined whether and how the 2016 candidates for President responded via Twitter to the June 17, 2015, shooting in Charleston, South Carolina, during which nine African Americans were shot and killed at an historic church. Results will be presented about which candidates do vs. do not mention guns; which mention prayers; and which do vs. do not frame the shooting as a hate crime. The implications for the American gun control debate, and communication about gun rights vs. gun control, in the era of the Internet and social media will be discussed.
ED JOHNSTON  
Robert Busch School of Design  
“Liberty Hall Museum: Designed Experiences”

Professor Ed Johnston and his collaborative student researchers have been working on a series of projects involving the use of augmented reality (AR) and virtual reality (VR) technologies to improve accessibility and enrich experiences within Liberty Hall Museum. In this presentation, Professor Johnston will share the development of this creative research with students as well as discuss the benefits of pursuing internal awards. The broader impacts of these projects include (1) documented methods of the design processes for other designers and museum professionals to apply to other sites and (2) access to interactive experiences of certain spaces in Liberty Hall Museum through time. These experiences enable visitors with mobility concerns who cannot access the main building to see the present spaces. Also, these projects provide the museum with resources for sharing the museum with classrooms and potential donors off-site in an engaging way through mobile devices.

JUAN JENNY LI, FERNANDO NETO  
Computer Science  
“Self-Adaptive Fortress for Enterprise (SAFE)”

Advanced Persistent Threats (APTs) have recently gained much attention from the cybersecurity research community because of several notorious attacks on government agencies and large corporations such as Sony and Chase. APT is a term for a new breed of insidious threats that use multiple attack techniques and vectors and that are conducted by stealth to avoid detection so that hackers can retain control over target systems unnoticed for long periods of time. APTs are difficult to detect because the attackers gain access into the network system through legitimate accounts. APTs usually hide in vulnerable areas of a network to slowly and stealthily gather information. Traditional defenses aimed at keeping known threats out of the network are no longer sufficient against the exploits being used to conduct APT attacks. The seemingly only possible detection is through constantly monitoring outgoing network traffic over a period of time and security controls to protect the system. However, it is not realistic to monitor every single outgoing package and its content. Furthermore, the content could be encrypted, and there is no quick or automatic way to detect if the content is appropriate for going out. In this proposal, my students and I will create a Self-Adaptive Fortress for Enterprise (SAFE) inside an enterprise network to detect, protect and trap APT attacks to the network systems. I divide the proposed work into three major components: detection, protection and diagnosis. For detection, I propose an escalation data analysis method of identifying traffic data patterns and their outliers as security threats. This method was tried out on an industrial-scale notification service to demonstrate its effectiveness in detection of Denial of Service (DoS) type of attacks. For the protective fortress, I will use a decision-model-based code generation to automatically pull in modules from various servers to dynamically form a fortress that stops the attackers from stealing sensitive information or even feeding fabricated information to trap the attackers. I will use an incremental diagnosis approach to trace the path of the attackers and to identify the source. One key advantage of SAFE detection method is the monitoring of the total number of packets going through each network port, rather than the content of each individual packet. SAFE detection does not need to check the content of each package, which could compromise users' privacy. Another innovation of the detection method is its use of historical data as a base data pattern.
while injecting a negligible amount of testing traffic into the enterprise network to proactively detecting attacks. This detection can be implemented on mobile devices to make it portable to various locations of an enterprise network. SAFE differentiates from the old firewall because it checks different targets. Firewalls set policies to filter out unwelcome incoming traffic to a network port. They prevent unauthorized access but allow outward communication. SAFE, on the other hand, checks the characteristics of outgoing traffic. SAFE forms a fortress against attacks rather than a wall that stops certain kinds of incoming traffic. Therefore, SAFE is more suitable for thwarting APT attacks than firewall is. The main component of the SAFE protection fortress is a decision model. The decision model defines potential information sources and how they can be pulled together to form the actual fortress. For example, sensitive data can be divided up into data modules at various servers for a protection to be formed at the run-time from the various servers.

EUNJI LIM
School of Management and Marketing
“Estimating Sensitivities of the Price of a Stock Option Using Smoothing Splines”

One of the challenges that financial portfolio managers face when trading stocks and stock options is to estimate the second derivative of the option price, so-called gamma, as a function of the underlying stock price. The gamma curve is needed because portfolio managers use the curve to decide whether to sell the stock or not. In many practical situations, it is desirable to compute the gamma curve as smoothly as possible because a smooth gamma curve suggests “consistent” selling strategies. The problem of estimating a smooth gamma curve can be formulated as the problem of fitting a curve to a data set so that its second derivative can be as smooth as possible. We suggest a way of computing the fitted curve by solving a convex program. We also study the statistical properties of the fitted curve.

DONALD MARKS, JEFFREY BECK
Advanced Studies in Psychology
“Lectio for Living: Mindful Reading and the Cultivation of Psychological Flexibility”

In the ancient practice of “lectio divina,” sacred texts were read slowly and carefully while listeners attended to the sounds and silences of the performance. Rather than reading analytically for specific interpretations of the text, listeners observed the sensory coming and going of sounds and allowed meanings to emerge in the mind. Many current mindfulness- and acceptance-based interventions, including mindfulness-based stress reduction (MBSR), mindfulness-based cognitive therapy (MBCT), and acceptance and commitment therapy (ACT), have deployed similar reading practices, albeit in a secular context and for the purposes of enhancing engagement in life experience. This presentation examines the use of particular poetic texts in the context of interventions promoting “psychological flexibility” (Hayes et al., 2006; Kashdan & Rottenberg, 2011), or the capacity to respond to life experiences, including challenging or difficult emotions, while continuing to pursue important life activities in accordance with one’s values. Researchers studying mindfulness-and acceptance-based psychotherapies have identified several psychological processes associated with enhancement of psychological flexibility. This presentation provides examples of texts for use in illuminating five of these evidence-based processes: (a) contact with the present moment, (b) metacognitive awareness, (c) willingness and experiential acceptance, (d) compassion for
self and others, and (e) courage and committed action. Passages of specific texts, including works by Kwame Dawes, William Carlos Williams, Naomi Shihab Nye, Homer and Li Po, will be presented in experiential exercises using "mindful lectio." In addition, both empirical and ethnographic evidence regarding relevance of key literary themes to mindfulness-and acceptance-based interventions and the psychological flexibility model will be presented.

JAMES MERRITT, SALVATORE CONIGLIO
NJ Center for Science, Technology and Mathematics

"Discovery of Small Molecules that Inhibit the Movement of Brain Cancer Cells"

This presentation describes the synthesis and testing of novel, small-molecule inhibitors of glioblastoma cells. Glioblastoma, a fatal brain cancer, grows and spreads as cancerous cells traffic and communicate through the interaction of cell receptors and chemotactic cytokines (glycoproteins). Small molecules that interfere with cell receptors can block this communication. Our research has demonstrated that blockade of a specific chemokine receptor can prevent the movement of cells involved in the growth and metastasis of glioblastoma. This approach could offer a milder therapeutic alternative for treatment versus traditional chemotherapy, which utilizes toxic compounds to cause apoptosis (cell death). We are constructing novel small molecules with the intent of improving potency versus glioblastoma cells and increasing bioavailability in the brain. These molecules are currently being tested in cells that model the growth and metastasis of glioblastoma.

MIGUEL MOSTEIRO
Computer Science

"Counting in Anonymous Dynamic Networks"

A restrictive Anonymous Dynamic Network (ADN) model in which node identifiers are not available and topology changes frequently has recently attracted a lot of attention in the distributed computing community. With respect to topology changes, the ADN model is well motivated by mobility and unreliable communication environments. With respect to node identifiers, although they are usually available in present networks (or labels are defined at startup), in future massive networks it may be necessary or at least convenient to avoid them to facilitate mass production. Strikingly, even the seemingly simple problem of counting the number of nodes is challenging in ADNs. Indeed, when two nodes communicate, it is not known whether they have communicated previously or not, which makes it difficult to count. However, Counting is a fundamental problem in distributed computing because the network size is used to decide termination of protocols. The literature on Counting in ADNs focuses on distributed protocols for broadcast networks in slotted-time scenarios, assuming adversarial that topology may change completely all the time. Fruitful results obtained so far showed that Counting is feasible in ADNs, paving the way to understand the cost of anonymity in Dynamic Networks, but until recently it was not known whether those protocols were practical. Indeed, previous protocols compute only an upper bound on the network size that may be as bad as exponential, or compute the exact count but the running-time guarantees are double-exponential on the number of nodes, which make the protocols impractical for any significant network size. On the other hand, faster protocols developed experimentally are heuristic and do not guarantee the correct count. Recently, we presented an Incremental Counting protocol for ADNs that computes the exact count, achieving an exponential speedup over
its predecessors. Although the exponential running-time guarantee of Incremental Counting is still not enough to be used in practice, our analysis also exposed the bottleneck for further speedup. Moreover, in a companion experimental work, we complemented the theoretical study evaluating thoroughly the performance of Incremental Counting in practice. For all the topologies and parameter combinations evaluated, Incremental Counting has proven to be polynomial in our simulations. The results obtained provide enough intuition to conjecture that Incremental Counting is polynomial even in the worst case, although a formal proof of such conjecture is open. A summary of this research will be presented.

BRIAN OAKES
School of Communication, Media, and Journalism
“Cartoons in the Classroom: J.R. Bray and the Origins of Educational Animation”
A century ago in New York City, John Randolph Bray and his peers were creating animated films for education, training and propaganda. Unlike traditional theatrical animated shorts, these films served purposes other than providing pure entertainment. Interest in the study of industrial, non-theatrical film has expanded in recent years; however, scholarly research on the history of this type of animated filmmaking is scant. Film prints are relatively inaccessible for public viewing, as is film production and reception documentation. Nevertheless, the existing films and biographical information provide an interesting account of this relatively unknown aspect of American film history. Through archival research and analysis of the early work of Bray studios, this paper presents a unique perspective on the roots of educational animation and audio-visual instruction. This paper follows the developments of educational animation from the early animation studios, to the major American studios during World War II, and finally into the era of television. This study adds a new perspective to the history of film, education and technology, and sheds light on the connections between educational animation and the wider-history American culture.

BRIAN REGAL
History
“Who Discovered America?”
It is widely believed and taught that Christopher Columbus discovered America in 1492. Less well known are the myriad of theories about who came before the Grand Admiral. Since the colonial period there have been legends about visitors from all over the world: Roman Legions, Phoenician traders, Africans, Arab Muslims, Chinese explorers, Irish monks, marauding Vikings, wayward Templars, mysterious Mound Builders, even lost cohorts of Kublai Khan’s navy. All these legends had their moment — and some continue. The one thing they had in common is that they came from political and cultural expediency and wish fulfillment rather than historical facts. American origin stories fill disparate roles for a civilization of immigrants who long to know where they come from. This research project will tell the fascinating and little-known story of the relationship between professional academics and amateur investigators all trying to discern who discovered America.
JANE WEBBER, ROBERT KITZINGER
Counselor Education
“Trauma Counseling — Seen, Heard, but Not Written About: Exploring the Gap in Publications and Research”

Since the events of September 11, 2001, traumatology research and literature in the mental health professions have expanded rapidly. A content analysis of the Journal of Counseling & Development (JCD), Journal of Mental Health Counseling (JMHC), and Counselor Education & Supervision (CES) from 1994 to 2014 was conducted to determine traumatology topics and trends. Content analysis is a practical research method used to analyze large amounts of text and organize content systematically into categories and to make inferences regarding meaning and use. Word frequency count provided a practical method of reviewing large amounts of text to calculate the use of keywords or phrases, and interpretative coding categorized topics in order to make inferences about meaning of the coding units. Eight categories emerged: (a) sexual abuse, (b) abuse and maltreatment (not solely sexual abuse), (c) IPV, (d) PTSD and other trauma, (e) mass trauma, (f) combat stress and the military, (g) refugees and (h) VT and trauma impact on counselors. A total of 108 of 2,379 articles (4.5%) met the criteria for the trauma content analysis: 61 of the 1,290 articles in JCD (4.7%), 44 of the 587 in JMHC (7.5%), and three of the 502 articles in CES (0.6%). Although we anticipated an increase in trauma articles, we observed little change during the 20-year period in the low frequency of trauma articles. The largest category focused on sexual abuse, comprising 26.2% of the identified trauma articles in JCD and 27.3% in JMHC. Sexual abuse, abuse and maltreatment, and interpersonal partner violence accounted for 59% of the trauma articles in JCD and 43.2% in JMHC. We also anticipated a surge of articles on training, but no articles on trauma curriculum or pedagogy were identified. Development of consistent nomenclature across mental health journals, trauma training and specialized trauma journals are recommended to increase publications.

XIAOBO YU
Biological Sciences, School of Natural Sciences
“Science and Nationalism in Twentieth-Century China: Paleontology as a Case Study”

How modern (or Western) science developed in China and how the different branches of science got indigenized in the social and cultural contexts of twentieth-century China represent a fascinating multidisciplinary research area. The presentation will use the development of vertebrate paleontology (the study of fossil fish, amphibians, reptiles, birds and mammals) in China as a case study to show how modern science and nationalism were entangled when the first generation of Chinese scientists aimed to use science for the lofty goals of nation building and national-pride building.

In a sense, modern science was “transplanted” to China in the unique historical context of Chinese nationalism, which is shaped by China’s pride in its long history and fueled by China’s defeat and humiliation at the hands of the West and Japan. In the U.S. and other major Western countries, “science” and “national identity” are not uniquely linked. But for China’s first generation of modern scientists (many of whom were trained in the West or Japan during the early 1900s), “science” and “the nation” were inseparably linked. This is especially true during and following the May 4th Movement (from 1917 to 1921 in the broader sense of the term) when Chinese scientists and intellectuals lauded the omnipotence of modern
science as a major tool to transform the Chinese nation. From their general approach toward science, to the concrete objects of their daily research, early Chinese scientists wanted to use science to “save the nation” from domestic backwardness and international humiliation. Thus, during the early formative period of modern science in China, nationalist feelings against foreign imperialists ran high, and China’s first generation of scientists were trying to achieve an equal status in which they “could approach Western counterparts with the self-confidence of colleagues rather than the hesitation of apprentices” (Furth 1970).

To “give a human face” to this aspect of science history in China, the presentation will highlight unique and unpublished materials from the diaries, correspondence and photographs of Dr. C. C. Young (Yang Zhongjian; 1897-1979), the founding father of vertebrate paleontology in China. Young’s life was intertwined with all the major social, cultural and political events in modern China — from the May 4th Movement, to the study of Peking Man and China’s first complete dinosaur, to the Japanese invasion, and to the political campaigns and purges after 1949. Best known for his famous dinosaur findings, Young was an early student activist at Peking University around the time of the May 4th Movement (1919 in the narrower sense of the term). Young later lost interest in politics and went to study paleontology in Germany (1923). With a Ph.D. from Munich University (1927), Young returned to China (1928) to join famous Western scientists and explorers on fossil-hunting expeditions throughout China. Young’s involvement in the Peking Man excavations and in many Gobi expeditions with Swedish, French and American teams had a strong thread of “culture-bridging” in it, but it also tells a vivid story about how paleontology first took root in China in the complex social and cultural contexts of the time. Young almost single-handedly built vertebrate paleontology into China’s most successful research discipline. Young’s international prestige is so high that his portrait hangs in the British Museum (London) besides those of Darwin, Owen and three other Western scientists.

Drawing on the rich original materials from the life and work of Dr. C. C. Young, the presentation will address the following questions: 1) How did modern science take on a complex local and international character, and how did early Chinese scientists manage to handle the frictions between the national and international contexts? 2) How did early Chinese scientists navigate the tensions between the foreign models for their disciplinary science and their own national and professional identities? 3) When caught in the crossfire between feelings of superiority on the part of Western collaborators and hypersensitivity on the part of Chinese participants (Furth 1970), how did Chinese scientists position themselves? 4) To what extent did feelings of national pride affect Chinese scientists in their scientific interpretations and in their assessment of “Western-born” theories? 5) How did early Chinese scientists achieve “independence through dependence” (Schneider 2003), as they managed to pursue their own agenda while relying on Western funding and working with (and learning from) Western scientists? 6) If Chinese scientists tried to make science serve the higher goal of nation building, how would they navigate the contradictory expectations when the interests of pure science deviate from the interests of the nation (and subsequently from the interests of the Communist Party state after 1949)?

The presentation thus raises important questions that can engage, challenge or even dislodge some Eurocentric teleological narratives about how modern science was “transplanted” to China by going beyond the simply “receptive” accounts of modern science in China. This will give the audience a fresh multidisciplinary perspective that reflects “new directions in the history of modern science in China” (Elman 2007).
Assessment Update: Exploring Assessment of “Active Citizenship”

Five faculty members will discuss the challenges of assessing GE-SLO6, “Active Citizenship”, and KU-SLO3, “Serve as active contributing members of communities”. Dr. Karin Beck, Executive Director of the School of General Studies, will moderate.

Dr. Julia Nevarez will use examples from Sociology to address why it is important that our students understand the need to be active citizens.

Bridget Lepore will address “grading versus assessing” using T2K and GE3000 as examples of how GE assesses GE-SLO6.

Dean David Mohney will focus on KU-SLO3 and discuss ideas and examples from the School of Public Architecture’s program curriculum.

Gregory Shepherd will describe the unique, direct interactions with classroom students and teachers from across the world included in the curriculum of the School of General Education and Innovation and present ideas from the SGEI program.

Juyoung Ha will present examples from the School of Environmental and Sustainability Sciences programs to show how they assess KU-SLO3.
M.A. Holocaust and Genocide Studies Faculty Panel

Tuesday, April 26, 2016 – STEM 401, 3:30-5:30 p.m.

FRANK ARGOTE-FREYRE, FRANK J. ESPOSITO, SUE ELLEN GRONEWOLD, C. BRID NICHOLSON, DENNIS KLEIN

Master of Arts in Holocaust and Genocide Studies (MAHGS)
“Negotiating Genocide: A Research Days Faculty Panel on Genocide’s Aftermath”

Four members of the MAHGS graduate faculty will present case studies involving Cambodia, Bangladesh, Ireland and indigenous communities in the Americas. Dr. Dennis Klein, Director of the Master of Arts in Holocaust and Genocide Studies, will moderate.

Conquest or Genocide? 520 Years after Columbus, Dr. Frank Argote-Freyre
Acknowledging past grievances and atrocities during the conquest of indigenous communities in the Americas has encountered considerable obstacles, but there are signs of change as new attitudes about the conquest inspire new questions: Is “genocide” a more accurate description of the atrocities than “conquest”? Should Columbus Day be a national holiday? Does the image of U.S. President Andrew Jackson deserve to remain on the $20 bill? Is “Redskins” an appropriate name for a National Football League team?

 Casinos, Dollars and Forgiveness: The Question of Native American Reparations, Dr. Frank J. Esposito
Reparations have emerged as a central mechanism for redressing the enormous wrongs perpetrated on the Native Americans since the inception of the United States. Is compensation for historical injustice adequate? If so, what is the best way to compensate Native Americans for historical experiences that many historians regard as genocidal?

What Happens When the Trials Are Over? Dr. Sue Ellen Gronewold
Dr. Gronewold will explore social restructuring after periods of violent conflict by means of criminal justice proceedings. In Cambodia, a mixed-court international tribunal is taking place decades after a period of violence (1975-79) perpetrated by the Khmer Rouge; in Bangladesh, more than a dozen local collaborators are on trial. What kind of justice are these proceedings delivering? How are victims and bystanders responding? Are these trials working or do other forms of redress stand a better chance of serving justice? In light of their exposure by mass and social media, is the world’s scrutiny having a positive effect on successor societies?

Remembering the Irish Famine, Dr. C. Brid Nicholson
The Irish famine, which occurred more than 100 years ago, still eludes memory and inhibits commemoration. The “Potato People” are a source of embarrassment for some, since their impoverishment and living conditions were so dire. Scholars balk at interpolating this past out of concern for reigniting or exacerbating social tensions. But the Good Friday Agreement (1998) may eventually provide new opportunities to remember if the openness and renewed willingness to know it could overcome historical reticence and ignorance.
The Institute for Life Science Entrepreneurship (ISLE) is a research institute and early stage incubator with a mission to accelerate the translation of early stage innovation into successful life science and healthcare solutions. Kean University is a Founding Member of ILSE, and with this relationship ILSE is able to provide opportunities for the academic community, at Kean and across New Jersey, to be engaged in cutting edge research and scientific development through its ATCC-CTM research institute and incubator residents

Selected research being showcased during Research Days:

**ATCC Center for Translational Microbiology**

*The Impact of Diet in the Gut Microbiome of Prehistoric Societies*

The role of diet and the gut microbiome in health and disease is being studied. The human gut microbiomes from ancient societal remains practicing carnivorous or vegetarian diets of naturally-occurring, unaltered foodstuffs are being compared to determine trends in their corresponding microbiomes.

**Advanced Microbial Genomics**

The Advanced Microbial Genomics Platform (AMGP), is an integrated IT solution that rapidly and cost-effectively converts biological material (e.g., infectious bacteria) to actionable digital information (e.g., antibiotic resistance mechanisms) via sequencing and bioinformatics, forming a Next-Gen sequencing and Genomics Data Center at Kean.

**Microbiological Gradients within In-Vessel Aerobic Composters**

Enabled by an innovative collaboration between Kean’s Research First Initiative and the ATCC-CTM, culture-based and high-throughput sequencing approaches are being used by student researchers to assess the diversity and composition of the bacterial community within an on-campus in-vessel aerobic composter.

**Assembly of a Global Multidrug-Resistant Bacterial Clinical Isolate Collection**

Antibiotic resistant bacteria selected from patient populations around the world are being collected for research use by clinicians and epidemiologists, and by academics and industrial scientists involved in drug discovery and diagnostics research. This major effort focuses on
genomic and phenotypic characterization of the clinical isolates and assembly into panels of key multi-drug resistant organisms.

**Crescenta Biosciences, Inc.**
*Novel Therapeutic Approaches for Treatment of Metabolic Diseases*
Crescenta, a start-up biotechnology company is developing a novel small molecule drug discovery platform comprised of chemical libraries and proteomics methods, to create new drugs with unique mechanisms of action.

**Eton Bioscience, Inc.**
*Molecular Tools and Services*
Eton develops and provides a repertoire of cutting edge nucleic acid and protein synthesis and sequencing services to the biological research communities of academia and industry to advance their ongoing experiments and investigations.

**nanoDerm Sciences, Inc.**
*Targeted Therapeutic Nano Gels for Drug-Delivery*
nanoDerm is developing a novel nanoparticle-antibiotic conjugate system for topical treatment of resistant bacterial wound infections, at higher and more consistent doses, while overcoming potential side-effects associated with systemic administration.

**ZignyGen Inc.**
*Vaccine Discovery & Immune Therapies for Treatment of Tropical Diseases*
ZingyGen, a discovery stage biotechnology company is utilizing a novel technology to develop vaccines and immune therapies for the treatment of chronic inflammatory diseases.
Undergraduate Student Researcher of the Year 2016
Maitri Chakraborty was nominated by Dr. Miguel Mosteiro, who feels that Maitri is one of the ten best students that he has had in the past five years. In her classes, Maitri shows intuition, commitment, maturity and an impeccable performance, even studying topics beyond the syllabus.

Maitri has proven herself to be a top researcher. Early in her college work, she joined in an NSF-funded project under the supervision of Professor Stewart-Gardiner. They conducted studies to understand the impact of using games with a story in conveying Computer Science concepts to female middle-school students. Their results provided insight on possible educational strategies to increase female participation in Computer Science. Maitri is presenting the results of this work at Kean Research Days 2016.

Maitri’s research in experimental evaluation of algorithms with Dr. Mosteiro was very successful, yielding a scientific article that is now under review for inclusion in a top international publication. The specific problem addressed in Maitri’s project is central in distributed computing: how to count the number of participants if processors cannot be distinguished and mobility yields their connectivity very dynamic. The problem has immediate application to massive monitoring infrastructures such as Sensor Networks, and more generally to the Internet of Things. Objects in the Internet of Things (IoT) include a myriad of devices, such as heart monitoring implants (mobile health), environmental sensors (pathogen monitoring), bio-transponders (farm animals monitoring), field sensors (aid in rescue operations) and many others. Current market examples include smart thermostats (Nest), wearable diagnostic health tools (e.g., vital sign monitoring and fitness trackers), and location sensing (e.g., safety monitoring and reporting).

She is currently working with Dr. Mosteiro and Dr. Yazhou Sun on Bioinformatics, attempting to improve data structures currently used for Genome Sequence Assembly. If the project is successful, this research may yield patents. This is ongoing work and is in the preliminary stages, but Maitri once again has proven to be a thorough researcher overviewing the current state of the art. Promising paths combining Streaming Algorithms with Cache-oblivious Data Structures are arising thanks to Maitri’s participation.

Always eager to learn and curious by nature, Maitri is a creative thinker with a motivation for research that is very unusual in undergraduate students. She plans to continue her research in graduate school. Maitri is always ready to undertake new challenges with excitement and curiosity, and she has a notable intuition on problem solving.

The Office of Research and Sponsored Programs is pleased to name Maitri Kean University’s Undergraduate Student Researcher of the Year for 2016!
Student Poster Presentations
KATHERIN ALDAZ
Faculty Advisor: Dr. Rongsun Pu

“RNA interference on gene dpy-10 in Caenorhabditis elegans”

RNA interference is a biological process in which RNA molecules inhibit gene expression. The nematode Caenorhabditis elegans is an organism with 40% of its genes having human matches. This makes C. elegans a great model to understand how cell division and other cell functions work. C. elegans is a microscopic roundworm that grows fast and is also transparent, which makes it easier to see changes. Since this organism feeds from soil bacteria, Escherichia coli has been prepared with an OP50 strain. This E. coli strain is introduced to the nematode by feeding the nematode with OP50 to induce RNA silencing of the dpy-10 gene. The dpy-10 gene produces a cuticle collagen protein that affects body morphology and movement and genetically interacts with the sqt-1 collagen gene. In general, this gene will have an effect on the size of the worm, making the mutant worm smaller than the wild-type worm. The dpy-10 gene will be suppressed, therefore inducing the wild-type worm N2 to the DR1028 mutant type. The production of collagen cuticle will stop, affecting the phenotype of the wild-type worm. However, the genotype will be not affected.

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

AMANDA ALMEIDA
Faculty Advisor: Dr. Rongsun Pu

“Inducing RNAi in C. elegans by Using E. coli to Disrupt the unc-22 Gene and Distinguish the Gene’s Corresponding Mutant Phenotype”

The mechanism of RNA interference (RNAi) encompasses silencing a certain gene function while still maintaining its genomic integrity. According to a Nobel Prize-winning study that began in 1998, triggering gene silencing is made possible by feeding special strains of bacteria (E. coli) to the C. elegans worms. Each of the bacteria contains a plasmid expressing a gene-specific double-stranded RNA (dsRNA), which is then “absorbed” by the worm. Once the dsRNA is present within a cell, the protein RNase Dicer cuts the dsRNA into double-stranded small interfering RNA’s (siRNA). One siRNA strand is destroyed and the other strand is hybridized to a complementary mRNA while bound to Argonaute, a protein that plays a central role in the RNA silencing process. Then, the remaining siRNA and complementary mRNA strands are bound and the Argonaute cleaves them within the complementary sequence. The gene function, therefore, is silenced.

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

DUSSAN BARCO, KAYLA JAMES
Faculty Advisor: Dr. Kim Spaccarotella

“Review of Resources for and Barriers to Nutrition in Medical Education”

Lack of a nutritious diet has been linked to many causes of death in the United States, making it important to nurture nutrition education programs for physicians in order to prevent chronic
diseases. This project reviewed and evaluated literature about nutrition resources available to physicians in preparation. Searches were conducted in PubMed and Google Scholar with terms such as “nutrition in medical school,” “barriers in nutrition for physicians” and “confidence in nutrition education.” Findings showed lack of nutrition training, knowledge and confidence in counseling. Medical students and physicians need thorough and increased nutrition education and resources for teaching patients.

MITCHELL BELIZAIRE, CESAR FELIZ
Faculty Advisor: Dr. Brian Teasdale

“Distribution study of a local Seagrass Community in San Salvador, Bahamas”

Seagrass beds are widely recognized as a crucial component of coastal ecosystems worldwide, especially in the tropical areas of the Atlantic Ocean. Three species: Thalassia testudinum, Syringodium filiforme and Halodule wrightii populate the water beds off the island of San Salvador in the Bahamas. This study looks at the density of the dominant species (T. testudinum and S. filiforme) individually and mixed on the water beds of Grahams Harbor sampling site by analyzing by sampling both living and dead short shoots. A sampling area of 10 m x 5 m was randomly selected from which 1 m2 quadrat sampling was used to determine the population density of the seagrasses that were identified by species. The quadrat was divided into 25 square boxes in which numbers for all three species were obtained. The quadrat was placed on the sea floor at depths of 20 cm, 50 cm and 100 cm, respectively, to account for variations in depth. Samples of the drift material were collected in a zip lock bag and counted in the lab to determine the ratio, density and diversity of the species. Results show that each square box contained an average of three short shoots of Thalassia and eight single shoots of Syringodium. The drift material showed that the number of Thalassia were much higher than that of Syringodium. The study concludes that S. filiforme is more abundant at the Grahams Harbor site even though T. testudinum appears to be the most detached by water activities.

LISBETH CASTILLO
Faculty Advisor: Dr. Claudia Knezek

“Effects of Genes on Obesity”

The purpose of this research is to show how genes affect obesity. The increasing problem of obesity in our society is recognized as both a short-term and long-term serious public-health concern. Having excessive body weight contributes to morbidity such as cancers, cardiovascular and musculoskeletal disorders. Some diseases display syndrome features while others have a clear phenotype. In one study, altered DNA methylation was the result with genetic alleles imprinting as a phenotype. The modification of produced histones and the effect of noncoding microRNAs on transcription have been an epigenetic phenomenon (Millington, 2013). Prader-Willi Syndrome (PWS) is the inactivation of paternally inherited chromosome region that leads to obesity. Both obesity and other related syndromes are associated with skin diseases. Many of the skin diseases are associated with skin pigmentation, as well as other endocrine problems of syndromes with cutaneous features (Millington, 2013).

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation
JONATHAN COONEY  
Faculty Advisor: Dr. Rongsun Pu  
“Using RNA interference (RNAi) in C. elegans to silence the bli-1 gene to induce the phenotypic characteristics of the bli-1 mutant”

The purpose of this study was to use RNAi to silence the bli-1 gene in C. elegans and observe phenotypic changes due to silencing of that specific gene. RNAi is a gene-silencing mechanism found within many eukaryotic organisms. It is an effective way to down-regulate genes in order to understand their function within an organism. In this study, E. coli cultures with gene-specific double-stranded DNA (dsDNA) will be grown on LB plates and in LB broth. The dsDNA within the E. coli will then be transcribed into single-stranded RNA (ssRNA) and broken down into double-stranded RNA (dsRNA) specific to the organism’s gene being targeted for silencing. For this study, the specific gene being targeted is bli-1. The E. coli expressing this dsRNA can then be fed to the worms which will in turn lead to the silencing of the target gene bli-1. Once phenotypic characteristics of bli-1 are seen in the RNAi-treated worm, PCR and gel electrophoresis will be used to determine the genotypes of the following C. elegans: wild type (wt), bli-1 mutant and RNAi-treated wt.

BEATRIZ GAITAN  
Faculty Advisor: Dr. Claudia Knezek  
“Sandcastle Worm Inspires Medical Adhesives”

The sandcastle worm has caught the attention of many in the medical field, due to the effectiveness of producing an adhesive that solidifies underwater. The concept of gluing bone fragments together, repairing ruptured fetal membrane and correcting cardiovascular injuries with this suitable biocompatible adhesive remains highly attractive to orthopedic, pediatric and cardiovascular surgeons. Researchers have considered using glue produced by the sandcastle worm for medical applications due to the capabilities of being waterborne, nontoxic and providing a natural healing process for medical repairs. This is a relatively new finding in both medicine and research, so a survey was developed and randomly distributed to students at Kean University and adult residents of a local community. The results showed that more than half of the participants concurred that using glue from the sandcastle worm would significantly improve orthopedic, cardiovascular and pediatric medical problems.

ALEXANDRA GARCIA, STEPHANIE CERNA, STEPHANIE LEWIS  
Faculty Advisor: Dr. Kim Spaccarotella  
“Availability of nutrition resources for students and professionals in sports medicine and fitness”

Nutrition plays an undeniable role in athletic performance and overall health and is essential for professionals in sports medicine and fitness to understand. This project reviewed nutrition knowledge and resources for athletic trainers, coaches and students pursuing these fields. EbscoHost, Google Scholar and PubMed were searched using the terms “nutrition knowledge” and “nutrition resources” for these professions. Athletic trainers and coaches demonstrated insufficient nutrition knowledge, and nutrition was underrepresented in sports science programs. Resources to improve knowledge were lacking and included websites and
presentations predominantly for athletes or the general public. Nutrition resources specific to this population are needed.

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

AMAURI GOMEZ, ROANNE JIMENEZ
Faculty Advisor: Dr. Daniel Fried
“Synthesizing cellulosome components for use in enzyme display”

Cellulose is the most abundant organic compound on Earth and contains high-energy sugars like glucose that can be extracted. Cellulosic biomass is also an upcoming alternative resource that could satisfy future fuel demands; however, the conversion process still remains a challenge. The process of converting cellulose into fermentable sugars requires the use of a synergistically enzyme complex called the cellulosome that is found on the surface of cellulytic bacteria like Clostridium thermocellum. In this study, we engineered and assembled a synthetic designer cellulosome complex with an enhanced enzymatic activity for cellulosic substrates. This unique approach to cellulosomes involves the purification and assembly of cellulosic proteins in a manner that has never been reproduced.

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

STEVEN HERNANDEZ, YRYNS BELMONTE, STEVEN SUEDE
Faculty Advisor: Dr. Amy Sprinkle
“A Comparison of Stomata Density between Shore and Inland Plants in San Salvador, Bahamas”

Leaf stomata are the primary method of gas exchange in vascular plants. Stomata are generally found on the underside of leaves and are controlled by cells called guard cells. The guard cells facilitate the intake of carbon dioxide (CO2) and the release of water (H2O) and oxygen (O2). This study examined the stomatal density of three different plant species: Coccoloba uvifera (sea grape), Coccothrinax (thatch palm) and Stachytarpheta jamaicensis (blue flower) taken from French Bay, Grahams Harbor and North Point in San Salvador, Bahamas, and whether environmental factors such as water availability would be reflected as differing stomatal density in leaves found near the shore compared to those found in inland locations. Impressions of stomata were taken from the leaves through the use of clear nail polish and cellophane tape. The impressions were examined using a compound light microscope, and the stomatal density of the leaves was determined from each location. The results indicated a higher density of stomata in leaves that were taken from inland sites compared to those taken near the shore in all three plants. These results could provide evidence on the importance of environmental factors and location on stomatal density.

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation
KAYLA JAMES
Faculty Advisor: Dr. Daniela Shebitz

“Use of Morinda citrifolia to Inhibit Growth of Escherichia coli”

The purpose of this study was to show the biological activity of Morinda citrifolia (noni) against Escherichia coli. The following treatments were used: 100% ethanol extract of M. citrifolia and 100% methanol extract of M. citrifolia. Over a 15-week period, M. citrifolia extracts were tested to determine the zones of inhibition of E. coli. Also, a preliminary survey was conducted to determine whether or not college students were familiar with the practice and health benefits of using plants as alternative medicine.

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

MILFRE JIMENEZ, SARA RODRIGUEZ
Faculty Advisor: Dr. Juyoung Ha

“Toxicity of ZnCl2 Nanoparticles on Bacteria”

Nanoparticles (NPs) are particles in the size range of 1 and 100 nanometers. NPs have unique properties such as enhanced surface sorption capacities and reduced band gap, and these properties have been studied and applied in engineering and other scientific fields. Despite the successful and useful application of NPs for creating new types of analytical tools for biotechnology and life sciences as well as for new engineering and energy materials, studies have identified an importance of understanding the fate and transport behavior of NPs in natural environments and the subsequent effects of them on ecosystems. For example, toxicological investigations of NPs on bacteria and living organisms have shown that they pose a significant adverse impact over a wide range of microbial communities. With increasing applications and demands on NPs, it is of utmost importance to learn more about how nanoparticles change ecosystems and impact metabolic activities of cells. Therefore, this study will investigate the impact of nanoparticles on one of the most abundant microorganisms in natural environment in order to enhance our understanding of nanoparticle impact in nature.

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

REBECCA LABOY
Faculty Advisor: Dr. Daniela Shebitz

“NJ Native Plant Education”

Educating the local community about the importance of installing native plants in residential gardens and landscapes is an essential step toward restoring the local environment and securing the beneficial functions and services a native ecosystem provides. Native plants require little maintenance, including irrigation and fertilizer amendments, which helps to conserve water resources and keep nutrient-pollution out of our waterways. Jersey-Friendly Yards, an interactive information portal, offers the home gardener a filter system to select plants that are conducive to the conditions of their specific site, eliminating the need for unnecessary and potentially damaging maintenance and amendments. A survey was conducted to determine
the knowledge and likelihood of native plant selection before and after use of Jersey-Friendly Yards, to determine the utility of the portal. Preliminary conclusions asserted that the Jersey-Friendly Yards portal offered ease in plant selection and a likeliness to select low maintenance, native plant species for a home garden or landscape.

ANISHIA LEWIS  
Faculty Advisor: Dr. Rongsun Pu  
“Examination of Genetic Variations of Genotype and Phenotype of C. elegans wild-type and dumpy-11 by Utilizing RNAi Feeding Strains of E. coli”

This project involves using C. elegans, a tiny roundworm, to perform a genetic experiment to induce the mutant dumpy-11 phenotype. This organism is suitable to use because it is easy to culture and manipulate in the lab. RNA interference will be used to silence the dumpy-11 gene. DNA sequencing will be used to genotype the worms. The worms will be grown on agar plates. RNAi will be included in the growing E. coli on LB plates, which will be fed to the worms. The E. coli will be grown overnight and extracted from a single colony. The behavior of the mutant dumpy-11 will be compared to C. elegans wild-type hermaphrodites. Double-stranded RNA is cut into small pieces known as small interfering RNAs (siRNAs). One of the strands breaks away while one becomes attached to a protein called Argonaute, which becomes attached to mRNA to silence the gene. Those findings will result from feeding the worms RNAi to silence the gene. The worms will be fed E.coli at the L4 stage. The expected goal is to induce the mutant phenotype from the wild type to dumpy-11. The wild type will still have the same genotype as the mutant but a different phenotype, which is being shorter to different degrees.

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

SARAH MACK, ASMAA ABDALLA, JUAN MATTHIAS NUNEZ-BORTAGARAY  
Faculty Advisors: Dr. Amy Sprinkle, Dr. Brian Teasdale  
“Behavioral Study of Cyclura rileyi rileyi”

Iguanas are known to be territorial creatures displaying behaviors of aggression to defend their claimed land. In this study, we observed the aggressive behaviors of six species of Cyclura rileyi rileyi (San Salvador iguanas) in captivity to determine the correlation of aggressive behavior and amount of claimed territory within this species in captivity. Research was conducted in San Salvador, Bahamas, from January 8, 2016, to January 12, 2016. Each iguana was tracked spatially within the sanctuary, and a chart was kept to quantify each observed aggressive behavior. We determined that the amount of space that this species of iguana claims is not related to the amount of aggressive behaviors displayed. Instead, we found that males tend to show aggression more than females, while females tend to occupy more space.
RAISA MATEO, ANGELA OVIEDO
Faculty Advisor: Dr. Daniela Shebitz

“Comparative analysis of Pentaclethra macroloba and Vismia macrophylla on plant diversity and soil chemistry in the Costa Rican lowland tropical wet forest”

Understanding the role of secondary forests in ecosystem recovery is becoming increasingly important as old growth rain forests are replaced by agricultural lands and pastures in the Northern Zone of Costa Rica. This research is focused on the environmental effects of two pioneer tree species that are also used locally as medicine: Vismia macrophylla and Pentaclethra macroloba in the lowland tropical wet forest of the Maquenque National Wildlife Refuge. While both of these trees are fast-growing pioneers, only P. macroloba fixes atmospheric nitrogen to assist in ecosystem recovery. The trees were first surveyed along logging roads that were abandoned three years previously to document their ability to become established following disturbance. Ecological effects of V. macrophylla and P. macroloba were then investigated in plots within primary and secondary forests. Soil surrounding V. macrophylla and P. macroloba was investigated to determine how they affect the nutrient levels and soil chemistry. P. macroloba was found to be a better competitor than V. macrophylla, as demonstrated by greater establishment rates, yet V. macrophylla occurred more often in gaps in the canopy than P. macroloba. Vegetative diversity was greatest in plots with both V. macrophylla and P. macroloba present. These findings show that secondary forests are important in the nutrient and plant diversity recovery process of the greater ecosystem, and that small localized disturbances have the potential to create economic and ecological sustainability.

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

JAIME PARELLO, RACHEL RAMOS, RANDI TREWHELLEA
Faculty Advisors: Dr. Amy Sprinkle, Dr. Brian Teasdale

“Sand Grain Analysis of Beaches on San Salvador, Bahamas”

Sand grain analysis is an important mechanism for understanding the various properties and characteristics of sand. The objective of this study was to analyze and compare sand characteristics from three different beaches on San Salvador Island: Grahams Harbor, Dump Reef and Grotto Beach. Results were obtained by lying down a transect tape and taking sand samples at 1.5, 7.6 and 15.2 meters. Using a dissecting microscope for examination, the following characteristics were observed: shape, rounding, level of sorting, polish, type and color. A traditional sieve was then used to determine the sands’ grain size, from coarse grains at 1 mm to fine sand at 0.0625 mm. The results indicated that there was no significant difference from sand at the northern beach (Grahams Harbor) from the sand from the southern beach (Grotto Beach); the middle beach (Dump Reef) had the most dissimilarities when comparing all categories in all three of the beaches.
ROBERT ROLLO
Faculty Advisor: Dr. Amy Sprinkle

“Determining the species richness of the Liberty Hall grounds”

The grounds of Liberty Hall encompass an area of 26 acres, most of which is situated near the Elizabeth River corridor; the Elizabeth River stretches from Irvington, New Jersey, in Essex County to Elizabeth, New Jersey, in Union County. This study deployed camera traps set for medium to large mammals during the fall of 2015 on the Liberty Hall grounds located in Union, New Jersey, to determine the overall species richness and composition of the area. Two camera traps were set during the period of September 21-December 15, 2015, and monitored on a weekly basis. Wildlife included seven species of mammals: common raccoon (Procyon lotor), grey squirrel (Sciurus carolinensis), eastern cottontail rabbit (Sylvilagus floridanus), red fox (Vulpes vulpes), domesticated cat (Felis catus), woodchuck (Marmota monax) and Virginia opossum (Didelphis virginiana) and three species of birds: American sparrow (Passer domesticus), Canadian geese (Branta Canadensis) and northern cardinal (Cardinalis cardinalis). Analysis of camera trap data suggests that the forested area surrounding Liberty Hall is a biologically rich terrestrial ecosystem, and that while habitat loss due to urban encroachment is an issue, this ecosystem, to date, remains a suitable habitat for a variety of species.

LIA SANTANA
Faculty Advisor: Dr. Roxie James

“Updates in Prevention and Research for a Cure of HIV”

The development of using a combination of drugs has greatly prolonged the length and quality of life for persons affected by HIV. However, presently there is hope for a cure in the near future. By gathering years of past trial-and-error experiments and comparing them with current research efforts, scientists have been able to formulate hypotheses that have the potential for a permanent and affordable cure of this virus. Moreover, in order to illustrate the importance of a cure versus improved treatments, data was gathered to highlight rising rates of infection and risky behaviors among populations of college students that were previously thought to be unaffected by the virus. The present research shows that even groups of people that one would safely assume to have knowledge of the prevention of sexually transmitted infections were shown to lack such knowledge and be potentially at risk of contracting HIV. Flaws in efforts of prevention are exposed and give renewed importance to this still dangerous health issue.

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

DAVID SCHIABOR
Faculty Advisor: Dr. Nancy La Fleur

“Dispersal Range Expansion of the European Starling in the U.S.”

European starlings (Sturnus vulgaris) are an extremely successful invasive bird, and understanding their movement patterns may help us understand patterns of spread in invasive species. Our hypothesis is that starlings dispersed further distances initially after they were introduced, simply because there was more available space without competition. For this
study we analyzed data from the U.S. Fish and Wildlife Bird Banding Records/Returns. This data includes information from over 12,000 individual birds, from 1925 to 2006. Early after their introduction to the U.S., starlings seemed to have been flying further distances, relative to the distances they travel later in time. We suggest that as the starling range expanded over time, fewer opportunities for long-range expansion existed, limiting movement.

SINTHIA SOCA
Faculty Advisor: Dr. Claudia Knezek
“Stress Levels Affecting Student Health/The Importance of Stress Awareness and Coping Techniques”

The relationship between blood pressure and health is very important to health-care professionals. The use of blood pressure readings as a tool helps to make the connection between stress levels among college students who are members of the university community. Many daily challenges of college students involve schoolwork, daily work responsibilities and social activities. Lack of an effective support system and use of coping mechanisms can lead to stress-related health problems. Health issues also arise from students engaging in high-risk behaviors, such as drug, alcohol and tobacco use. Poor eating habits also influence stress levels among this population. This study further examines the impact of stress-related factors on blood pressure levels and quality of health among college students.

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

Business

KATELYN BAYONE, AILYN ROBLES, KISHAN DOBARIA
Faculty Advisor: Dr. Thomas Abraham
“A Case Study of the Sustainable Practices of Biogen”

Biogen Inc. is a biotechnology company that develops and manufactures treatments for various diseases. Our research hypothesis is that Biogen is able to improve their business performance through their sustainability mission by means of higher levels of innovation and efficiency. We will use the case study research method to gather data and verify whether Biogen is achieving high levels of innovation that correlate with their sustainable business practices. Data used will be primarily collected from company sustainability reports, annual reports, press releases, and from other media and third party organizational reports. The data collected will be analyzed using the Global Reporting Initiative as well as by using various business strategy concepts such as creating shared value.
JONATHON LAZAR, CLAUDIA ORTIZ, VICTORIA LILIENTHAL
Faculty Advisor: Dr. Thomas Abraham

“Ikea”

The Swedish firm, Ikea Group, a global leader in the home furnishings industry, has committed to conducting operations that are economically, socially and environmentally sustainable with an eye toward innovative efficiencies to enhance their future impact in these areas in the most positive way possible. We plan to do an in-depth analysis of the most impactful sustainability initiatives of the current year and into the near future. Our research hypothesis is that Ikea’s sustainability approach makes the company more profitable. We will use the case study research method as the framework from which we will aggregate and run analyses of raw data from internal reporting, sustainability agencies, media and nonprofit organizations. In the data analysis phase, we will be shining a light on particular areas of the business’s sustainability policy by looking for examples at shared value business strategies. We will apply integrated reporting and Global Reporting Initiative guidelines to analyze Ikea’s sustainability plans to real-world application and impact.

JORGE REGALADO, JUAN ROMERO, MELISSA TRENARD
Faculty Advisor: Dr. Thomas Abraham

“Does sustainability drive innovation at Tesla Motors?”

Tesla Motors Inc., an American automotive company that focuses on energy innovation, designs, manufactures and sells high-performance electric cars. Our research hypothesis is that Tesla’s sustainability mission makes Tesla more innovative. For this project, the case study research method will be used to collect and analyze data on how Tesla actually carries out the sustainability mission and evaluate its sustainability for innovation. The data will be collected from the company’s annual reports, sustainability progress reports, and reports provided from word-of-mouth, the media and the Internet. Lastly, the data will be analyzed using the strategy models, the Global Reporting Initiative (GRI) and integrated reporting guidelines in order to explain its sustainability strategy.

JESUS REYES, RAPHAELLA GOMES, JONATHAN FERNANDEZ
Faculty Advisor: Dr. Thomas Abraham

“Does sustainability at Tetra Pak Company drive innovation?”

Tetra Pak is a company that produces food packages and food-filling machinery for massive consumer items such as milk, fruit juices, water, cheese, ice cream and powders. Tetra Pak works constantly on many projects and innovations that could improve their clients’ businesses while at the same time increasing the performance of its corporation and subsidiaries. Our research hypothesis is that sustainability makes Tetra Pak a market leader in their industry. Our team will use the case study research method to investigate our hypothesis. The data we are going to collect is from their sustainability annual reports, case studies and peer-reviewed articles. In addition, we will collect data from media and NGOs. This data will be analyzed using the Global Reporting Initiative guidelines and business strategy concepts such as creating shared value.
EVELYN ROQUE, LAURA SEVERINO, NAOMI KEITH SANTOS
Faculty Advisor: Dr. Thomas Abraham
“BMW: Sustainable Yet Profitable?”

BMW is a leading international automaker striving to provide the best services and products to its consumers, while considering the social, economic and environmental impacts of its business to the community. Our research hypothesis is: can a sustainable approach enable BMW to be a sustainable yet profitable company? By using the case study research method, we will be able to analyze the collected data on how BMW utilizes its sustainable approach through the creation of innovative products and services, which might also have an impact on its revenues. The data will be primarily collected from: BMW’s Sustainable Value Report, Key Performance Indicators (KPI) five-year review and other sources. We will analyze this data through the use of the Global Reporting Initiative (GRI) and integrated reporting guidelines. We will conduct further research on how BMW creates a shared value approach through its people, the planet and profits.

GABRIELLA ST. FLEUR, ASHLEY FIELD, PERLA MARTINEZ
Faculty Advisor: Dr. Thomas Abraham
“Is Umicore creating shared value?”

This research study will investigate if and how Umicore can create shared value. Umicore is a global materials technology and recycling group that dedicates most of its R&D efforts to clean technologies, such as emission control catalysts, materials for rechargeable batteries and recycling. Its goal is based on an ambition to develop, produce and recycle materials in a way that accomplishes its mission: materials for a better life. We will use the case study research method to collect and analyze data from sustainability reports and other sources.

DONALD TREICH, TOM BUCCINE, BRANDI CALAVANO
Faculty Advisor: Dr. Thomas Abraham
“Is Apple staying competitive and sustainable in today’s market?”

Apple, a world-renowned innovator of technology and electronics, has consistently improved its products and sustainable business practices for decades. Our research hypothesis is that by adopting renewable energy and other sustainable practices, Apple will remain competitive in the marketplace and continue to innovate its revolutionary products. Using the case study research method, we will investigate this hypothesis. Our data collection will include annual and sustainability progress reports provided by the company and participating third parties. Using the Global Reporting Initiative guidelines, we will analyze the data and report on our findings.
AMY ABDULKARIM, MICHAEL LACORTE
Faculty Advisor: Dr. Matthew Mongelli
“Effect of a facial terminal ligand on a bimetallic asymmetric ruthenium(II) complexes’ DNA interactions”

Complexes of the form [(TL)2Ru(BL)Ru(Cl)(tpm)]3+, where TL is a bidentate terminal ligand (i.e., 2,2’-bipyridine (bpy)), tpm is the facial tridentate terminal ligand tris(1-pyrazolyl)methane and BL is a bridging ligand (i.e., 2,3-bis(2-pyridyl)pyrazine (dpp) or 2,2’bipyrimidine (bpm)), have been synthesized and characterized with respect to their absorbance and electrochemical properties. These complexes are also being screened for their ability to bind and photocleave DNA.

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

DIANA HABIB
Faculty Advisor: Dr. Heather Stokes-Huby
“Rapid identification of raw materials using Raman Spectroscopy”

The interaction between monochromatic light from a laser source and a material generates a unique spectrum that is used to identify the sample. Spectra of Raman-active raw materials are collected and documented to form a library. This library is used as a basis of comparison for rapid identification of every incoming raw material. The Raman technique is nondestructive, and samples can be analyzed in clear glass and clear thin plastic containers without interference.

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

LYNN ABRAMHASEN
Faculty Advisor: Dr. Mary Jo Santo Pietro
“Comparing Two Methods of Teaching about Medications and Their Impact on Swallowing to SLP Graduate Students”

The purpose of this pilot study was to determine the most effective method of teaching speech-language pathology (SLP) graduate students about medications and their impact on swallowing. The questions posed by the researcher included: (1) Does SLP graduate students’ knowledge of medications and their impact on swallowing increase as a result of a computer-based training program? (2) Given two internal memory techniques, is the storytelling method a more effective method of teaching about medications and their impact on swallowing than the chunking method? Forty-one participants were recruited via Kean
University, the ASHA community online forum, and the National Speech Language Hearing Association’s publication “In the Loop.” A computer-based training program was used to gather demographic information about the participants, conduct a pretest, provide instruction about medications and swallowing, and conduct a posttest. The data were collected using the Qualtrics software program and analyzed using descriptive statistics. The results of the study revealed that participants scored higher on the posttest after completing a computer-based training program and that both teaching methods were equally effective. Implications and suggestions for further research on this subject were provided.

**SABRINA BERG**  
Faculty Advisor: Dr. Jeanne Carlucci  
“*What Did I Just Eat?*”

Dysphagia is defined as a symptom in which a person has an inability to safely and effectively swallow. Treatment involves the manipulation and modification of food textures and consistency. These modifications are set forth by speech language pathologists and include making foods easier and safer to swallow via texture and shape change. Building off prior research, one hopes to study the effects of food’s presentation, shape and color on flavor perception and food consumption. The purpose and goal of this study was to determine if the color and shape of presented food influenced participants’ food perception and preference. Four plates with an identical source were individually presented to participants in a randomized order. After each plate was presented, the participants completed a survey, tasted each dish and completed an identical survey. Open-ended and Likert scale questions were used; the surveys contained questions pertaining to how often participants would eat the food presented, would they serve the altered food to a loved one, what they thought the food was and if it was the color and/or shape of the food affected their answers. In every case, participants reported that the color and shape of presented food affected their perceptions of the food; however, once the participants tasted the modified food, taste became the most influential variable.

**ALYSSA CASSIELLO**  
Faculty Advisor: Dr. Jeannine Carlucci  
“*Assessment of Phonemic Awareness in a Teacher Education Program*”

Phonemic awareness is defined as the capability to examine the sounds of speech, which includes the ability to manipulate single sounds and recognize that a direct letter-sound relationship is not always present (Spencer, Schuele, Guillot, & Lee, 2011; Williams, 1984). Additionally, phonemic awareness is the idea that speech is comprised of a sequence of sounds that gives meaning to words and differentiates them. Difficulty in phonemic awareness may be the reason for children’s impairments in reading and spelling (Gilliam & Ford, 2012). Previous research argued that educators may be unfamiliar with the area of phonemic awareness themselves, which may affect their ability to educate their students effectively (Moats, 1994). This study sought to determine the understanding and knowledge of phonemic awareness the prospective and current teachers had, as well as to determine if they would benefit from a brief lesson in phonemic awareness. The participants were asked to complete a pretest, watch a brief instructional video and take a posttest in order to determine the benefit of the video. A paired sample t test was completed to analyze the results, which indicated that each of the six participants in the study demonstrated an improvement after viewing the video.
GIULIANA COFONE
Faculty Advisor: Dr. Alice Chiarello
“The Influence of E-Books vs. Print Books on Reading Comprehension in Fourth Graders”

Recently there has been a significant increase in the use of technology in schools to assist in the acquisition of reading skills. The present research aimed to determine if reading e-books is an effective way to read and synthesize information by comparing the reading comprehension of students reading a story on an e-book to students reading a story in print. The approach used in this study to measure reading comprehension was oral retelling. This approach is more successful in measuring reading comprehension because oral retelling requires the participant to not only remember the information, but also synthesize and make inferences about crucial parts of the plot. The principal investigator found that there were significant differences in the two groups’ ability to appropriately retell the story using critical thinking. Overall, participants in the control group using a print book scored higher on a measure of reading comprehension than participants in the experimental group using an e-book. There was a statistically significant difference between the mean scores of each group, which suggests that reading on e-books may affect the overall comprehension of the material.

REBECCA COOKE
Faculty Advisor: Dr. Mary Jo Santo Pietro
“The Hydration and Humidification Habits of Teachers in Relation to their Vocal Quality”

While there is much research showing the effectiveness of the behavioral intervention “vocal hygiene,” there is limited research indicating which aspects of vocal hygiene most influence the prevention of vocal abuse symptoms: e.g., limiting talking time, not shouting in the presence of background noise, getting adequate hydration and humidification. This study analyzed how hydration and humidification contribute to vocal quality. Because of the high prevalence of vocal disorders in teachers, a sample of 38 teachers, who taught kindergarten through eighth grade five days a week, was chosen. The teachers completed a 15-question online survey that analyzed liquid intake, humidifier usage and teachers’ perceptions of their own vocal quality based on the Voice Handicap Index. Analysis showed no statistical relationship between the number of cups of liquids teachers drank and their perception of their voices based on the Voice Handicap Index. However, the average amount of liquid intake for this homogeneous sample was 3-5 cups, an amount shown to be adequate for good health by Harvard School of Public Health (2016). Future research should seek to analyze a larger population of teachers in a variety of settings to avoid homogenous analysis.

RACHEL COUNTERMINE
Faculty Advisor: Dr. Mary Jo Santo Pietro
“Sensitivity of the Measure of Cognitive-Linguistic Abilities (MCLA) in Determining Cognitive-Linguistic Impairments in Operation Iraqi Freedom, Enduring Freedom and New Dawn Veterans with Mild Traumatic Brain Injury (mTBI)”

Traumatic brain injury (TBI) is considered the “signature wound” amongst veterans of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF). The goal of speech-language pathologists (SLPs) during assessment is to document the presence and severity of deficits due to mild traumatic brain injury (mTBI). There are no evaluation protocols or standardized
assessments for SLPs to administer for documenting the cognitive-communication deficits subsequent to mTBI. The purpose of this study is to (1) analyze the sensitivity of the Measure of Cognitive-Linguistic Abilities (MCLA) in determining cognitive-linguistic impairments in veterans with mTBI and (2) recommend revisions if necessary. The criteria for participation were as follows: (1) a veteran of Operation Iraqi Freedom (OIF), Operation Enduring Freedom (OEF), and/or Operation New Dawn (OND) and (2) diagnosed with mild traumatic brain injury (mTBI) or has any of the following symptoms: physical – headache, sleep disturbances, dizziness, balance problems, nausea/vomiting, fatigue, visual disturbances, light sensitivity, ringing in ears; cognitive – slowed thinking, poor concentration, memory problems, difficulty finding words; emotional – feeling anxious, feeling depressed, irritability, mood swings. The researcher interviewed the participants and administered the Three-Question Brief Traumatic Brain Injury Screen, MCLA, and exit questionnaire. The collection of data is ongoing. One difficulty encountered so far has been reluctance of veterans to participate in the test taking. A diagnostic instrument that is both sensitive and specific to mTBI is much needed in the speech-language pathology field.

CATHERINE CURTIS
Faculty Advisor: Dr. Jeannine Carlucci

“Teachers’ Perceptions of Expressive Language Impairments: SLPs in School Settings”

There has been limited research pertaining to how the perceptions of teachers toward students with expressive language impairments affect the students’ performance in schools. This study examined the views of teachers toward students with expressive language impairments and views regarding how a speech language specialist (SLS) can better assist teachers with these students. This study was conducted via a quantitative approach, in which general, special and dual-degreed teachers in northern New Jersey public school districts were surveyed. The teachers were asked about their views toward students with expressive language impairments and what the teachers believed the role of a SLS was to assist them in providing the best education possible to these students. The results of this study were not found to be statistically significant. However, the results did indicate that, overall, the special education teacher had a more positive view toward students with expressive language impairments. All teachers believed that in order to better assist a teacher with a student with expressive language impairments, an SLS can provide support and information about disorders when requested, use in-class collaboration and pull the student out for services. Even though the findings were found not statistically significant, they shed light on to the differences in views of teachers toward the academic abilities, social skills and behavior of students with expressive language impairments. In addition, it provides SLSs with insight into what teachers would find to be beneficial in assisting them with students with expressive language impairments.

LORI DELUCA
Faculty Advisor: Dr. Alice Chiarello

“Collaborative Teaching: Which Subjects are Most Often Targeted by Speech Language Pathologists?”

The purpose of this study was to investigate which classrooms and subjects graduate speech-language pathology students and working school-based speech-language specialists prefer performing in class, also known as collaborative or push-in, type therapy. The preference
of each subject was compared to previous academic experience as well as their perceived proficiency in each subject. The study was performed via a Qualtrics survey distributed through email. There were 109 participants in total, 40 graduate student participants, 65 working school-based speech-language specialists, and four retired school-based speech-language specialists. The results of the study identified literacy/language arts as the subject most often targeted for in-class collaboration as well as the subject that participants felt most confident in providing in-class therapy. Mathematics, on the other hand, was the subject least likely to be targeted, and the subject that participants felt the least confident in providing in-class therapy. The survey also identified a significant drop in confidence for all four subjects when comparing the upper grades (sixth through twelfth) to the lower grades (kindergarten through fifth). The clinical implication of this study is the gap in provision of in-class therapy for all subjects other than literacy/language arts, specifically mathematics.

LEA DZIUBA
Faculty Advisor: Dr. Alan Gertner

“Parents’ Views of Treatments for Autism Spectrum Disorder and the Professionals Working with their Children”

This research investigates the number of simultaneous treatments children with Autism Spectrum Disorder (ASD) participate in, parental views of the treatments and their perception of a “team approach” to therapy. As stated by V. A. Green (2007), parents’ perceptions about treatments affect the choice of interventions, the length of interventions, degree of compliance with interventions and how the different interventions are organized in their children’s lives. Twenty-three parents of children with ASD participated in a 20-minute Qualtrics survey that gathered information about their experiences with different treatments and professionals. The mean number of treatments children with ASD were involved with simultaneously was 6.3; 87% of parents believed therapists work in a “team approach”; 65% of participants expressed a need for more “open communication” about their child’s progress. Children with ASD participate in multiple therapeutic treatments simultaneously, averaging 6.3 treatments each. Most parents believe their children receive a team approach to treatment, however most would like increased communication with professionals. Future research should focus on a larger, more diverse population, and more specific criteria guidelines.

CATHERINE ETZEL
Faculty Advisor: Dr. JoAnne Cascia

“The Education Major’s Perception of Stuttering”

There is limited information about the perceptions of education majors regarding people who stutter. Additionally, research has found that many teachers have reported not receiving an adequate amount of training for working with children who stutter. Twenty-four undergraduate education majors participated in this study in which a pretest and posttest survey was administered regarding characteristics of a person who stutters, before and after watching an educational public service announcement. A majority of participants responded positively before and after watching the educational video. There was a higher standard deviation in the posttest, but the results were not statistically significant. An implication of this study is that education can lead to more positive attitudes toward people who stutter. Limitations of this study were that there was poor audio quality when videos were administered, and all participants were female.
ELYSE GOLDBERG  
Faculty Advisor: Dr. Alan Gertner  
“The Impact of Music on Functional Communication in Individuals with Alzheimer’s Disease”  
Progressive deterioration of cognition and language function is a hallmark symptom of Alzheimer’s disease. Music therapy, in institutionalized elderly populations, has been used to address a myriad of issues, including behavior, socialization and orientation. The purpose of this study was to determine if music impacted functional communication abilities in individuals with Alzheimer’s disease. The experimental group participated, for six weeks, listening to music on an iPod. The control group was read to for the six-week treatment period. Behavioral observations were also monitored throughout sessions with the aid of a checklist. The Communication Outcome Measure of Functional Independence (COMFI) scale was administered as a pre- and posttest. Findings indicated there were no significant changes on the COMFI scale scores over the eight-week period. However, the behavioral checklist indicated that during each session, all participants demonstrated increased alertness, eye contact and cooperation.

ARIEL HAUSMAN  
Faculty Advisor: Dr. Jeannine Carlucci  
“Voting Participation in Persons with Aphasia: Facilitators and Barriers”  
Few studies have examined civic participation and voting habits in persons with aphasia. This study sought to observe the differences in voting participation before and after the onset of aphasia, to determine if specific barriers prevent persons with aphasia from participating in elections, and to determine if there are other factors that are linked to voting participation. A mixed-method survey was administered to 17 participants with chronic aphasia over the age of 36. The survey contained 28 questions and was offered in paper and digital formats. As reported, after the onset of aphasia the voting habits of nine participants remained unchanged, the voting frequency of six participants decreased, and the voting frequency of two participants increased. When asked to identify what would make voting easier, seven participants responded that voting would be easier if transportation was more accessible, six responded that knowing more about the candidates would be helpful, six responded that ballots featuring larger print would be useful and one responded that ballots with pictures would be beneficial. To identify possible factors that may be related to voting participation, Pearson correlation tests were performed. Significant positive correlations were identified between post-onset voting frequency and: level of community involvement, frequency with which participants follow the news and how often participants attend a news discussion group. If clients place importance on civic involvement, politics and voting in elections, speech-language pathologists can facilitate their ability to participate.

JULIANNE HOATSON  
Faculty Advisor: Dr. Alice Chiarello  
“Effects Animal-Assisted Therapy has on Verbal and Non-Verbal Communication and Motivation and Satisfaction on Adults with Aphasia “  
Limited research has been conducted documenting the effects animal-assisted therapy (AAT) has on those with aphasia. This study aimed to investigate the effect AAT has on verbal and
non-verbal communication on adults with aphasia. This study also investigated the impact AAT has on motivation and satisfaction during therapy sessions in comparison to traditional speech therapy. The results indicated that AAT is an effective treatment strategy for people with aphasia and even slightly more effective than traditional speech therapy. During AAT, initiates verbal interaction, establishes a topic, maintains topic of conversation and asks a question were more frequent amongst the participants. Makes a request stayed the same in both AAT and traditional speech therapy. Answering a question and uses gestures were the two communicative acts that decreased during AAT. The survey also indicated that participants were more motivated and satisfied while participating in AAT in comparison to traditional speech therapy.

SHANNON HUSSEY
Faculty Advisor: Dr. Alice Chiarello
“The Incidence of Chronic Voice Disorders in Former High School Cheerleaders”

Cheerleading devastates the vocal mechanism due to the habitual pattern of markedly loud vocal use and the excessive amount of time talking above loud environmental noise. As a result, cheerleaders are considered a group with a high risk for acquiring voice disorders. The purpose of this study was to investigate whether or not the damaging effects that cheerleading have on the voice continue to affect the voice years after having left the sport. A total of 38 female former high school cheerleaders completed a survey aimed at gathering information about the participants’ voices during their time as high school cheerleaders and their voices currently. Participants also completed the Voice Handicap Index-10 (VHI-10), which required participants to judge the effect their voices have on their daily lives. Results of this study indicate that former high school cheerleaders’ voices are not as disordered as predicted. However, based on the results of this study revealing that high school cheerleaders experience symptoms of voice disorders yet receive no information on how to protect their voices, there is still a great need for vocal hygiene awareness programs in schools.

NICOLE JONAS
Faculty Advisor: Dr. Alan Gertner
“Music Intervention: Improving Reading/Language skills in Children with Dyslexia”

Theories about the cause of developmental dyslexia are widely debated by researchers. Children with developmental dyslexia have a deficit in phonological skills, posing difficulties with reading and spelling. Researchers have explored music intervention as a technique to help individuals with developmental dyslexia, with several studies supporting music intervention as a viable treatment to strengthen the language skills in children with dyslexia. This case study examined the effects of music intervention to improve reading comprehension, oral reading fluency, rate and accuracy in a child with dyslexia. Music intervention was provided over a six-week period to an eight-year-old male participant diagnosed with dyslexia. Pretest and posttest measures were obtained using the Gray Oral Reading Test – 5th Edition (GORT-5). The participant learned to play simple songs of increasing complexity on a keyboard, utilizing both right and left hands. The participant practiced the musical piece three times at home before each session. Mastery of each musical piece was demonstrated utilizing the following: correct fingering, correct notes and correct beats per measure. Improvement in reading accuracy and reading fluency was observed from pre- to posttest raw scores. Music intervention may be a viable treatment to improve reading skills in children with dyslexia.
**Terry Kent**  
Faculty Advisor: Dr. Mary Jo Santo Pietro  
“The Effect of Yoga Exercises on Preschool Students Diagnosed with Autism Spectrum Disorders (ASD)/Pervasive Developmental Disorders (PDD)”

Yoga is a Hindu philosophy that teaches people to experience inner peace by controlling the body and mind. Yoga has been shown to have beneficial effects on mood, anxiety, stress, psychological health and physical health by alleviating stressors that impact daily living. Increasingly, Yoga for children is being implemented in schools. The purpose of the current study was to examine the effect of Yoga exercises on preschool children diagnosed with ASD/PDD, a complex neuro-developmental disorder, over the course of a school day. We asked, “Do Yoga exercises reduce or eliminate repetitive and self-stimulatory behaviors? What is their effect on language and communication?” Using an ABAB experimental design, this research examined whether the children’s behavior changed on introduction of the treatment, reversed when the treatment was withdrawn, and improved again when the treatment was reintroduced (a total of two weeks on and two weeks off). Twelve students, ages 3 and 4 years, participated in the video-recorded sessions led by their regular special education teacher who was a certified Yoga instructor. Following each 20-minute Yoga session, students were observed in their subsequent activities for 20 minutes and rated using the Aberrant Behavior Checklist (Aman, Singh, Stewart, & Field, 1985a). Results are pending.

**Rachel Konik**  
Faculty Advisor: Dr. Jeannine Carlucci  
“Once upon an iPad: Preschooler Story Recall on E-book vs. Print”

The purpose of this study was to determine if the ability of a preschool-aged child to recall story details would vary as a function of book format, an e-book or print book, following a parent-child shared reading experience. Limited past research juxtaposed the reading of e-books to print books while incorporating parents, eliminating e-book interactive features, utilizing the same exact book in both formats and conducting research in the naturalistic setting of the home. This research controls for these factors to make the parent-child reading experience as similar as possible regardless of format. A counterbalanced measures, post-assessment, randomized, quasi-experimental design was implemented to test each participant for the two conditions, an e-book and a print book. Five parent-child dyads were randomly assigned to one of two groups: to read one book (Book A) in print and a second book (Book B) on an iPad and vice versa. This study found that the average number of correctly answered story recall questions was the same on an iPad as it was in print. The identical mean scores were attributed to the parent-child shared reading experiences being conducted in similar manners—with the parents directing the reading experience and the child’s attention in both formats.

**Lindsey Krausman**  
Faculty Advisor: Dr. JoAnne Cascia  
“A Review of Articulation Test Outcomes”

Introduction: Research regarding testing sounds at both the word and sentence levels remains inconsistent. Some research claims that there are no major differences between scores while others claim that discrepancies between levels may be more common than thought. A review of records was completed in order to examine the differences between word-level and
sentence-level test scores. Different types of assessments were then compared to each other. Eight files were found containing the appropriate criteria to be examined. Four out of the eight files contained discrepancies. Of these eight files, five were GFTA-2 and three were Arizona-3. All three Arizona-3 tests contained discrepancies, while one out of five GFTA-2 contained differences between levels. While four out of eight assessments contained discrepancies, there was not enough data to generalize this information on a larger scale. This was also true when determining if the assessment used affects the outcome. Interestingly, in three out of four trials, the voiceless ‘th’ was evident at sentence-level testing but not at word-level. This may be a future focus of research.

ANNA LATKA
Faculty Advisor: Dr. Jeannine Carlucci
"Differences in 2D:4D Digit Ratios between Individuals with Attention Deficit Hyperactivity Disorder and Auditory Processing Disorder"

Auditory processing disorder (APD) and attention deficit hyperactivity disorder (ADHD) both present with similar, sometimes overlapping, symptoms including poor listening skills, inattention and distraction (Chermak, Hall, & Musiek, 1999; Yalçınkaya & Keith, 2008). Due to the similarity of these symptoms, it is particularly challenging to differentiate between APD and ADHD. More research is required to provide clinicians with additional diagnostic variables that help differentiate between these two disorders. Studies have shown that people with ADHD present with index finger (2D) lengths that are significantly shorter than ring finger (4D) lengths (i.e., a low 2D:4D digit ratio) when compared to the typically developing population (deBruin, Verheij, Weigman, & Ferdinand, 2006; Stevenson et al., 2007). The purpose of this study was to determine if 2D:4D ratios (the length of the index finger divided by the length of the ring finger) can be a potential variable to distinguish between APD and ADHD. Five participants were recruited (three participants diagnosed with APD and two participants diagnosed with ADHD). Both hands were scanned, and the second and fourth digit lengths were measured using digital calipers. 2D:4D ratios were calculated and compared between individuals with APD and ADHD. The results showed that individuals diagnosed with APD had a mean right 2D:4D of 0.946, and a mean left 2D:4D of 0.931. The group of individuals diagnosed with ADHD had a mean right 2D:4D of 0.978, and a mean left 2D:4D of 0.976. Individuals diagnosed with APD, on average, had lower 2D:4D ratios (on both hands) than individuals diagnosed with ADHD. Due to the small sample size of this study, it is recommended that a follow-up study be conducted with a larger sample size before 2D:4D ratios can be used as a variable to differentiate between APD and ADHD.

NICOLE LENTINI
Faculty Advisor: Dr. JoAnne Cascia
"Graduate Students’ Perceptions of Vocal Quality of People with Voice Disorders"

The purpose of this study was to evaluate graduate students’ perceptual judgments of vocal quality of people with disorders. It is an ethical and professional responsibility of a speech-language pathologist to accurately assess, diagnose and treat persons with communication disorders. A major component of proper assessment is providing consistent and accurate perceptual judgment. Given the subjective nature of assessing vocal quality, there exists a particular concern for beginning speech-language pathologists in accurately judging vocal
quality of people with voice disorders. This study was conducted via an online survey on Qualtrics. Graduate students, speech-language pathologists and people unrelated to speech rated vocal qualities of fifteen different voice disorders. Results of this study imply that beginning clinicians’ judgments of voice disorders will be different from the judgments of experienced speech-language pathologists.

JENNIFER LEVINE
Faculty Advisor: Dr. Mary Jo Santo Pietro

“Is There a Relationship Between Amount and Type of Exercise and Perception of Voice Handicap?”

The goal of this study was to determine whether a relationship exists between amount and type of exercise and the individual’s perception of voice handicap. Previous studies have shown that individuals who use their voices intensively while performing physical efforts (e.g., aerobics instructors and cheerleaders) are considered at risk for developing voice disorders (Heidel and Torgerson, 1993). Doust and Patrick (1981) reported that speech during intense exercise was louder with increased pitch, more tremulous and presented a breathy quality. This in turn might be expected to lead to functional voice disorders and eventually vocal fold trauma in athletes.

RACHEL MARCANTUONO
Faculty Advisor: Dr. Alice Chiarello

“The Effectiveness of Two Delivery Methods for Educational Information Regarding Strokes”

This study assessed the knowledge of the adult population about various aspects regarding stroke. The impact of a stroke on an individual’s communication can be devastating and difficult to rectify, even with intensive intervention from a speech-language pathologist. Prevention and immediate medical attention is needed to reduce the prevalence of communication disorders that are direct results of a stroke, such as aphasia. This study sought to determine which type of intervention was more effective in increasing adult knowledge about strokes. Participants were split into Group A or Group B. Group A received media information about strokes, and Group B received an in-person presentation regarding strokes. A survey was administered to assess knowledge about strokes prior to intervention, immediately after intervention and four weeks after intervention. Both Group A and Group B had an increased knowledge about strokes after intervention. However, Group B had slightly more knowledge about strokes both immediately after and four weeks after intervention, especially regarding the term aphasia.

SAMANTHA MASCARI
Faculty Advisor: Dr. Jeannine Carlucci

“Counseling Needs of Fathers of Children with Down Syndrome”

The present study examined fathers’ perceptions of Down syndrome support groups by investigating the facilitators and barriers that currently affect paternal attendance to these groups. In addition, the counseling role of the speech-language pathologist was investigated. Participants completed an online anonymous survey comprised of both quantitative and qualitative questions in order to determine paternal perceptions of these variables and also the role of the speech-language pathologist in counseling these individuals. The results of
this study revealed most of the participants felt that support groups were very helpful for their counseling needs. Moreover, participants were generally pleased with their speech-language pathologists, yet did not find them as a source of support or counseling. The results from this study are not indicative of the entire targeted population due to the limited number of participants, indicating that the topic of this study should be examined further using a larger and more diverse sample to determine if fathers are, in fact, attending support groups. Furthermore, this study began to shed light on the facilitators and barriers that affect paternal attendance to support groups and the role that the speech-language pathologist plays for these families.

SIOBHAN MCLAUGHLIN
Faculty Advisor: Dr. Jeannine Carlucci
“Perceptions of Friendship among Children and Teens with Autism”

Friendships are important for social and emotional development, and individuals with autism often have difficulty maintaining high-quality, reciprocal friendships. However, there is little data comparing the perceptions of friendship among children with autism to the perceptions of teenagers with autism. This research aimed to determine the effects of development on perceptions of friendship among individuals with high-functioning autism, while shedding light on the difficulties of friendship among these individuals. A non-experimental cross-sectional survey design was utilized. Participants with high-functioning autism were separated into two groups based on their age. The child group consisted of three individuals between the ages of 10 and 12, and the teen group consisted of three individuals between the ages of 16 and 19. Participants were asked to provide a definition of friendship and rate the quality of their friendships and the extent to which they value friendship. Definitions of friendship were found to be incomplete, suggesting a lack of comprehensive understanding of friendship. The quality of friendship in the teen group was rated lower in terms of security, help and companionship than that of the child group, suggesting a slight decline in friendships during the teenage years. Individuals who found it easy to make friends rated their friendships as being higher quality than those who found it difficult to make friends. Overall, results indicated the friendships of individuals with high-functioning autism were low in support and empathy. Limitations and implications of the study were discussed.

LAURA MCLAUGHLIN
Faculty Advisor: Dr. Alice Chiarello
“Effect of Font Type on Reading Comprehension of School-Aged Children”

The purpose of this study was to explore the effects of font type on the reading comprehension of school-aged children. The fonts used in schools may not be the most beneficial ones to help children learn and develop optimal reading comprehension skills, as there is evidence that disfluency leads to a deeper and more abstract, careful and comprehensive processing of material. Twenty-four third grade students received a reading passage followed by a reading comprehension assessment of the material. Twelve students received the passage in the control font, Arial, and twelve students received the passage in the experimental, more disfluent font, Monotype Corsiva. Results did not indicate a significant difference between the reading comprehension scores of the two conditions.
JACLYN MENDONCA
Faculty Advisor: Dr. JoAnne Cascia
“The Effect of a Social Story among Children in a Self-Contained Classroom”

The purpose of this study was to investigate the effect of a Social Story intervention among children within a self-contained classroom. Results may prove noteworthy for speech-language pathologists and educators for strategies and evidence toward an effective intervention program for students. Using a pretest-posttest within subjects design, a Social Story about nose blowing and wiping was implemented. Demonstration of the skill and questions pertaining to the skill were asked prior to and after the implementation of the Social Story. Data revealed a significant difference in the accuracy of the questions and skill of all participants.

ALEXANDRA NICHOLSON
Faculty Advisor: Dr. Mary Jo Santo Pietro
“The Nature and Prevalence of Voice Disorders among Physical Education Teachers Compared to Classroom Teachers.”

Various studies have reported that voice problems are common among professional voice users, especially teachers. Teachers have significantly more voice complaints than the general population, including those in other voice-demanding professions. The aim of this study was to examine the prevalence and impact of voice problems among a sample of physical education teachers as compared to the prevalence and impact of voice problems in classroom teachers. Physical education teachers from multiple school districts in New Jersey were selected for study. A self-report system was used to collect data, as the teachers were emailed a link to a questionnaire and were asked to complete the questionnaire. Participants were also asked to fill out the Voice Handicap Index (VHI) as well as a general questionnaire. Based on informal preliminary interviews, it is anticipated that the results will show significance in the occurrence of voice problems among the physical education teacher community. Results are also expected to show a higher incidence of voice problems in the physical education teacher community, although less self-awareness of the problems. My hope is that physical education teachers will become more aware of the way they use their voices and make changes to reduce any abusive behaviors. I recommend that future research look at the importance of meeting the unique vocal demands of physical education teachers.

ALYSA OKPYCH
Faculty Advisor: Dr. Alan Gertner
“The top five causes of stress in speech-language pathology graduate students and plausible ways to alleviate the stressors”

Purpose: Managing the multifaceted roles of a student, clinician and future professional can be stressful for graduate students enrolled in speech-language pathology (SLP) master’s programs. The purpose of this study is to identify the top five causes of stress in Kean University SLP graduate students and plausible ways to alleviate the stressors. Method: All 50 first-year SLP graduate students from Kean University who were admitted into the SLP graduate program in Fall 2014 were invited to participate in voluntary focus groups and to take an anonymous online survey that discussed stress level, perception of stress, prominent causes of stress and methods to relieve the stressors. Results: The top five causes of stress that were identified
in this study include: overwhelming workload, non-school-related responsibilities, decreased socialization, meeting expectations of professors/supervisors, and financial responsibilities. It was determined that plausible ways to alleviate the stressors include: more preparation with assessment tools, workshop for professors regarding student stress, more guidance from professors/supervisors, more constructive and specific feedback and forming a collaborative student organization. Conclusion: Participants in graduate programs appear to need help managing their stress. They identify multiple causes of stress and multiple ways to alleviate stress. It is recommended that graduate programs implement steps to identify stress in their students and that they develop tactics to assist their students in coping with stress. Follow-up research should be undertaken to examine if student stress is lessened and managed more effectively.

KRISTEN OSTREGA  
Faculty Advisor: Dr. JoAnn Cascia  
“The Influence of Stuttering Training on Learning Disabilities Teacher Consultants”  
The goal of this thesis is to determine if attitudes of Learning Disabilities Teacher Consultants (LDTCs) can change toward children who stutter (CWS) after being educated on stuttering. Ten LDTCs were recruited to participate in a one-hour professional-development session to learn more about stuttering. Participants completed a pre-survey to get a baseline score of their attitudes toward stuttering. They then listened to an informational PowerPoint presentation, followed by a question-and answer session. The professional development ended with the completion of a post-survey that was identical to the pre-survey.

LYNN PHILIPPE  
Faculty Advisor: Dr. JoAnne Cascia  
“The Effects of Music on Language Intervention in Preschool-Aged Children”  
The purpose of the study was to examine the effects of music on learning novel words during a musical vs. non-musical activity. The study included one preschool-aged 5-year-old male who attends the Kean University Child Care and Development Center. The researcher conducted one 30-minute session; the musical activity was completed during the first half, and the non-musical activity was completed during the second half. It was found that the participant recalled one word during the musical activity and no words during the non-musical activity. It was recommended that the study be repeated with a larger sample and nonsense words in an environment with little to no distractors.

JESSICA PINZON  
Faculty Advisor: Dr. JoAnne Cascia  
“The Effects of a Training Presentation on Parent Knowledge about Phonological Awareness”  
The purpose of this study was to examine the effectiveness of a training presentation on parent knowledge of phonological awareness. While many leading researchers in emergent literacy and speech-language pathology advocate that parent-implementation of phonological-awareness training is a vital practice, little research has aimed to determine the level of parent phonological awareness skills and the amount they know about phonological awareness-development. The participants were 22 parents of children between the ages of 0 and 8. The participants first
completed a three-section pre-test, which assessed their phonological-awareness knowledge. The participants then read an educational PowerPoint, and finally completed a post-test, which was identical to the pre-test. A paired samples T-test was conducted to compare pre-test and post-test scores. The mean participant scores increased from the pre-test to the post-test, and two sections revealed statistical significance. The findings of this study imply that while parents may have limited knowledge regarding phonological awareness, a short PowerPoint presentation can significantly increase their knowledge about these areas. This information could help them in promoting phonological-awareness skills in their children, which could lead to an increase in early literacy skills.

ARIELLE PISANIELLO  
Faculty Advisor: Dr. Alan Gertner  
“*The Effects of Mobile Media Devices on the Expressive Language of Two and Three Year Olds*”

This research explores the impact of mobile media devices, such as smartphones and tablets, on the expressive language of two- to three-year-old children. As stated by Linebarger and Walker (2005), numerous studies investigating language acquisition show that learning from a televised model is limited when compared to learning from a live model. Now that the prevalence and accessibility to mobile media devices is on the rise, more research is needed to determine if mobile media usage has an effect similar to that of television. Ten parents of two- to three-year-old children participated in a 20-minute survey that collected information about mobile media usage and toddler vocabulary. Part of the survey utilized sections of the REEL-3 to assess vocabulary development. The entirety of this population reported that their child participated in both educational and recreational activities on the devices. Comparing REEL-3 stanine scores, results place each of the participants in the average to above-average range. It was determined that mobile media usage has little to no effect on the participants’ expressive language. Further research should focus on the amount and type of “screen time” of the participants. Keywords: mobile media, expressive language, vocabulary.

ALLIE POLICASTRO  
Faculty Advisor: Dr. Alice Chiarello  
“*The Influence of Therapy Dogs on Adults with Expressive Aphasia*”

Aphasia negatively affects an individual’s ability to communicate with others and comprehend both written and spoken language, which may result in a decreased quality of life and cognitive decline due to social withdrawals. Research on the effect that Animal-Assisted Therapy (AAT) has on patients suffering from aphasia has been limited, but indicative that promoting social participation and functional communication may lead to potential improvement. Although there has not been significant research on the impact that AAT has on aphasia, literature suggests that therapy animals have salient benefits including improving relaxation, socialization comfort and companionship, while decreasing agitation, stress and loneliness. This study sought to determine the effects of AAT on spontaneous communication attempts (SCAs) and social behaviors (SBs) of three adults with expressive aphasia during one individual session with the therapy dog present and one without. The study took place over six individual therapy sessions and analyzed participants’ SCAs and SBs. SCAs included any initiation of conversation by the participant, and SB included laughing, smiling and clapping.
Results indicated a strong correlation to the amount of social behaviors displayed when the therapy dog was present. Additionally, the highest recorded SCAs were observed with the therapy dog. It is likely that the high amount of SCAs and SBs were influenced by the dog’s presence. Supplementary research is required to further speculate whether or not AAT truly affects an individual with expressive aphasia; however, this study supports current literature findings suggesting a positive correlation between a therapy dog and the amount of verbal and nonverbal communication.

VICKI REICHARDT  
Faculty Advisor: Dr. JoAnne Cascia  
“Speech Language Pathologists’ & Occupational Therapists’ Perceptions on Co-treatment”

The goal of this thesis is to determine if OTs and SLPs have different perceptions on co-treatment. Further, this study aims to discover what the members of each field see as advantages and disadvantages to co-treatment and where co-treatment would be most useful. These data will be useful in gauging what can be done to inform each therapy profession about the other in order to have the most beneficial co-treatment possible. As of now, co-treatment is not widely used, but with improved research on what is relevant and important for co-treatment, that may change. A survey created on Qualtrics was distributed to SLPs and OTs. Due to a lack of OT participants, only the data from SLPs could be analyzed. SLPs were separated into groups based on who engaged in co-treatment and who did not. The data from these two groups was analyzed in IBM SPSS statistical software by performing an independent sample t-test. Results of the t-test indicated that there was no significant difference between the two groups in terms of usefulness of co-treatment, benefit of co-treatment and the ability of co-treatment to foster collaboration. Qualitative data was analyzed and found that there were 122 advantageous remarks compared to 65 disadvantageous remarks. It was found that both groups found co-treatment to be useful, beneficial and fostered collaboration. Advantageous remarks included treating the patient as a whole, more opportunities for generalization of skills and increased knowledge. Disadvantageous remarks included relationship of professionals, billing issues and scheduling issues. Limitations of this study included the unequal sample size, which made comparison between SLPs and OTs impossible. Further research should be sure to include OTs.

MARIAH RUANE  
Faculty Advisor: Dr. Alice Chiarello  
“Developmental Differences in Twins vs. Singleton Infants within the First Two Years”

The specific question that guided this study was, “Does the acquisition of developmental skills differ in regard to being born a twin versus a singleton?” The developmental progress of infants is examined at length by a variety of professionals to determine whether a child is advancing at an appropriate rate in respect to his or her age. Twin infants and singletons of the same age were observed for an array of developmental skills that included interaction/attachment, pragmatics, gesture, play, language comprehension and language expression from ages 12 to 14 months. The purpose of this study was to compare the developmental skills of twins and singletons to determine if twins progress at a different rate than their peers. This observation took place over a three-month period of time where the researcher evaluated each participant using the Rossetti Infant Toddler Language Scale and a developmental checklist compiled by
the researcher. The results were then compared side by side and showed that the set of twins acquired expressive language skills at a reduced rate in comparison to their peers. In addition, the number of spoken words for the twins was significantly less than the number of spoken words the singletons acquired.

CHELSEA RYAN
Faculty Advisor: Dr. Alan Gertner

“Parental Awareness of the Signs of Autism Spectrum Disorder”

Autism Spectrum Disorder (ASD) has become increasingly prevalent throughout the general population over the past several years, with 1 in 50 children being diagnosed with the disorder. Although a diagnosis can be made by the age of two years, children often go undiagnosed until they are much older, causing them to miss out on a critical period for early intervention. The purpose of this study was to analyze parental awareness of the red flags of ASD to determine its potential effect on late diagnoses. To gather information, a survey was developed through Qualtrics and posted on discussion boards targeting parents and expecting parents. The survey was divided into two sections: eight questions addressing the participants’ demographics and 16 questions directed toward the identification of warning signs of ASD. Results of this study indicate that parents in general are not aware of typical language development. However, they are aware of typical and atypical behaviors. It can be concluded the all parents and expecting parents require education on typical language development and the signs of ASD to facilitate early diagnosis and accessibility to early intervention.

ELIZABETH SALNER
Faculty Advisor: Dr. Jeannine Carlucci

“Working Around a Stutter: Career Choices for People Who Stutter”

Individuals who stutter are potentially faced with anxiety, role entrapment and workplace harassment. Negative stereotypical attitudes toward people who stutter exist, and, therefore, certain occupations are seen as inappropriate for the stuttering population. While previous research has shown that these issues are associated with individuals who stutter, there is limited research that has studied actual individuals who stuttered and how these issues affected their career choices. Five females and five males between the ages of 18 to 55+ participated in this study. A survey utilizing a Likert scale and open-ended questions was used to collect information about participants’ perceptions of their stuttering and how it affected their career choice. An ANOVA was conducted to examine whether there were statistically significant differences among mild, moderate and severe stutterers in regard to how they rated different statements on how stuttering impacted their career choice. There were no statistically significant differences between the mild, moderate and severe stuttering groups regarding how participants responded to statements regarding their stuttering and how it impacted their career choice. Additionally, the majority of participants chose or will choose careers that require an entire day of verbal communication, despite stuttering. The results of this study suggest stuttering does not seem to have a major impact on career choice. However, only ten participants took part in this study, and so the results cannot generalize to the entire stuttering population.
TONI ROSE SARASUA
Faculty Advisor: Dr. Mary Jo Santo Pietro
"Pragmatic Communication of Adults with Schizophrenia during Interviews and Conversations"

The purpose of this study was to determine whether there is an idiosyncratic pragmatic communication profile for adults diagnosed with schizophrenia. This study sought to conduct a systematic replication of a previous study by Meilijson et. al., (2004). The current study utilized a retrospective design; data was collected from videotaped recordings of formal and informal conversations with 20 adults with schizophrenia as opposed to Meilijson’s study, which analyzed language used under structured and clinical conditions. The pragmatic protocol utilized by Meilijson et. al. assessed 30 verbal, nonverbal and paralinguistic behaviors of the subjects. Preliminary findings yielded comparable results to the Meilijson et. al. study. Nonverbal behaviors were globally inappropriate for all individuals. More appropriate behaviors were demonstrated by the subjects when interacting with unfamiliar conversation partners. Medicated subjects presented a wide range of pragmatic profiles. Pragmatic behaviors and skills appeared to depend on illness severity, medication status and lifestyle preferences. Further research regarding the effects of medication on pragmatic competence is needed. Continued research regarding conversational skills of people with schizophrenia in varied settings and conditions could facilitate more functional and successful communication with medical and therapeutic professionals.

SAFA SHEIKH
Faculty Advisor: Dr. Jeannine M. Carlucci
"The Intergenerational Perspectives of the Effects of Technology on Language Development in Children."

The purpose of this study was to investigate the different generational viewpoints of the effects of technology on language development in children. The different generation groups targeted included early and middle adulthood between the ages of 18 through 65+. To conduct this study, the primary investigator utilized a mixed method survey via Qualtrics to determine different age groups’ perceptions of technology on language development in children. The mixed-method survey consisted of a total of 43 qualitative and quantitative questions. The survey consisted of questions pertaining to the intergenerational perspectives of the effects of technology on language development in children and contained questions consisting of what types of technology the participants used, how often they used these, what activities were completed using technology, were they exposed to technology during their early years of language development and the thoughts on how technology affects language development. A total of 62 participants who ranged in age from 18 through 59 completed the study: 49 participants who were categorized as early adulthood and 11 participants grouped as middle adulthood. Within both groups, the majority of the participants were female, with only a total of 16 males participating in the survey. The results from the study were as follows: 70% of participants in early adulthood views on technology on language development tended to be more positive while 45% of participants in middle adulthood views on technology tended to be more negative and disagreed with a positive effect of technology on language development.
KATHRYN SHERIDAN  
Faculty Advisor: Dr. Alice Chiarello  
“Educational Training on Dysphagia Diets for Nursing Home Food Service Staff”  

One explicit research question guided this study: Do nursing home food service workers have adequate knowledge of dysphagia diets when serving patients with dysphagia? There is a need for increased and more descriptive education for all employees involved in a patient’s dysphagia management, especially nursing home food service workers. A pre-assessment and post-assessment format was utilized to compare results between the control and intervention groups. Thirteen participants made up of nursing home food service workers were randomly assigned to one of two groups. Six participants served as the control, Group A, and the remaining seven participants served as the intervention, Group B. The dependent variable was the results of the pre- and post-assessments given to the participants, and the independent variable was the in-service training given to the intervention group. The overall scores of the post-assessment improved for the control group by 1.00% and the intervention group by 1.50%, indicating that, overall, education on dysphagia and dysphagia management is both warranted and effective for nursing home food service workers.

RACHEAL SHULDMAN  
Faculty Advisor: Dr. Alan Gertner  
“Telepractice Use and Knowledge in Practicing Speech-Language Pathologists”  

The study investigated current practice trends and interest in telepractice. A Qualtrics Web-based electronic survey was developed with matrix and close-ended questions addressing demographics, employment and knowledge of telepractice as well as circumstances influencing knowledge and familiarity with the model. The survey was accessed by 77 SLPs practicing in various locations throughout the United States. Study results indicated 78% of respondents expressed an interest in learning more about telepractice, and 29% of respondents have or are currently using telepractice therapy, which is an 18% increase since 2002. The survey determined that telepractice therapy is a growing trend within the profession of speech-language pathology. To increase proficiency, SLPs would benefit from training sessions in reimbursement, procedures and technology.

DANA SILETSKI  
Faculty Advisor: Dr. JoAnne Cascia  
“Teacher Referrals and RTI”  

Several research studies have demonstrated the effectiveness of response to intervention (RTI), such as reducing the number of children classified as eligible for special needs and improving teachers’ instructional abilities. Speech-language pathologists participate on RTI teams and collaborate with teachers on a day-to-day basis. This study was designed to determine if the use of RTI affected the number of referrals a teacher makes. Additionally, this study was designed to determine if the use of RTI affected teachers’ confidence regarding whether a referred student requires special education services. Thirty-six teachers participated in this study. An independent t-test analysis via SPSS revealed that there was no significant difference between the use of RTI and the number of referrals a teacher makes. Another independent t-test analysis revealed that there was no significant difference between the use
of RTI and a teacher’s confidence when referring a student for an evaluation. Although the results were not statistically significant, the use of RTI should still be considered an effective method to be implemented in schools. RTI allows for SLPs to collaborate with teachers, which increases teachers’ knowledge of communication disorders and in turn decreases the number of student referrals. Through the use of RTI, SLPs’ limited time and resources can be used more effectively to address the needs of students with communication deficits and disorders.

LEAH SIMON
Faculty Advisor: Dr. Alan Gertner

“Monolingual Teachers’ Awareness of Bilingual Language Acquisition”

Bilingual students are not properly identified for speech-language services. English-Language Learner (ELL) students are increasingly likely to be identified with learning disabilities or intellectual disabilities. The reverse often happens as well; testing may be postponed due to bilingualism, and children with language impairments may go unidentified. Referrals for speech-language evaluations of bilingual children rely heavily on monolingual teachers. Therefore, it is imperative that teachers are knowledgeable about how bilingual students develop language and methods to teach English-language learners. Participants were monolingual teachers in a local elementary school. Data were collected via a survey comprised of 22 questions about participants’ demographics and knowledge about bilingual language acquisition. Findings indicated that monolingual teachers are knowledgeable about some areas regarding bilingual language development, but lacked knowledge about higher language skills, effects of reduction in the child’s native language and the ideal learning environment for an ELL student. Monolingual teachers require education regarding bilingual acquisition, including the warning signs of a language delay, as well as the ideal learning situations in which to teach bilingual children.

TALIN SIMONIAN
Faculty Advisor: Dr. Alan Gertner

“The Utilization of Music Therapy Amongst Speech-Language Pathologists’ Practices in the Treatment of Individuals with Communication Disorders”

This study examined the use of music therapy by speech-language pathologists (SLPs). Participants consisted of 14 SLPs from varying regions of the United States. Participating SLPs accessed a voluntary online email survey posted to the American Speech and Hearing Association (ASHA) member site. Upon completion, surveys were returned to the PI. Surveys indicated the majority of SLPs do not utilize music therapy in treatment, while several utilized some modification of music therapy. Seven participants noted that they have not utilized music therapy within their practice, yet given appropriate funding and more experience/training, they would institute music therapy in their practices. The remaining seven participants have utilized music therapy as a treatment method either informally or formally. A predominant number of the participants would consider music therapy in future treatments. The results support a low prevalence of music therapy in the field of speech-language pathology. If SLPs are informed of the benefits of music therapy for individuals who lack effective communication or present with communication deficits, participants indicate the likelihood they would consider integrating music therapy into their practice.
The purpose of this study was to compare the qualities employers find essential to be successful in the workplace with the qualities speech language pathologists are focusing on in therapy. The two research questions were: What communication qualities are targeted during therapy for students with disabilities transitioning into the workforce? Also, what communication qualities are needed for individuals with disabilities to thrive in the workforce? A survey was created consisting of 40 questions from the Vineland Adaptive Behavior Scale, Second Edition, the Social Responsiveness Scale, and Social Skills Improvement System. The survey was sent out to business managers to rate communication qualities on importance when hiring an employee and sent out to speech language specialists to rate communication qualities on the frequency of focus during therapy. A significant difference was found in nine out of the 40 survey questions. Although only nine out of 40 survey questions had a significant difference, the top three survey questions with the highest importance to business managers all were significantly different from the focus during speech therapy. Therefore, speech language specialists need to continue to target functional goals to increase likelihood of success when the individual enters the workforce.

Research has indicated that increasing parental involvement in children’s schooling and therapies may be beneficial for parents, children and professionals. In order for parents to be involved and to maximize the benefits they can bring to the table, they must understand their child’s diagnosis and what it entails in regards to both strengths and deficits. This study aims to answer two questions: (1) How well do parents understand their child’s diagnosis and what it entails? (2) What is the relationship between parents’ understanding of their child’s diagnosis and their involvement in their child’s treatments? The subjects were the parents/caregivers of children receiving speech and language services at the Kean University Center for Communication Disorders and their Student Speech-Language Pathologists (SLPs). Participants were asked to complete a survey containing questions about the child’s diagnosis, skills, abilities, and the parents’ involvement in speech-language homework and other supportive activities. Surveys consisted of questions that required participants to choose a value on a Likert scale. A chi-square test was completed to establish if there is a significant difference between the parents’ and clinicians’ responses. A high level of agreement regarding each of the client’s skills was found. These results show that the parents have an accurate understanding of their child’s skills. This shows that there is a lot of communication between our clinicians and parents, and they seem to be on the same page regarding the child’s abilities. If these skills are carried over into the students’ careers post-graduate school, they will promote child success and family-centered practice.
EDLY VICTORIN
Faculty Advisor: Dr. Mary Jo Santo Pietro
“A Cross-Linguistic Comparison of Narrative Macrostructure in Haitian-Creole/English Bilingual School-Aged Children”

The purpose of the present pilot study is to examine the narrative performance of typically developing Haitian-Creole/English bilingual children. With the growing population of individuals from various cultural/linguistic backgrounds, developing the least biased strategies for assessment in bilingual children is crucial to the proper diagnosis of speech-language disorders. When assessing bilingual children, one of the least biased alternatives to standardized testing is the use of narratives and the collection of language samples (Fiestas, 2004). Information on the Haitian-Creole language acquisition, development and use is limited. Providing information about the Haitian-Creole/English narrative ability will aid in determining differences between Haitian-Creole children who are disordered versus Haitian-Creole children with a language difference. Twenty typically developing Haitian-Creole/English bilingual school-aged children between the ages of five and ten will participate in this study. Participants will be asked to retell two auditorily presented stories in both Haitian-Creole and English. The stories will be transcribed and analyzed using the Systematic Analysis of Language Transcripts (SALT) software, a software program that manages the process of eliciting, transcribing and analyzing language samples through the use of comparative data from age-matched typical speakers. A four-by-four ANOVA will be implemented to compare linguistic performance to cultural performance. Data for this study are still being collected. It is anticipated that there will be a positive correlation between children’s performance and cultural and linguistic appropriateness. It is also anticipated that the performance on these tasks will provide more information on the macrostructure of language of Haitian-Creole speakers.

VICTORIA WERMERT
Faculty Advisor: Dr. Mary Jo Santo Pietro
“A Comparison of Knowledge and Opinions of Special Education Graduate Students and Speech-Language Pathology Graduate Students Concerning the Collaborative Service Delivery Model”

The collaborative model has been shown to be effective for service delivery, but it is seldom utilized by speech-language pathologists and special educators in schools when instructing students with and without disabilities. This study examined the opinions of special educators and SLPs regarding the model to determine if their opinions were related to the amount of knowledge they acquired during graduate school. Ninety participants completed a 30-question survey comprised of an exam and Likert scale questions. Participants included speech-language pathology and special education graduate students enrolled at New Jersey universities with at least 25 credits completed. The survey was distributed via email to professors and was posted on the National Student Speech-Language-Hearing Association’s Facebook page. It was distributed by hand to students at Kean University. The New Jersey Speech-Language-Hearing Association disseminated it via email to its members. A t-test comparing participants’ exam scores with their beliefs about the effectiveness of collaboration revealed a correlation between knowledge levels and opinions. The mode, median and mean of exam scores did not exceed 50%, and SLP and special education students scored similarly on exam questions. Participants with higher scores were more likely to favor the collaborative model.
Communication, Media & Journalism

DENEEN MARSHALL
Faculty Advisor: Dr. Fred Fitch
“Conflict Resolution: Exploring Links through Quilt Modalities, Semiotics and Symbolic Interactionism”

The Art of Communication and the Art of Quilting are linked in order to understand how adults visualize and perceive conflicts using the communication theoretical approaches of Semiotics and Symbolic Interactionism. The symbolic references are designed to help evaluate one’s own perception and the perception of others as we make meaning of past, present and future experiences. This analysis is important to Communication Studies as conflict is a common occurrence. The processes and practices in resolution using quilts have not been explored with this approach. The outcome is to cause individuals to use sensory and interactive learning while being empathetic and active participants in resolving conflicts with understanding and comfort in all disciplines and areas of study.

SUSAN WILDORF
Faculty Advisor: Dr. Christopher Lynch
“Macy’s”

This poster design highlights Macy’s history, x-factors, leadership and financial picture. Its importance to my discipline, Communication Studies at the graduate level, reveals that Macy’s is endowed with a rich background and corporate culture, resilience, flexibility, sound leadership, clever mergers and the ability to reinvent itself when needed. Besides traditional research, the method of interview was utilized for this project. Present leadership, extensive product line, current financial position and x-factors were set forth. Superior customer service and public displays such as fireworks on July 4th and the famous Thanksgiving Day parade in New York City cements relations with its customers and the public in general. Examination revealed that Macy’s encountered difficulty, showing lower sales in the third quarter of 2015. Trends can be linked to past re-organization patterns similar to what is occurring presently. The results conclude that Macy’s has undergone necessary restructuring previously and has come back strong.

Computer Science

PETER ABBATE, GREGORY POGORZELSKI, IVAN MAZO, MORGAN BRATTSTROM
Faculty Advisor: Dr. Juan J. Li
“Facebook Traffic Patterns”

Measuring usage of network systems and services is a common practice of various rising IT companies such as Google, Facebook, Apple and Amazon. Such measurements collect data
to be used for prediction, planning and network protection from security threats. In this project, we invented a new way to take measurements of network traffic and latencies of Facebook services. The advantage of our method is its low overhead and negligible interference to the existing Facebook service operation. We used such measurements to discover patterns of service usage at various time, day and environmental events. These patterns have many usages, including among others, 1) planning for software and network resources, 2) detection of security attacks through outlier identification and 3) justification for technology improvement. Besides measurement and data collection, we use a database to store our data and patents for long-term usage. These historical data are valuable assets for future research in secure network processing, intrusion detection, network load analysis and predictive algorithms.

*Research supported by: Students Partnering with Faculty (SpF) Summer Research Program, Kean University & Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation*

**ROGER BURGOS**
**Faculty Advisor: Dr. Jing-Chiou Liou**

*“Animal Monitoring System”*

The system is intended to keep track of what an owner’s pet does while the owner is not home. The animal monitoring system uses a raspberry pi that includes a motion sensor and webcam. If the pet comes into contact with the sensor, the raspberry pi sends an alert/notification to the animal monitoring system application on the owner’s phone to let the owner know that the pet came into contact with the motion sensor. The application will include live stream in order for the owner to see what the pet is up to. The animal monitoring system is only intended for one specific area in the house as opposed to monitoring the whole house.

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

**MAITRI CHAKRABORTY**
**Faculty Advisor: Dr. Miguel Mosteiro**

*“Counting in Practical Anonymous Dynamic Networks is Polynomial”*

Anonymous Dynamic Networks is a harsh computational environment due to changing topology and lack of identifiers. Computing the size of the network, a problem known as Counting, is particularly challenging because messages received cannot be tagged to a specific sender. Previous works on Counting in Anonymous Dynamic Networks do not provide enough guarantees to be used in practice. Indeed, they either compute only an upper bound on the network size that may be as bad as exponential, guarantee only double-exponential running time, do not terminate or guarantee only eventual termination without running-time guarantees. Faster experimental protocols do not guarantee the correct count. Recently, we presented the first Counting protocol that computes the exact count with exponential running-time guarantees. In the present work, we complement the latter theoretical study evaluating the performance of such protocol in practice. We tested a variety of network topologies that may appear in practice, including extremal cases such as trees, paths and continuously changing topologies. We also tested networks that temporarily are not connected. Our simulations showed that the protocol is polynomial for all the inputs tested, paving the way to use it in
practical applications where topology changes are predictable. The simulations also provided insight on the impact of topology changes on information dissemination. To the best of our knowledge, this is the first experimental study of the practical time complexity of a Counting protocol that computes the exact correct count in Anonymous Dynamic Networks.

GABRIEL DE LUCA, MORGAN BRATTSTROM
Faculty Advisor: Dr. Patricia Morreale
“Designing a Secure e-Health Network System”

Health care data breaches are a growing issue, with health care security incidents increasing more than 900% in the last two years. A large U.S. health insurance provider had a major data breach, which resulted in the theft of more than 80 million patient and employee records. The U.S. Health Insurance Portability and Accountability Act (HIPAA) currently does not require Electronic Personal Health Information (ePHI) to be encrypted, increasing the vulnerability of e-health information. This research proposes a secure e-health network system architecture that will significantly reduce the risk of data breaches and data theft, with minimal additional cost or network delay. This architecture is reliant on the application client and ensures authorized access to health records through the use of a secure client and a two-step authentication process. The proposed network design will reduce instances of compromised networks, phishing attacks, or unwanted remote access, while improving authenticity of credentials.

Research supported by: Students Partnering with Faculty (SpF) Summer Research Program

STEPHANIE EORDANIDIS, CARLA CASAL, MAITRI CHAKRABORTY
Faculty Advisor: Dr. Carolee Stewart-Gardiner
“Engaging Middle School Girls Using CS Games”

Technology is all around us. It is everywhere from the vehicles we drive to the classrooms where our children learn. With the augmentation of technological use and innovation also comes the increasing need for more computer scientists and engineers alike to keep up with this demand. We explored the use of games teaching computer science concepts and principles to potentially educate, interest and engage the youth of today. This study is a sub-part of the main research venture funded by the NSF-DRL-AISL research grant (Award Number: 1421806), and it is centered on educating middle school girls through the use of story in analog and digital games. Our team created three analog games, each of which teaches a CS principle and has a story and abstract version. In addition, we took one of the games we had generated and turned it into a game in digital format. These games were then tested in an eight-week after-school program we held in order to gather statistics and other pertinent data to see if games teaching CS principles and concepts are more useful with story or without it, to engage, interest and educate middle-school-aged females. All information and findings will be used to make modifications and fine tune the games and facilitator plans we had produced. Summer 2016 is set to prepare for presenting and holding workshops showcasing these games with local educators.

Research supported by: Advancing Informal STEM Learning (AISL) Program, National Science Foundation/Arizona State University
KERULES FAREG  
Faculty Advisor: Dr. Miguel Mosteiro  
“Algorithmic Communication Problems in the Internet of Things”  
Objects in the Internet of Things (IoT) include a myriad of devices, such as heart-monitoring implants (mobile health), environmental sensors (pathogen monitoring), bio-transponders (farm animals monitoring), field sensors (aid in rescue operations) and many others. One of these technologies, known as Sensor Networks, is composed of tiny inexpensive objects called sensor nodes deployed in large quantities to collect data in some area. Our ongoing research work includes a variety of communication problems in Sensor Networks under realistic models of interference. We present our investigation of the crucial subproblem of pipelining messages from a source node through layers of the network in a “wave expansion” fashion. Our study includes theoretical as well as experimental research. The results obtained are expected to advance the state of the art in Sensor Networks by providing communication protocols with provable guarantees. This is joint work with Dariusz Kowalski (University of Liverpool, UK).

LUIS GUTIERREZ, DWAYNE IRVING  
Faculty Advisor: Dr. Mira Franke  
“Utilizing Raspberry Pi Laboratories in Computer Networking Education”  
Raspberry Pi (RPi) computers are powerful, affordable, readily available, palm-sized machines, whose versatility lends itself well to a wide variety of educational applications, including computer networking technology. Two networking experiments are reviewed and updated for college students. Pre- and post-experiment surveys indicate whether students increased their learning by using the RPi equipment. RPi applicability is used in networking courses in Kean’s IT curriculum.

MOHANAPRIYA LOGAPRIYAN, TE-WEI LAI, SEAN SEWELL  
Faculty Advisor: Dr. Jing-Chiou Liou  
“Toward a Better Privacy on Surfing in the Internet”  
For the past three decades, most of the world has progressed into an Information Technology era. The Internet has revolutionized commerce, mainly due to its attributes of convenience, interoperability, fast search and confidence. It provides an affordable and secure way to spontaneously link people and computers across business boundaries. This not only changes the shapes of enterprises, but also spawns numerous innovative companies, markets and trading communities. This massive economy of online services and commerce has dramatically changed our lives today. Wherever computers and the Internet are available, people can access a myriad of online service sites, including e–business, e–government, and even e–learning sites. Through technological advancement, information is currently shared and accessed over the so-called cyberspace that consists of millions of servers without boundaries. Even though computers and cyberspace are augmenting our daily lives, they require certain measures of access control and user authentication. All the conveniences brought by the advancement of Information Technology come with a hidden cost: privacy. As cyberspace plays a critical role in modern society, people and organizations lose their privacy due to data breaches and other types of cybercrimes. It costs the British economy some 27 billion pounds ($43.5 billion) a year and appears to be “endemic,” according to the first official government estimate.
of the issue published in February 2011. While no similar number has been reported from the U.S. government, a report in 2014 from Center for Strategic and International Studies sponsored by Intel-owned McAfee indicates that cybercrimes cost the global economy some $454 billion. Moreover, the faults of digital privacy not only impact the business world, but are also a major threat of national security today, as evidenced by many recent security events. To protect digital privacy in cyberspace and to advance the countermeasures of cybercrime, the National Strategy for Trusted Identities in Cyberspace (NSTIC) proposed in April 2011 the creation of secure and reliable online credentials that would be available to consumers who want to use them. Later, in May 2014, the White House proposed that it would give the Department of Homeland Security the authority to work with industry to come up with ways to secure their computer systems and protect privacy against cyber threats and augment national security. However, to improve the digital privacy and provide trustworthy computing for the Internet, we need to look at two different horizons. One is advancing the technologies in computer cybersecurity that will react against cyber threats, and hopefully will stop the attack, or at least, minimize the impact. Another approach for better digital privacy is to understand how digital information is exposed when people surf the Internet. Digital privacy information is sensitive personal information digitally stored on local or remote computer systems, or being transmitted through the Internet. This may include gender, age, race, location, and records on health, finance, and even online activities. Although these types of data are usually privately stored, they can be intentionally or unintentionally revealed while surfing the Internet. The main concern of digital privacy is to protect users from unintentionally revealing privacy information and to be aware when privacy information is being retrieved during their Internet surfing. Toward this end, we focus our study on computer browsers, especially on their private browsing feature. Private browsing was first introduced by Safari in 2005 and claimed to allow users to surf the Internet without leaving traces on the local machine. Since then, all major mainstream browsers have added the same feature. In this project, we will first study current browsers on both standard and private browsing to summarize the difference between the two modes for each browser. Then, we will propose certain criteria and perform a comparison using the criteria on various browsers for private browsing.

JASON MACDUFFIE
Faculty Advisor: Dr. Patricia Morreale

“An Interface for Comparing Android App Permissions”

With the increasing number of apps added to the Google Play Store, the security of those apps is a serious issue. Currently, there isn’t any way for users to prioritize and sort apps based on the user’s expected permissions. As part of a research project, an interface was designed that allows users to specify their ideal permissions settings for an app. The interface then evaluates a list of apps based on proximity to the user’s ideal. A survey was conducted (n=58) to see whether the interface discouraged users from downloading an app that requires many permissions when compared to the information that the existing Google Play Store interface provides. Most users showed significant concern towards their mobile app security, with 50% of the users responding to the interface with greater concern over the app requiring many permissions. The research concludes that increasing user awareness of security increases user selection of more secure apps.

*Research supported by: Students Partnering with Faculty (SpF) Summer Research Program, Kean University*
JENNIFER NELSON, UYIOGHOSA A. LEBARTY, RISHI SUTHAR, TEJAS S. PATEL
Faculty Advisor: Dr. Juan J. Li
“APT: Advanced Persistent Threats to Cybersecurity”

An APT is a network attack in which an unauthorized person gains access to a network and stays there undetected for a long period of time. The purpose of the attack is to steal data rather than to cause damage. Such targets can include National Defense, the manufacturing industry or the financial industry. APTs are battled by an IDS, or an Intrusion Detection System. What the APT does is try to gain easy access, so it may repeat the process and be ongoing. Our research is to study ways to carry out APT attacks.

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

FERNANDO MIRALDO NETO, STEPHANIE BARON, NESTOR SAAVEDRA
Faculty Advisor: Dr. Juan J. Li
“Clouds for Hit-and-Run Wireless Attacks”

Most cloud security research focuses on its protection from security threats. In this paper, we studied how to use cloud infrastructure to carry out hit-and-run type of attacks to a wireless networks. We demonstrate how to use cloud to gain access and control to routers while hiding attacker identities. We illustrate such an attack on a private wireless network using a cloud virtual environment. Besides identifying the vulnerabilities of wireless routers, we studied the damages that can be done through such attacks and propose some solutions to detect and protect against these kind of hit-and-run attacks.

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

ERIC ROSA, JOSE SALAS, BRIAN FULLER
Faculty Advisor: Dr. Juan J. Li
“Detecting Security Threats Using Mobile Devices”

We are presenting a study of using performance escalation to automatically detect Distributed Denial of Service (DDoS) types of attacks. We propose to enhance the work of security threat detection by using mobile phones as the detector to identify outliers of normal traffic patterns as threats. The mobile solution makes detection portable to any services. This research also shows that the same detection method works for advanced/persistent threats.

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

YULIA ROSSIKOVA
Faculty Advisor: Dr. Juan J. Li
“RN-Chatter — A Swift Way to Understanding”

RN-chatter is a cross platform application, written at Kean University for the general public (universal use), for chatting in different natural languages with accuracy prediction. It supports many different natural languages including, but not limited to, English, Spanish, German,
French, Greek, Polish, Russian and Italian. Users can register and log in to the app and choose the person they want to talk to among currently registered users. They do not need to know which language their counterpart speaks, as all messages, both sent and received, will be translated to the native languages for both sides of the conversation. As well-known search engine translators currently do not guarantee a 100% correct translation (i.e., the expected accuracy varies), we are using an innovative machine-learning algorithm — Radius of Neighbors (RN) — an improvement over the K-nearest neighbors (KNN) method to predict translation accuracy and present it to chatters. In this way, the users can not only communicate, but also understand each other as smaller value of translation accuracy will enable them to ask for rephrasing and repeating the message, which helps to prevent potential misunderstanding. It will enhance the communication among people with different backgrounds and cultures to be more straightforward and comprehensive.

RISHI SUTHAR, AMIR DWEKAT, JUAN IGLESIAS
Faculty Advisor: Dr. Juan J. Li
"Machine Learning for Cybersecurity"

Machine learning for cybersecurity, in basic terms, is to protect infected machines on the corporate level. This project will answer how important machine learning is and how it can keep growing technology in the corporate level safe. Protecting ourselves or applying this new algorithm will allow machines to protect themselves from treats and keep important data safe. The method or approach to our research was to compare how safe cybersecurity is to how insecure the network can be without security. Also, we explain how corporate businesses today protect themselves from cyberattacks. In conclusion, our research will empower research professionals to continue working on new methods of protecting our ever-growing network.

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

Criminal Justice

ANGELINA CALAFIORE
Faculty Advisor: Dr. Constance Hassett-Walker
"The Effectiveness or Ineffectiveness of Bullying Laws in Today’s Modern Society"

In recent years, the issue of bullying has become a pressing matter due to high-profile cases in the news. Violent acts such as the Columbine High School shooting and the suicide of Rutgers University student Tyler Clementi forced the topic of bullying into the spotlight. With many similar cases surfacing all over the United States of teenagers committing suicide to escape bullying, this is a subject of serious importance. A new form of bullying, cyberbullying, is taking in-school harassment to the next level. States have been working on ways of preventing bullying from taking place. This research will review literature and suicide cases caused by bullying and cyberbullying in 10 selected states, as well as a review of state laws. Through a content analysis of news articles in the selected states, the author found there have been
an equal number of news stories relating to bullying-caused suicide after the laws’ passage than before. In addition, what steps need to be taken to insure proper punishments are implemented? This poster presentation will address these issues.

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

LAWRENCE OWENS
Faculty Advisor: Dr. Connie Hassett-Walker
“The Effect of Legalized Marijuana on the State Level, Year 2 Study”

In 2012 Colorado and Washington State became the first two states to legalize the recreational use of marijuana for adults 21 and over. This happened despite marijuana being illegal at the federal level, and still classified as a Schedule 1 drug. Colorado and Washington State moved forward on legalization because the Department of Justice issued a memo in 2013 outlining eight areas of concern they had. In order for a state to have recreational marijuana legal within their state they must follow the eight areas of concern outlined by the Justice Department. Since 2012, two more states have passed recreational marijuana laws, Oregon and Alaska. My faculty advisor Dr. Constance Hassett-Walker, who has been mentoring me through my research, has been guiding me throughout this research process. I looked into whether the states that have legalized recreational marijuana (specifically Colorado), have those laws impacted crime rates within those states. My research in year 2 of this study dove deeper to find whether arrests for marijuana possession, sale or distribution have gone up, down or stayed the same. I also looked into whether teen usage, which is an issue of concern for legalization, has gone up, down or stayed relatively the same. I reached out to local police departments in Colorado to see what exactly is happening on the ground level since marijuana legalization.

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

JENNIFER ABUJAWDEH
Faculty Advisor: Professor Denise Anderson
“RBSD+”

After surveying design students at Kean University’s Robert Busch School of Design, I discovered that many students want extra help with critiques on their projects. In an effort to assist them, I created RBSD+, an online design critique platform for students. This forum provides an easy way for students to share their progress on their projects and get feedback from their peers, alums and instructors. In addition, they will have access to design resources such as tutorials and employment opportunities — all in one place.
JUBENAL TORRES  
Faculty Advisors: Professor Rose Gonnella and Dawnmarie McDermid  
“Liberty Hall Exhibition Graphics”

Designing a comprehensive graphics program for the Liberty Hall Museum exhibition, “Toys Through Time,” involved research and analysis of the vintage and historic toy collection at the museum and an understanding of the cultural scope of the time period in order to appropriately and creatively design the visual communication materials. Research had a specific literal focus, i.e., determination of the actual objects most representative of the collection and subsequent selection of suitable colors, textures and shapes as seen in the toys themselves. Along with the discovery and determination of the literal, physical qualities (warm ochre colors for instance), research also involved analysis of the audience for the exhibit which determined the abstract, emotional aspects to express: playfulness, wonder and delight as well as the charm associated with childhood. Graphics and lettering from the late 19th and early 20th century found on the toy packaging and advertisements of the period inspired and solidified the design direction and led to an exciting learning experience in hand-lettering. The vintage hand-lettered typography studied during research not only communicated the appropriate time period, but also expressed the emotional attributes needed. Hand-lettering and an overall golden palette of colors express wonder and delight as well as a sense of history and can be seen in all visual communication materials for the exhibition.

ERIC VITA  
Faculty Advisor: Professor Ed Johnston  
“Liberty Hall Museum: Designed Experience”

The “Liberty Hall Museum: Designed Experiences” exhibition showcases creative research, which responds to the needs of preservation, accessibility and public engagement with Liberty Hall Museum’s cultural heritage content. The exhibition includes several interactive experiences of spaces and collections within museum using 360-degree photography, augmented reality and interactive 3D technologies. This creative research was accomplished by a design student research team, which included Erica Whyte, Eric Vita, Mark Matarese and Christina Galera. William Schroh, Jr. and Rachael Goldberg at Liberty Hall Museum provided essential direction and insight on the student research initiatives.

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

Environmental & Sustainability Sciences

CIARA ALLEN  
Faculty Advisor: Dr. Kikombo Ilunga Ngoy  
“The impact of food-waste compost fertilizers on water quality”

Throughout the United States, the majority of farmers have been using chemical fertilizers to increase crop yield. Usage of chemical fertilizers has led to the pollution of lakes, rivers
and groundwater. Such pollution has a negative impact not only on the living organisms in the water, but also on the aboveground ecosystem and people. We are proposing the replacement of chemical fertilizers with composts. Results from this study have shown that using food-waste composts instead of chemical fertilizers is the best alternative because its impact on the aquatic life and the overall environment is minimal.

Research supported by: Upward Bound Program, U.S. Department of Education and EnvironMentors, School of Environmental and Sustainability Sciences, Kean University

NONI HODGES-FLAKES
Faculty Advisor: Prof. Eunice Nkansah
“Audience Receptivity to Gender in Broadcast Meteorology”
This project investigates whether television viewers prefer male or female weather anchors. The target audience is college students ages 18-25. The goal of the study is to determine if male anchors in broadcast television have more influence than female anchors. A qualitative study of participants’ opinions on questions such as physical appearance, confidence, or voice will be the basis of the analysis.

MICHAEL HUBAL
Faculty Advisor: Dr. Feng Qi
“Mapping Riverbeds to Aid in Pollution Tracking”
With the fast increase of urban population and industrial development during recent decades, water pollution has become a serious problem in Chinese cities such as Wenzhou, threatening the natural water habitat and greatly affecting the cultural value of the waterways connecting traditional residential neighborhoods. The government has been paying more and more attention to environmental problems and environmental remediation in recent years, and new technology is being sought to be able to measure and map out pollution in rivers and their sediments. This project used a DT-X echosounder device available in the College of Life and Environmental Sciences at Wenzhou University to collect data in selected segments of the Wenruitang River, the main river and so-called mother river of Wenzhou city. We worked with Wenzhou University faculty and students and sampled three river sections on multiple days to gather data during the summer of 2015. With the raw data gathered, a BioSonics program was used to interpret the data and convert the data to spreadsheet format that is compatible with GIS software. The next step and ultimate goal of this project is to create a map of the three river section bottoms with GIS.

GRACE HURLEY
Faculty Advisor: Dr. William Heyniger
“Beach Restoration and Hurricane Sandy”
Hurricane Sandy (2012), the closest direct land-falling tropical system since the early 20th century, radically altered New Jersey’s shoreline and beaches, damaging the infrastructure system and displacing massive quantities of sand, catapulting Sandy as one of the worst storms New Jersey has ever experienced. From a sustainability perspective, the restoration/replacement of beach sand and fixtures has continually been at the forefront as expensive and
a short-term fix. Development of coastal and sensitive areas has also pressured the ability of New Jersey’s shorelines to withstand future impactful natural events. Public requests for protectionary measures spurred the state and federal governments to implement funding, policies and regulations to avoid this much destruction again. This research will explore the pre- and post-beach conditions along New Jersey ocean beaches in addition to the impact of funding, public access, procedures, policies utilized to “restore the shore” and the effectiveness of restoration efforts funded by both the state and federal governments that affect the public and private landowners as beach restoration and replenishment actions are underway.

KAREN PINA, JESSICA FRAGO, SARAH KHALIL, DANIELLE DE MESA, SIHAN YANG
Faculty Advisor: Dr. Dongyan Mu
“Organic Multicultural Vegetable Garden”
A team of four students from the School of Environmental and Sustainability Sciences (SESS) committed to establish an organic multicultural vegetable garden in the Liberty Hall Farm located in Union County, New Jersey. Team members will work with students from immigrant and refugee families to plant vegetables with various cultures and ethnic backgrounds by using compost produced from food waste on campus. The vegetable harvest will be used in students’ dining halls and cafeteria and/or donated to local immigrant and refugee families. Activities proposed are expected to increase mutual understanding and communication, help young immigrants and refugees merge into local communities, and enhance sustainability at Kean University.

KAREN PINA, MAEVE CASEY, KIMMERA JONES
Faculty Advisor: Dr. Dongyan Mu
“Growing Vegetables with Compost from Food Wastes”
In order to examine available nutrients in compost to grow vegetables, a growing test was conducted during the summer of 2015. Students from Kean University and the Union County Vocational Technical Schools (UCVT) worked together in collecting compost, soil samples and planting vegetables in separate pots. The vegetables, Taiwanese Pai Tsai, were grown in soil combined with compost at 0%, 5% and 10% mixing rates, and in soil solely applying synthetic fertilizers. The harvest vegetables were weighed and then sent to the outside lab for tissue tests. The growing test and the nutrients tests showed that 1) the compost helped little with vegetable sprouting; 2) plants grown with synthetic fertilizers had more than twice N content to plants grown with compost; 3) the 5% compost yielded the best vegetable in terms of nutrient inputs (0.42 kg plant/kg compost) and 4) the compost could replace synthetic fertilizer by 0.15 kg syn-fertilizer/kg compost. The study is important because it provides information on compost utilization and synthetic fertilizer replacement. The results from the research can be applied in life-cycle assessment to evaluate environmental performance as well as the economic analysis of the food composting system.
AJE ROBINSON  
Faculty Advisor: Dr. Kikombo Ngoy  
“Analysis of spatial and temporal patterns of ground-level ozone distribution in New Jersey in 2015”  

Ground-level ozone is very harmful to humans and can contribute to a wide range of health issues including asthma and lung functioning, and may permanently scar lung tissue. It can also damage the ecosystem. Using the New Jersey EPA website, charts and graphs were constructed to show the areas in which ground-level ozone concentration was the highest. In addition, it was found that in some areas ozone concentration was increasing very rapidly compared to other areas. We also found that the number of days in which ground-level ozone concentration was above the health standard of 0.075 were lower in June and higher in September. These findings emphasized that New Jersey has many “hot spots” that need to be addressed and improved to minimize the negative impact of ground-level concentration on people and the environment.

DEBORA TANDE  
Faculty Advisor: Dr. Kikombo Ngoy  
“A comparative study of pH variation on a soil farm”  

Scientists have raised concerns about soil quality deterioration due to the prolonged use of chemical fertilizers. It has been proven that continuous N fertilizer use increases soil acidity especially in acid soils. This in turn can affect plant growth by increasing magnesium toxicity and nutrient deficiency. In this study we demonstrated the advantage of using food-waste composts as fertilizers in improving soil alkalinity. Tests were conducted on three types of soil mixtures — compost alone, 50% compost-50% chemical fertilizers, and chemical fertilizers alone. Results from this study show that food-waste compost either maintains or increases pH levels in soil, therefore minimizing lime usage.

Research supported by: Upward Bound Program, U.S. Department of Education and EnvironMentors, School of Environmental and Sustainability Sciences, Kean University

ANTHONY WILLIAMS  
Faculty Advisor: Dr. Dongyan Mu  
“LCA of Dunkin’ Donuts Single-Use Cup and Reusable Cup”  

The importance of this study was to compare statistical data from energy consumption associated with Dunkin’ Donuts expanded polystyrene (EPS), also known as Styrofoam, single-use cups and polypropylene (PP) plastic reusable cups. The scope of this study focused on the manufacturing, energy consumption for both materials, distribution, use, transportation and waste treatment processes. Raw extraction was eliminated due to its complexity and limitations of available resources. Both cup materials were tested for energy consumption by pouring coffee in each cup. The functional unit that was used to compare the energy consumption of the two cups was one drink. SimaPro was the software used to conduct the energy consumption for both Dunkin’ Donuts cups. This software provided us with a side-by-side comparison of the primary energy consumption associated with the products. The energy consumption data produced by SimaPro confirmed that the PP cup had a higher
energy consumption than the EPS single-use cup when the functional unit was one. Next, we used additional calculations to determine the break-even point for the usage of the reusable cup relative to the single-use cup. Our calculations determined that after 10 uses, the reusable cup has a lower energy consumption relative to the single-use cup. Our project concluded that initially the reusable cup has a higher energy consumption rate than the single use. However, after you continue using your reusable cup you are reducing your contribution to greenhouse gas emissions by lowering your energy consumption per cup of coffee you drink.

HERAT ZAVERI
Faculty Advisor: Dr. Kikombo Ngoy
“The effect of food-waste compost fertilization on Zea mays and Raphanus sativus”

Even though chemical fertilizers are being used to increase farm productivity, it has been demonstrated that their usage has negative impacts on the environment and potentially on human health. In fact, chemical fertilizers decrease water quality and increase soil acidity. To minimize these negative impacts, we proposed using compost instead of chemical fertilizers. Results from this study have demonstrated that food-waste composts are as effective as chemical fertilizers when it comes to improving plant growth and productivity.

Research supported by: Upward Bound Program, U.S. Department of Education and EnvironMentors, School of Environmental and Sustainability Sciences, Kean University.

Exercise Science

LAUREN KRAVITZ
Faculty Advisor: Dr. Walter Andzel
“The Effectiveness of TRX, Traditional Resistance Training and Combined Resistance Training for the Overhead Athlete”

The purpose of this study was to determine which treatment, TRX, TRT or TRXT, was most effective in producing the greatest throwing distance and strength increase for the upper body in women aged 18 to 30 years old. A total of 16 females from Kean University participated in this study. Upper body strength was assessed before and after the eight-week intervention using the BioDex System 3 PRO as well as a 1RM bench press protocol. Participants threw a lacrosse ball approved by the National Operating Committee on Standards for Athletic Equipment (NOCSAE) to assess throwing distance, measured before and after the intervention using a Distance Measuring Wheel. During the course of the eight-week intervention, each participant completed a 10-minute warm-up before each session on the UBE at a rate of 50-60 rev/min for the first five minutes and gradually worked their way up to 80 rev/min for the last five minutes. Following the warm-up, participants randomly completed one of the four strengthening protocols TRX, TRT or TRXT. A randomized ANOVA design was used for statistical analysis with a confidence level of p < 0.05 to determine which group, if any, was better than another for improving upper body strength and throwing distance. No significant differences were found between protocols. There was a change in the Peak Torque toward
variable at 60 degrees for the right arm on the BioDex from baseline to post-test; however, the between-subjects effects were not significant, telling us that although all of the groups changed over time, one group did not do better than another. There were no significant differences found between baseline and post-testing for the 1RM bench press, bent over row, bent over fly, bicep curls, triceps kickbacks or supine bench press; however, there was a trend towards significance based on the p value and effect size. There appeared to be no significant differences between treatments on these outcomes. The lack of significance may be due to a very small sample in each group, indicating that there may be significant differences given a larger sample size. Overall, the results of this study were not significant but show a trend towards significance based on the p value and effect size and is suggestive of being significant given a larger sample.

JAYME LEVINE
Faculty Advisor: Dr. Walter Andzel
“Effects of High Repetition Eccentric Hamstring Training in Collegiate Athletes”

The purpose of this study was to examine the acute effects of low repetition eccentric exercise and high repetition eccentric exercise on peak torque, flexibility, delayed onset muscle soreness and lower extremity strength ratios. Of the initial 30 students recruited, 24 completed all testing protocols. During the course of the eight-week intervention, participants were randomly selected into one of the two eccentric groups along with a control. Each group completed intervention weekly; completed post-exercise delayed onset muscle soreness measures initially and two days post-exercise. Peak torque, conventional and functional hamstring to quadriceps strength ratios were completed using a Biodex System. Hamstring flexibility and delayed onset muscle soreness were completed using goniometric measures and a rating of perceived exertion scale, respectfully. A statistical analysis was performed by completing ANOVA testing, and significance was set at a confidence level of p < .05. While peak eccentric torque, and functional hamstring to quadriceps ratios had positive increases and delayed onset muscle soreness rating had a positive reduction, a significant difference was not found. Even though significant differences were not found, statistics can indicate that the inclusion of eccentric hamstring exercises can be beneficial in strength increases and balancing lower extremity strength ratios.

ERIC DENGELI
Faculty Advisor: Dr. Walter Andzel
“Effects of Citrulline Malate Supplementation on 60-yard Shuttle Run Times and DOMS”

The purpose of this study was to determine the efficacy of different dosages of the supplement citrulline malate (CM) on 60-yard shuttle run times of participants in the general population ages 21-29, as well as the efficacy of alleviating the effects of delayed onset muscle soreness (DOMS) after 24 and 48 hours. Eight men (n = 8) and two women (n = 2) for a total of ten participants (n = 10) participated in this study. During the course of the six-week intervention, participants randomly consumed each of the CM beverage recipes: placebo, 2 g, 4 g, 6 g, 8 g and 10 g, waiting one hour, followed by the performance of four trials of the 60-yard shuttle run. Their shuttle run times were then recorded following each trial. Following each testing session at 24 and 48 hours, they were asked to rate their level of DOMS on a scale of 1-5 as used by Perez-Guisado and Jakeman. A repeated measures ANOVA was used for
statistical analysis with a confidence level of $p < 0.05$ to determine any difference between the treatments and DOMS. No significant differences were found between the treatments, indicating that no one treatment was more successful in eliciting better performance in the 60-yard shuttle run protocol or in the alleviation of DOMS symptoms. Although there were no statistically significant differences between the treatments, results of this study are important because they imply that there may or may not be a best treatment to perform in the 60-yard shuttle run. Even though not statistically significant, it was noted that DOMS was significantly higher when comparing 2 g vs. 4 g and 4 g vs. 6 g. All of the other treatments were equal with each other.

SARA ELMILIGI
Faculty Advisor: Dr. Walter Andzel
“*A Walking and Yoga Intervention for Fasting Women during Ramadan*”

The purpose of this study was to evaluate stress and fitness parameters in fasting Muslim women living in New Jersey utilizing a control, walking and Yoga group. Eleven women ($n = 11$) were randomly placed in the control, walking and Yoga groups for a total of 33 ($n = 33$) participants in this study. Prior to the beginning of the intervention, body composition measurements were recorded for each participant; each participant performed a variety of fitness tests and also answered all the questions from the Perceived Stress Scale (PSS) questionnaire. During the course of the four-week intervention, participants practiced Yoga twice a week at the Dar-Ul Islam mosque after sunset, walked moderately twice a week for one mile near the ICPC mosque after sunset, or were not engaged in any exercise for the intervention or outside the intervention. A randomized ANOVA was used for statistical analysis with a confidence level of $p < 0.05$ to determine any differences in each group between the pre-tests and post-tests. No significant differences were found in any of the fitness testing or in the PSS questionnaire results in any of the groups. Significant results were found in flexibility and weight, with flexibility improving and weight declining significantly ($p < .05$) across all three groups. Although not statistically significant, Yoga yielded the most weight loss and improved flexibility compared to all three groups. Also, there were no statistically significant differences found in any of the fitness testing, but results of this study are important because they imply that cardio respiratory and muscular endurance and strength may not change after a month of fasting. Also, the results of the PSS in this study are important because they indicate that Islamic beliefs may be used as a tool to control stress during Ramadan.

SAUL GUZNAY
Faculty Advisor: Dr. Walter Andzel
“*Comparison of Foam Roller Techniques on Ankle Range of Motion*”

Traditional massage therapy has been shown to increase flexibility, alleviate pain and even relieve stress. In recent years, foam rolling has become commonplace due to its convenience and cost effectiveness when compared to massage therapy. Prior research with foam rollers has shown mixed results with various muscle groups. However, there is no definite technique available as of yet for optimal performance. Aside from lacking investigation in combination with foam rollers, adequate ankle joint range of motion has shown to enhance athletic mechanics as well as prevent lower leg injuries. My research investigated if two distinct foam rolling protocols had a significant effect on ankle range of motion in college males and females.
throughout eight weeks. The intervention groups foam rolled for three sets of 30 seconds with 30 seconds rest in between. A control and static stretch group were included in the study as well. I hypothesized that there would be a positive change in ankle range of motion. Currently, a second round of testing is in progress, with an estimated completion in spring 2016.

SHANNON LUSK
Faculty Advisor: Dr. Walter Andzel
“Effects of Various Tissue-Heating Techniques on Dynamic Balance in Dominant Leg Quadriceps Function”

The purpose of this study was to determine whether a warm-up protocol, or no warm-up protocol, is the most effective in producing the greatest dynamic balance scores through administration of the Star Excursion Balance Test (SEBT) for the collegiate-aged population. Ten men (n = 10) and 10 women (n = 10) for a total of 20 participants (n = 20) participated in this study. During the course of a four-week intervention, participants randomly completed each of the four warm-up conditions: traditional warm-up (TWU), moist heat pack application (MHP), warm whirlpool immersion (WWP) and warm-up (NWU), followed by performance of the SEBT. Average reach distance for eight different directions, including anterior (A), anterolateral (AL), anteromedial (AM), lateral (L), medial (M), posterior (P), posterolateral (PL) and posteromedial (PM), were calculated and recorded based upon the results of the SEBT performance. A repeated measured-measures ANOVA was used for statistical analysis with a confidence level of p < 0.05 to determine any difference between the warm-up protocols prior to the performance of the SEBT. Results stated that the A direction following the WWP were significantly greater than the NWU. No other significant differences were found between directions of protocols. In general, it appears that the TWU, MHP and WWP all resulted in similarly greater scores on the SEBT when compared to the NWU protocol. This suggests that warm-up techniques prior to dynamic balance exercises could potentially increase scores and, as a result, improve athletic performance.

KRISTEN O’NEILL
Faculty Advisor: Dr. Walter Andzel
“Acute Effects of Sports Drinks on Hydration”

The purpose of this study was to determine which commercially available sports drink (pure coconut water, 1% low-fat chocolate milk, Gatorade or water) results in greater rehydration. This knowledge would help individuals who are beginning an exercise program to choose the right beverage to rehydrate themselves. Participants engaged in testing over the course of four weeks, with each participant engaging in the test once per week with a five-minute warm-up protocol (set at 30% heart rate max) followed by the dehydration exercise, which consisted of 20 minutes of moderate to high intense exercise. Intensity was set between 60% and 85% heart rate reserve. A repeated-measures ANOVA was used for statistical analysis to determine any difference between beverages. At the conclusion of the test, 1% low-fat chocolate milk resulted in greatest rehydration among the participants.
ALYSIA OTT  
Faculty Advisor: Dr. Walter Andzel  
“The Effect of Yoga on Stress in the Female High School Student”  
The purpose of this study was to determine if Yoga can replace a regular physical education class and is effective in reducing adolescent stress. The participants consisted of 69 high school females, 29 in the control group and 40 in the Yoga group. The intervention consisted of the Yoga class meeting twice a week for eight weeks while the control group continued with its regularly scheduled physical education class. Participants had their height, weight, body mass index (BMI) and hamstring flexibility recorded at the beginning of the intervention, halfway through and at the end of the eighth week. They also filled out the Cohen’s Perceived Stress Scale each time. This was a randomized comparison study. Statistical data were collected using an ANOVA analysis with significance set at the 0.05 level. There were no significant differences found between the Yoga group and the control group, indicating that Yoga was just as effective as regular physical education class. The study is significant due to the fact that it demonstrates that Yoga may replace regular physical education class, and students may reap the same benefits.

COLIN STUART  
Faculty Advisor: Dr. Walter Andzel  
“A Comparison of Self Myofascial Release Pressure on Range of Motion and Lower Body Power”  
The purpose of this study was to compare the effectiveness of two different foam rollers, the multilevel rigid roller (high pressure) and the bio-foam roller (low pressure) and the ability to change both range of motion of the quadriceps muscle and lower body power measured by the vertical jump test following a single bout of SMR. Twenty-nine men (n = 29) were recruited and completed this study as volunteer participants. All of the participants were current members of a Men’s Division III Varsity Lacrosse team. The participants were randomized into one of three groups: control group, the multilevel rigid roller and the bio-foam roller. Participants first completed a baseline testing session then engaged in one separate and unique intervention session. After the warm up and intervention were concluded, goniometer measurements were taken to quantify the range of motion in degrees of the quadriceps and the vertical jump test to quantify the power of the quadriceps. MANOVA was used for statistical analysis with a confidence level of p < 0.05 to determine any difference in ROM or vertical jump between the three intervention protocols as compared to the baseline and each other. There were no significant post-test differences in either ROM or quadriceps power between the three treatments of MRR, BFR and control. This data indicated that the use of SMR regardless of pressure to increase quadriceps ROM and power would not cause a significant change in results when compared to a control of sitting quietly for one minute. Although there were no significant increases in ROM of the quadriceps after the SMR protocol, the results of this study are important because there was no decrease in quadriceps power. This suggests that SMR is an acceptable warm up prior to physical activity due to the added benefits of SMR, which include: increasing localized blood flow to a muscle or group of muscles, the breaking up of scar tissue, muscular adhesions, spasms and any other trigger points causing issues and pain within the muscle, limiting performance (Paolini, 2009).
CALEB DAGNALL  
Faculty Advisors: Dr. Jonathan Mercantini and Dr. Elizabeth Hyde  
"Identifying Unknown Authors: Uncovering the Identities of the Unknown Authors in the Nancy Thompson World War II Scrapbook Collection"

The Nancy Thompson World War II Scrapbook Collection provides a unique perspective on the life of soldiers during the War as well as campus life at home. Nancy Thompson’s correspondence with the soldiers and Lenore Vaughn-Eames’s wartime newsletter, “The Servicemen’s News,” bring this narrative to life by providing a vivid depiction of what each soldier’s life was really like during World War II. These students attended Newark State Teachers College, but this narrative continues today with current Kean students as the new generation of writers. Unfortunately, certain student servicemen whose letters contribute to the Nancy Thompson World War II Scrapbook Collection are currently lost to this history. In some cases, soldiers wrote back to Nancy Thompson without properly signing their letters. As a result, several letters are unable to be attributed to their authors. While these soldiers’ letters survive, their identities remain hidden. Through careful scrutiny of writing style and form, further examination of Kean records and archives, and investigation into outside sources of information, I have worked to uncover who the unidentified authors really were, giving a voice to the voiceless, credit to the creditless and identity to those who have lost theirs. As I analyze the elements of the letter and determine the authorship thereof, the historicity of the letters can be fully recognized and appreciated while the accuracy of the archival record will simultaneously be increased.

CAITLYN MURPHY  
Faculty Advisors: Dr. Elizabeth Hyde and Dr. Jonathan Mercantini  
“Life of College Students: Nancy Thompson World War II Scrapbook”

In 21st-century America, college students attending higher education institutions have a range of privileges. Students have the opportunity to become involved in community service-oriented organizations, participate in academic clubs or even choose to become an Honors student all while earning a degree. It was not so different in the 1940s. Nancy Thompson, the librarian of Newark State Teachers College during the time of World War II, kept hundreds of letters written by students of Newark State Teachers College while they were scattered all over the world serving their country in this global affair. These student soldiers were involved in extracurricular clubs and organizations on campus just as many college students are today. A majority of these Newark State Teachers College students were teachers in training, but many of them were forced to put their college careers on hold to serve their country in a desperate time of need. Yet they still valued their college experiences, culture and friendships. Edward Bizlewics, who was a mechanic in the Air Force during the war, had written a letter to Nancy Thompson on October 14, 1942, stating that he and a friend had attended a fraternity meeting on campus when they were last on leave from where they were stationed. This poster will highlight the similarities in the college experience from two exceptionally different generations, and communicate the importance of their connection to Newark State Teachers College even while fighting in World War II.
STEVEN PALIVODA  
Faculty Advisor: Dr. Christopher M. Bellitto  
“Interpreting the Crusades: What do the Historians Say?”  
The Crusades of Medieval Europe need to be carefully analyzed. For centuries, but especially in recent years, the term crusade is loaded with many meanings. It is important to look at all of the perspectives, which is a quintessential goal of historiography. Christian, Islamic and Jewish primary sources convey important viewpoints that all historians must place into the proper context.

ILYSE SHAINBROWN  
Faculty Advisor: Dr. Dennis Klein  
“From Memory to History to Education: A Semester at the Holocaust Council of Greater Metrowest”  
Over the past several months, I have been working at the Greater Metrowest Holocaust Council as a Master of Arts in Holocaust Studies intern. The mission and goals of the council are imperative to educating the community at large to the horrors of the Holocaust and ensuring the education of that time so that we work toward a world without genocide.

Mathematics

ELVIN WAYNE ARROYO  
Faculty Advisor: Dr. Mahmoud Affouf  
“River Crossing Puzzle Using Graph Theory”  
River crossing problems appear as a recurrent theme in recreational mathematics. This research is to develop a visual explanation and graph theory diagrams to solve the problem. We investigate different approaches from graph paths in order to achieve an optimal solution of this logical puzzle.  
*Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation*

ETHAN FINKIEL  
Faculty Advisor: Dr. Wolde Woubneh  
“Cost Effectiveness of Life Insurance from the Customer’s Perspective”  
The purpose of this research is to explore the cost effectiveness of life insurance from a consumer’s perspective. All of the research that I found on the Internet analyzes the efficacy
of life insurance from the life insurance company’s perspective. My research was done by analyzing death rates from 2006 to 2009 amongst Americans, classified by age, gender and race. The data over the four-year period were used to create a cost per dollar of life insurance that would make sense, accounting for the statistical likelihood of dying in a certain time frame, accounting for age, gender and race differences. Variables such as the inflation rate and cost of the average American funeral were inserted in the evaluation for the cost of worthwhile life insurance. To determine the effective price from the consumer’s and insurer’s point of view: the average payout and the cost of maintenance of life insurance accounts by life insurance companies were accounted for using data from 70 percent of all insurance claims over a four-year period (2006-2009).

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

HANGFENG GONG
Faculty Advisor: Dr. Louis Beaugris
“The residues of finite groups of integers modulo p”
This is a study about group theory and number theory. The study focuses on properties of finite groups of integers modulo p, and sets up a connection between two theories. The study will give several basic but profound mathematical conclusions.

OLGA JONES
Faculty Advisor: Dr. Louis Beaugris
“Sudoku Sequence”
Sudoku is played by placing numbers in the grid such that each row, column and 3x3 matrix contains the numbers 1 to 9. The three numbers in the vertical sequence added in the 3x3 matrix, which is called a, b and c, will be 45. Using a formula to derive at the many ways a, b and c can be added to equal 45, this project attempts to find the number of admissible Sudoku sequences.

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

ALANA LOPEZ
Faculty Advisor: Dr. Wolde Woubneh
“Analysis of Pick 6 Lottery”
Millions of people have been playing the New Jersey lottery in hopes of winning the grand prize by pure luck every week since 1980. But if a person is really wealthy and resourceful enough, is there an actual method to obtain all possible combinations of six numbers out of the possible numbers? This research will develop computer codes that generate all possible pick six combinations of numbers. If a person invests the necessary money to buy all the pick six combinations of numbers, that would mean there is a 100% chance of getting the winning combination of numbers. There is also the matter of bias of the machine that chooses the winning pick six numbers every week. It is possible that machines that pick the winning numbers might be biased towards selecting certain numbers more often than
other possible numbers. Previous works have failed to take certain aspects of possibilities into consideration. My research will explore all possible situations from all angles. Based on the possible combinations and the available data of the past winning numbers, I will determine if there are patterns that can be used to increase the chances of winning the lottery.

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

REBECCA SARDINAS
Faculty Advisor: Dr. Wolde Woubneh

The purpose of the study is to examine the effect of water and air pollution, radon gas, asbestos, nuclear power plants, electric power lines, age and gender on the incidence of brain cancer. I plan to analyze the data using a multivariate statistical model to i) identify the most important variables that contribute to the incidence of brain cancer, ii) to find the correlations among the variables, iii) to quantify the contributions of each variable to the incidence of brain cancer and iv) to generate a reliable model for prediction.

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

NICOLE OLEARCHIK, REBECCA FOSTER, MEGHAN CARROLL, DANIEL BARNETT, RYAN JACCOI
Faculty Advisor: Dr. Lynn Schraer-Joiner
“We’re All in This Together: A Collaborative Community Concert”

The purpose of this presentation is to share the results of a project highlighting the important role that musical involvement (activities and a concert performance) can play in aiding those adults with sensory, physical or developmental disabilities who have “aged out” of special education and related services as per the Individuals with Disabilities Education Act (IDEA, 2004). In this presentation is also the highlighted collaboration of an inter-generational choir including the musical efforts of Union County’s Community Access Unlimited Continuing Education Program, Roselle Park Elementary Schools, and the Conservatory of Music at Kean University. In January 2016, a concert took place in Wilkins Theater featuring all three participating groups in numerous musical numbers combining both vocalists and instrumentalists.

Research supported by: Students Partnering with Faculty (SpF) Summer Research Program, Kean University
JOSEPH ALAMO
Faculty Advisor: Dr. Edward Farnum
“Pulse Splitting in Ultra-Fast Lasers”

Modern technology allows for mode-locked lasers, which produce optical pulses of short durations on the order of femtoseconds. The Short Pulse Master Mode Locking Equation is a partial differential equation (PDE) that governs pulse evolution in time and space. This PDE can be greatly simplified by a system of ordinary differential equation (ODE). Unfortunately, the ODE model is unable to account for “pulse splitting,” where a single pulse destabilizes into two. The goal of this research is to modify the current ODE model to account for pulse splitting. An eigenvalue analysis is used to determine regions of stability for split-pulse solutions. We consider models based directly on the governing PDE, as well as simpler ODEs known to exhibit the desired behavior. In reevaluating the current ordinary differential equation model for short pulses, we hope to capture and predict the phenomenon of pulse splitting.

Research supported by: Students Partnering with Faculty (SpF) Summer Research Program, Kean University & Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation

DANIELLE ANTONUCCI, ALYSSA BELLOMO, ALESSA VINDAS-CRUZ, MIRNA GIRON
Faculty Advisor: Dr. Dil Ramanathan
“Headspace and Liquid Autosampler GC-MS Analysis and Profiling of Costa Rican Plants for Pharmacological Activity”

In various regions of the world, herbal medicines are used to treat many illnesses. They are cheaper than prescribed drugs and are more convenient to obtain. Herbal remedies can be homegrown or found commercially as tablets, capsules, powders, teas, extracts, and fresh or dried plants. The objective of this study is to analyze and profile the medicinal plants used by Costa Rican locals of the Maquenque National Wildlife Refuge in order to pinpoint exactly which compounds in the plants have remedial and pharmacological properties. The plants being studied in this experiment include but are not limited to: Psidium guajava, Piper auritum, Anthurium subsignatum, Persea americana, Simarouba glauca, Nirolaena lobata, Vismia ferrohenia, Byrsonima crassofilia and Prunus dulcis. Extractions from the plants are made using DCM and methanol for comparison. Bark and leaf samples are analyzed using a Perkin-Elmer GC Clarus 680 and MS Clarus SQ 8T. Two different methods of sample introduction are used: headspace and liquid autosampler. Headspace GC-MS specializes in the detection of volatile, aromatic compounds. Liquid autosampler GC-MS is used for the detection of semi-volatile compounds. The results obtained from this study will be used to profile the individual compounds of each plant for pharmacological activity.

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation
DANIELLE ANTONUCCI
Faculty Advisors: Dr. Dil Ramanathan and Dr. Heather Stokes-Huby
“Correlating Nail Metal Content to Age and Ethnicity (L’Oreal Nail Typology Project)”

Nail samples have become a more prominent means of studying the elemental content of human bodies. The fibrous proteins that make up nails, along with many other properties, make them extremely beneficial to use for xenobiotic analysis. Inductively coupled plasma mass spectrometry (ICP-MS) is a very powerful instrumentation used for the identification of metals. Currently, there is no data on age- and ethnic-related changes in the levels of these elements in nails. As a portion of L’Oreal’s Nail Typology project, this study aims to evaluate the levels of these elements in nail clippings collected from women of four ethnic origins, between ages 18 and 70, in order to determine if there are any differences amongst age and ethnicity. The levels of Cu, Zn and Ca in fingernails are assayed using ICP-MS.

JACQUELYN CALI
Faculty Advisor: Dr. Dil Ramanathan
“Detection and Identification of Compounds Leaching from Baby Bottles Using GC-MS”

The popularity of bottle feeding infants dramatically increased in the 1950s due to the mass production of polycarbonate baby bottles. In the early 2000s, suspicion arose that chemicals within plastics, including BPA, have the ability to leach out and cause harmful effects when ingested. In 2012, the FDA banned the use of BPA in baby bottles due its ability to leach into formula and cause estrogenic effects in infants. Though BPA-free bottles are now the norm, concerns remain about the safety of the new plastic alternatives. A mother’s process of bottle sterilization, formula preparation, varied storage length and bottle heating was simulated for the sample preparation in this study. Name-brand and store-brand polypropylene bottles and infant formulas were analyzed using Perkin-Elmer GC Clarus 680-MS Clarus SQ 8T. For analysis using GC-MS, samples were extracted using a non-specific liquid-extraction method. Formula samples prepared in the absence of plastic were used to determine the presence of compounds leaching from polypropylene bottles.

YUMI FUJISAWA
Faculty Advisor: Dr. Salvatore Coniglio
“Achievement of tumor microenvironment in glioblastoma-induced macrophages at miRNA level”

Macrophages play varied physiological roles including immunity, development, tissue repair and maintenance of homeostasis. Upon cell signaling, monocytes are recruited to the site and quickly differentiate into macrophages in response to injury or infection. In contrast to blood-derived macrophages, macrophages found in the brain are thought to self-renew throughout adulthood from myeloid cells that colonized the developing central nervous system before birth. These resident brain macrophages are called microglia. In glioblastoma, it is known that microglia are critical for promoting invasion and metastasis of the tumor and creating the immunosuppressive microenvironment. The mechanisms with which glioblastoma induce gene-expression changes to “reeducate” microglia are only beginning to be understood. One pathway that is critical for this reprogramming is mediated by the colony-stimulating factor receptor (CSF-1R). There are a few studies which show that microRNA (miRNA), regulators...
of the messenger RNA (mRNA), are altered in glioblastoma. In microglia associated with glioblastoma, miRNAs that regulate proliferation, invasiveness, apoptosis and cell viability are either up or down regulated to achieve favorable tumor microenvironment. We hypothesized that glioblastoma alter the phenotype of microglia by altering the expression of the gene at miRNA level, and this is carried out via the CSF-1R mediated upregulation of the EGFR ligand amphiregulin (AREG), which has the ability to process precursor miRNAs. Thus, the amount of miRNAs in a panel of candidates, such as mir-34α, mir 21, and mir 93, which are likely to modulate genes involved in invasion and immunity, were measured at the precursor miRNA level and mature miRNA level in the absence and presence of glioma-conditioned media (GLCM) from GL261 murine glioma cells using CFX96 Touch™ Real-Time PCR Detection System from BioRad. Then, we’ll investigate further by adding CSF-1R inhibitors to those miRNA treated with GLCM to see if blocking the CSF-1R affect the amount of miRNA at precursor level and mature level.

SIDHANT GUGALE
Faculty Advisor: Dr. James Merritt
“Solid-phase Synthesis of Carboxylic Acid and Sulfonyl-Chloride Derivatives Using ECLiPSE Technology”
Encoded Combinatorial Libraries on Polymeric Support (ECLiPSE) technology was used to synthesize a library of 24,000 unique molecules. Combinatorial Chemistry techniques on polystyrene resin beads has been an effective way of synthesizing large collections of potential drug-like compounds to screen against desired biological targets. Of the 24,000 compounds that were synthesized, 17,400 were either sulfonyl-chloride or carboxylic acid derivatives, whose reactions and cleavage conditions were optimized by analyzing profilers prior to the library synthesis. Quality control samples were synthesized and analyzed using HPLC, LCMS and NMR instruments to confirm the identities of the desired compounds.

HEATHER HUFF, KATHERINE TREALA
Faculty Advisor: Dr. Brian Baldwin
“Teacher Preparedness vs. Science Standardized Test Scores”
We have compared the education levels of New Jersey science teachers with the student standardized test scores. This was done by comparing published scores from various standardized tests issued in New Jersey (including NJASK and NJ Bio Competency Test) with the publicly released teacher data that includes teacher gender, race, years teaching and teacher certification. Eight local districts were used in the analysis of the data due to both proximity to the university and because many of these districts employ Kean graduates on their faculties.

LINDSAY KORNBERGER, KYEARA MACK, AMANDA SONA
Faculty Advisor: Dr. James R. Merritt
“Synthesis of Novel CCR1 Antagonists Using Carboxylic Acids for Treatment of Glioblastoma”
This research aims to synthesize novel CCR1 (Chemokine Receptor 1) antagonists from carboxylic acids to form amides that may enhance brain penetration when treating
glioblastoma. CCR1 are cell-surface receptors that mediate the chemotaxis of leukocytes to sites of inflammation and are overexpressed in some cancer cells. Glioblastoma is an aggressive brain cancer with very few treatment options. Since CCR1 is overexpressed in glioblastoma, there is a possibility that CCR1 antagonists can provide a therapeutic benefit. This research creates new compounds that will be tested for inhibition of glioblastoma cells.

GREGORY MARSHALL, MERCEDES CASTILLO, STEPHANIE CERNA, GINA MORETTI, DENNISSE ORDONEZ, STEVEN SUEDE, FRANCESCA TOMESCO, BRYANI WHEATON, JUSTINE ZAWISZA
Faculty Advisor: Dr. Salvatore Coniglio
“Role of CSF1 and CCR1 in modulating chemokine gene expression in glioma-associated microglia”

The question is, “How can normal immune cells such as macrophages aid in the growth of cancerous tumors?” This is an important area of study because the body sends macrophages to tumors because the tumors are supposed to attack the cancer cells. What seems to happen is the cancer cells actually change the gene expression of the macrophages and prohibit them from doing their intended job. One important class of genes expressed in malignant tumors are chemokines and their receptors, which are thought to mediate invasive, metastatic and immunosuppressive behavior. Our group comprehensively examined chemokine and chemokine receptor gene expression in microglia (brain macrophages) treated with glioma-conditioned media for 24 hours by quantitative real-time PCR (QRTPCR). We then measured the effect of pharmacological inhibition of CSF-1R and CCR1 on the expression pattern of these genes.

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

CAMILLE MENENDEZ
Faculty Advisor: Dr. Yazhou Sun
“Identifying Unique Sequences in Common Pathogens”

One of the biggest public health challenges of the 21st century is the spread of bacterial pathogens with antibiotic resistance. According to the Centers for Disease Control and Prevention (CDC), at least 2 million people become infected with antibiotic-resistant bacteria in the United States every year, and about 23,000 of them die each year as a direct result of these infections. One of the major contributions to the spread is the inappropriate use of antibiotics as treatment for infections. Since not all infections can be treated with antibiotics (e.g., viral infections), it is important for doctors to correctly diagnose before prescribing treatment. There is currently a need to develop more accurate and efficient diagnostic technologies for correct and targeted treatments of infectious disease. The rapid accumulation of genomic data of all organisms, including pathogens, has enabled a systematic and thorough search for better diagnostic markers. The goal of this project is to identify strain-specific sequence markers for diagnostic purposes. We have developed a preliminary software tool for initial evaluation, and we are currently developing a fully functional application that can potentially be used in diagnostic product development.

Research supported by: ATCC Center for Translational Microbiology (ATCC-CTM)
KATARINA MLADENOVIC, MAX PONCE  
Faculty Advisor: Dr. Dilrukshi Ramanathan  
“GC-MS Analysis of Flavonoids in Chocolate”  

With an industry rapidly approaching $100 billion, chocolate has become a staple in the lives of many people throughout the world. Recent research has also shown that chocolate taken in moderation can prevent colon cancer. This study will focus on the chemical profiling of ingredients in each step of the chocolate-making process. By qualitatively and quantitatively understanding the chemical components, we hope to make the best quality chocolates that provide many benefits for consumers. All experiments were performed using the Perkin-Elmer GC Clarus 680 and MS Clarus SQ 8T. For comparative purposes, samples will be introduced to the GC-MS via headspace and an autosampler. Both roasted and unroasted samples contained tetramethyl pyrazine, a compound known to give off strong flavor and aroma in cocoa and coffee beans. The tests have also found that unroasted cocoa beans had more compounds that are responsible for flavor and aroma than the roasted cocoa beans. Preliminary data has shown that raw and sun-dried cocoa contain phenylethyl alcohol, an anti-microbial and aromatic agent. Dried cocoa detected through autosampler analysis demonstrated theobromine, a compound known to have benefits to treat angina pectoris and hypertension. Dried cocoa also showed Benzeneacetaldehyde, a sweet odor in chocolate and flowers. Once the study is completed, the results can be used to obtain a final product, which will guarantee batch-to-batch consistency and a higher-quality chocolate.

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

GAGANPREET K. MONGA, Dr. ANIMA GHOSAL  
Faculty Advisor: Dr. Dilrukshi Ramanathan  
“Determination of antibacterial activity in medicinal plants using UHPLC-HRMS.”

Recently, disease-causing agents have evolved so drastically that they have developed antibiotic resistance. The failure to acquire new molecules with antimicrobial properties led various researchers, including us, to focus on and develop medicinal plant-based or natural antimicrobials as the source of novel drugs. In addition, recent advances in high-resolution mass spectrometry (HRMS) made the detection of desired masses with high resolution exceptionally possible. Previously, the profiling of Persia americana leaf (avocado) and Vismia macrophylla bark using GC-MS has confirmed the presence of antimicrobial compounds like acetic acid, eucalyptol, etc. Therefore, these plant extracts were detected for acetic acid peaks using UHPLC-HRMS. Also, antimicrobial activity was observed qualitatively by using agar disc diffusion assay and quantitatively by determining minimum inhibition concentration (MIC) using 96 well plate assay. GC-MS profiling showed that P. americana and V. macrophylla have high probability of acetic acid as an essential component responsible for antibacterial activity. Hence, a rapid and sensitive method was developed to detect acetic acid using LTQ – orbitrap mass spectrometer coupled to UHPLC system with ESI source in positive mode. Antibacterial activity with acetic acid as well as with methanolic plant extracts was checked against bacteria E. coli using the agar disc diffusion method (Kirby-Bauer Method). Methanolic extracts of avocado leaf and vismia bark were also tested against E. coli using 96 well plate with resazurin as an indicator and gentamycin as a positive control. Chlorohexidine oozes out of the bacterial cell envelop when they get lysed. An UHPLC-HRMS method was developed to identify chlorohexidiene as an indicator to understand the effects of these herbal plant...
extracts on bacteria and to interpret the MIC. Various dilutions of acetic acid were prepared in sterile water. Acetic acid was detected by UHPLC-HRMS using the above-designed method as [M+H]+ 61.0519 in full scan HRMS. MIC was observed approximately around 1% acetic acid dilution. Agar disc diffusion assay: consistent results were obtained when two agar plates were prepared on two consecutive days. Acetic acid showed maximum inhibition of E. coli (inhibition zone 2.0 cm) at 5% acetic acid followed by 2% with negligible inhibition at 1% as compared to control gentamycin, which showed a very prominent inhibition zone. MIC assay: Preliminary studies with methanolic extract of vismia bark showed antimicrobial activity against E. coli using 96 well plate assay with 0.1% resazurin as indicator and gentamycin as positive control. Studies are ongoing using other plants such as guava leaves, which have antibacterial properties, with a goal to find more antimicrobial as well as anticancer components in these herbal plant extracts.

KASSANDRA NUNEZ  
Faculty Advisor: Dr. James Merritt  
“Reductive alkylation of aldehydes on a novel pyrrolidine for CCR1”  
Reductive alkylation, or reductive amination, is a reaction that converts a carbonyl group of an aldehyde to an amine via an intermediate. This project focuses on the synthesis of small molecule antagonists of C-C Chemokine Receptor 1, or CCR1, by way of this reaction. This cell-surface receptor promotes chemotaxis in several inflammatory diseases, like multiple myeloma. However, recent discoveries show the relevance of CCR1 in lethal, malignant tumors that affect the brain, known as glioblastoma. By creating modifications to portions of a novel pyrrolidine compound known to bind to CCR1, theoretical molecules can made to inhibit the effects CCR1 has in inflammatory conditions, and even some cancers.

MICHAEL ORO, DIANA HABIB, LIRA LOLLA  
Faculty Advisor: Dr. Salvatore Coniglio  
“Modulation of TGFβ Expression by LPS Nanoparticles in Glioblastoma Cells”  
Tumors that ascend from astrocytes are referred to as glioblastomas. Glioblastomas are extremely cancerous due to the fact that the cells reproduce at a high rate and are promoted by an abundant blood supply from the blood vessels. In addition, the microenvironment of glioblastoma is highly immunosuppressive. The goal of this project is to understand if lipopolysaccharide-coated nanoparticles (LPS-NPs) can interfere with the expression of transforming growth factor beta (TGFβ), one of the key molecules involved in immunosuppression. Enzyme-linked immunosorbent assays (ELISAs) will measure the concentration of TGFβ released by glioblastoma cells, with and without microglia and LPS-NPs. In collaboration with Joel Friedman and Jeffrey Segall at Albert Einstein College of Medicine, we will also measure the effect of LPS-NPs on recruitment of specific cell types involved in mediating immunosuppression (TREGs and MDSCs) to glioblastoma tumors in mice.

Research supported by: Louis Stokes Alliance for Minority Participation (LSAMP) Program, National Science Foundation
**MRUNALI PATEL, MARIA ULKE**  
Faculty Advisor: Dr. Salvatore Coniglio  
*"The role of EphB2 in microglia-stimulated glioblastoma cell invasion"*

Glial cells are crucial for proper function and maintenance of the brain tissue. The cancer of these glial cells, glioblastoma, is one of the deadliest human cancers, with a median survival rate of 12 months from the time of diagnosis. Previous studies have shown that microglia (macrophages of brain) are involved in helping glioblastoma cells invade physiologically normal local brain tissue, resulting in the metastasis of the tumor. The glioblastoma cells and microglia show extensive cell-cell interaction in our invasion assays, suggesting the involvement of a juxtacrine mechanism for microglia-stimulated glioblastoma invasion. Membrane associated Eph/Ephrin, known for such juxtacrine signaling for cell invasion, are suitable candidates for further studies. Studies have shown high EphB2 expression in advanced glioblastoma. We have preliminary evidence that EphB2 receptors are required for glioblastoma cell migration toward microglia. The overall project is focused on identifying the means by which glioblastoma cells and microglia communicate during invasion and spread of the cancerous cells. We will see if removal of EphB2 from glioblastoma cells through RNA interference prevents the microglia-stimulated invasion of glioblastoma cells. We will be using matrigel-boyden chamber assay and tumor spheroid assay.

**GINA RODRIGUEZ**  
Faculty Advisor: Dr. Salvatore Coniglio  
*"Role of the IGF Pathway in Microglia-Stimulated Glioblastoma Malignancy"*

Glioblastoma is a deadly cancer with limited treatments options that do not have high success rates for survival. This type of cancer is extremely invasive and is resistant to chemotherapy and immune therapies. The purpose of the project is to research how glioblastoma becomes malignant. Microglia are brain macrophages that play a role in immunity. However, our laboratory and others have shown that glioblastoma reprogram microglia which in turn promote glioblastoma invasion and make them more resistant to chemotherapy. There is some evidence that the IGF pathway is deregulated in malignant glioblastoma. We are planning to investigate genes involved in the IGF pathway (such as IGF1 and IGF2) in microglia cells and in glioblastoma and identify any significant changes or patterns in expression when these cells are co-cultured with each other. To conduct this research we will be using a BioRad CFX96 thermocycler to do quantitative Real Time PCR, which will allow us to measure changes in expression of genes involved in IGF signaling. We will then measure if the IGF pathway is activated in glioblastoma cells by microglia by western blotting cellular extracts. The potential role of microglia-stimulated IGF pathway in glioblastoma in mediating chemo resistance to temozolomide and curcumin will be assessed using pharmacological inhibitors of IGFR.

**VICTOR SUAREZ**  
Faculty Advisor: Dr. Salvatore Coniglio  
*"The Use of the DLR Functional Assay for Screening CCR1 Inhibitors"*

Chemokine receptor CCR1 is a protein expressed on macrophages that promotes chemotactic signal transduction in response to binding ligands such as CCL3, CCL5 and CCL6. Our laboratory and others have evidence that its activity is important for mediating metastasis
and invasion of several solid cancers types, including glioblastoma and breast carcinoma. These cancers depend on tumor-associated macrophages to achieve full malignancy. In collaboration with Dr. James Merritt, we have discovered that CCR1 inhibitors were found to inhibit the ability of macrophages to stimulate invasion of the mouse glioblastoma cell line GL261. In dissecting the signaling pathways mediated by CCR1, we have also discovered that blockade of CCR1 inhibit the JNK biochemical pathway in the cells. As JNK is known to mediate activation of the transcription factor AP1, we are using an AP1-directed luciferase reporter construct to screen for additional novel CCR1 inhibitors. A Dual Luciferase Reporter (DLR) assay (Promega) was used to test for activity of luciferase bioluminescence in GL261 cells transiently transfected with an AP-1 Firefly Luciferase reporter plasmid (and a CMV-driven Renilla Luciferase internal control). Preliminary studies indicate that AP-1-mediated luciferase activity increases in GL261 cells by 30% when these cells are co-cultured with microglia for 24 hours. This increase in activity is fully inhibited with the addition of the CCR1 inhibitor JLY-133. These findings suggest that AP-1-Luciferase activity will be a useful tool in screening for efficacy of novel CCR1 antagonists.

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

KATHERINE THOMAS, CHELSEA MANN
Faculty Advisor: Dr. James R. Merritt
“Synthesis of 6,600 Urea Derivatives Using Solid-Phase Combinatorial Chemistry on Resin”

Combinatorial chemistry techniques on polystyrene resin beads have been used in the drug discovery process to prepare large numbers of compounds for screening against biological targets. These techniques are effective for producing large “drug-like” compound libraries in a shorter amount of time than traditional methods. Using these techniques, novel urea derivatives were synthesized as profilers in-line with library conditions to confirm the synthesis of these novel drug-like compounds. Quality-control samples were also synthesized in-line with library conditions and analyzed using HPLC, LCMS and NMR to determine the success of the library.

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

SANDI WILKENFELD
Faculty Advisor: Dr. Salvatore Coniglio
“Activation and Role of JAG1 in Macrophage-Dependent Breast Carcinoma Intravasation”

In breast cancer, metastasis occurs when tumor cells pass through the endothelial cell barrier of the blood vessels to enter the bloodstream, a process known as intravasation. The tumor microenvironment, and in particular macrophages, influence breast cancer cell intravasation. Our colleagues at Albert Einstein College of Medicine have shown that breast carcinoma cells are unable to enter the bloodstream and metastasize without the presence of tumor-associated macrophages. Jagged1 (JAG1) is a delta-like ligand that activates the Notch signalling pathway in associated breast cancer cells and has been shown to be necessary for intravasation to occur. We are studying the pathways that activate the production of the protein JAG1 in macrophages. Breast cancer cells release the growth factors CSF-1 and heregulin (HRG) that are involved in JAG1 gene activation. We are measuring the levels of
JAG1 expression using quantitative real time PCR (QRTPCR) in macrophages when they are co-cultured with breast cancer cells or in the presence of recombinant ligands CSF-1 and HRG. Specific intracellular pathways necessary for JAG1 induction in these contexts are being assessed by QRTPCR, western blotting and immunofluorescence.

**Nursing**

**FELICIA ADELAJA**  
Faculty Advisor: Dr. Prisca Anuforo  
“Nursing Shortage in Long-Term Care”

Nurses play a critical role in providing health-care services in long-term care facilities. However, experiential findings indicate that long-term care has consistently recorded nursing shortages. Moreover, there is a high rate of staff turnover and increased job dissatisfaction among nurses working in long-term care. Critical appraisal of existing literature was conducted to identify the best evidence to improve nursing shortages. The results show that a sign-on bonus attracts new employees and improves retention.

**FUNMILOLA ADEWALE, MONSURAT OTUNUGA, LILLIAN OKOYE**  
Faculty Advisor: Dr. Jan Kaminsky  
“Incidence of falls and prevention in elderly patients with diuretics in nursing homes versus private homes”

This project used a critical review of the literature to investigate the question: “Are elderly patients on diuretic medication at greater risk of falls in nursing homes as compared with the elderly living in their private residential homes?” Based on the literature, it was observed that the rate of the incidence of elderly patient falls while on diuretics was much greater than similar patients in private residential homes. This project is important to the nursing field because falls in the elderly contribute to an increase in morbidity and mortality rates in the elderly; therefore, there is a need for improvement in the prevention and intervention of falls. Future research will explore factors relating to lower incidence of falls in private homes, and how nursing homes can decrease their rate of falls.

**TAMARA ADOLPHE**  
Faculty Advisor: Dr. Prisca Anuforo  
“Implementing Palliative Care”

End-of-life care will be a growing epidemic in today’s society as the population expands. It is a plan of care that plays an integral part in the patient’s care and quality of life during terminal illness. Various research articles were used to substantiate the risks and benefits of implementing end-of-life care early when one is diagnosed with a terminal illness. In conclusion, the outcome reveals that instituting palliative care earlier than later yields better results at the end of life.
ALLEN ANEVSKI, SAHER AFSHAN
Faculty Advisor: Dr. Jan Kaminsky
“Nurse Certification Rates and Patient Satisfaction”

Recent evidence suggests that nurse certification rates may have an effect on patient satisfaction. The purpose of this research is to determine whether nurse certification rates influence patient satisfaction in patients who have certified nurses over those who do not. A literature search was completed for scholarly, peer-reviewed journals in the EBSCO host database using the keywords “nurse certification” and “patient satisfaction.” The lists of articles were reviewed for studies that were relevant. Abstracts were then scanned for pertinent information related to this research. Studies that included information on the effects of nurse certification on patient satisfaction were then included in the research and analyzed. The results were inconclusive as to whether nurse certification increases patient satisfaction.

JEONG KYU BHAK, PRISCA OGBONNAYA
Faculty Advisor: Dr. Prisca Anuforo
“Exercise Intervention to Reduce Falls in Mild- to Moderate-Level Alzheimer’s Patients”

Falls are the second leading cause of unintentional injury death. Due to the nature of the disease process, individuals with Alzheimer’s are at a higher risk for falls. This project sought to see if physical exercise interventions have positive effects in fall risk for this population. To find the answer, two longitudinal studies, two pilot studies and one systematic review were used. These were found in research databases ProQuest, CINAHL and Ovid Nursing journals by using key terms: Alzheimer’s, dementia, fall and exercise. Literature suggests that this population experiences faster and accelerated deterioration of balance compared to their healthy counterparts. Although inconclusive, exercise program intervention appears to slow down this deterioration, prolonging well-being.

JIAWANER DAI, RISIKAT OGUNYEMI
Faculty Advisor: Dr. Jan Kaminsky
“Comparison of Effects of Adherence vs. Non-adherence to Diabetes Diet Regimen on Glycemic Control”

Diabetes, a metabolic disorder, is the seventh leading cause of death in the United States. Good glycemic control aids in prevention of complications. Learning how to eat right is an important part of controlling diabetes. A number of advances in recent years have made improved blood sugar control easier to achieve. The purpose of this review of the literature was to compare the effects of adherence to diabetes diet regimens on glycemic control to that of non-adherence. An evidence-based approach was utilized to answer the following question: does adherence to the prescribed diabetes diet regimen improve glycemic control compared with non-adherence to the prescribed diabetes diet regimen? A review of literature was conducted through the use of ProQuest, PubMed, EBSCOhost, SAGE and web of science databases. In the studies, good glycemic control was defined as the HbAlc level < 7% according to the American Diabetes Association recommendations. Analysis of the literature indicated that adherence to the diabetes diet regimen was associated with good glycemic control.
control. However, more research should be done to explore the factors (education, locus of control, family support) associated with diabetes diet adherence and the methods about how to improve adherence to the diabetes diet regimen.

NGOZI STELLA EJIAKU-CHIMA
Faculty Advisor: Dr. Prisca Anuforo
“Preventing Cardiac Disease via Nutrition”

Cardiac disease remains the leading cause of death worldwide and a major cause of disability. Most of the burden of cardiac disease is believed to be preventable through healthy lifestyles including a salutary dietary pattern. In this context, the assessment of the diet-heart hypothesis has always been one of the most active research areas in nutritional epidemiology. Evaluating the impact of nutrition at the food group and dietary pattern level will provide greater insight into the role of nutrition in cardiac disease. For this purpose, a review of the literature was conducted using the PubMed, Web of Science and CINAHL Plus online databases like Cochrane collaboration systematic reviews. While fruits, vegetables and soy demonstrated a protective effect, variable findings were observed for fish, animal products and whole grains. Adherence to DASH, Mediterranean, and prudent dietary patterns reduced the risk of cardiac disease, whereas the Western dietary pattern was associated with increased cardiac risk. A low-fat diet was not found to have a protective effect.

LORRAINE LOZA, MARY L. POANDL
Faculty Advisor: Dr. Jan Kaminsky
“School-Based Interventions versus Home-Based Interventions for Weight Loss in Obese Elementary School-aged Children”

Elementary school-aged children diagnosed with obesity are part of an increasing national trend of obesity that leads to other possible comorbidities such as heart disease, hypertension and hypercholesteremia. The purpose of the project was to determine whether school-based interventions provide greater resources for weight reduction versus home-based interventions where families have constraints such as time and money. Eighteen articles were chosen for their reliability and relevance from the utilization of search engines including CINAHL, ProQuest (Health and Medicine, Nursing and Allied Health), EBSCO Host with Boolean search, PubMed with topic-specific queries and Google Scholar. The results of the review of literature showed that school-based interventions have a better chance of obtaining more community resources than home-based because of factors such as financial and time limitations. Overall, this review of the literature concluded that there is also a greater percentage of weight reduction in school-based interventions as compared to home-based interventions. Implications for future research include evidence-based, school-based, community-supported interventions designed to decrease childhood obesity.
NICHOLAS MWANGI, YIKONA SAM, CHIMEZIE PRISCAH

Faculty Advisor: Dr. Jan Kaminsky

“Effects of anticoagulants in preventing DVT compared with non-pharmacological measures in post-operative patients within one month post-surgery.”

Deep vein thrombosis (DVT) is a serious complication that can result in significant morbidity and mortality due to its clinically silent nature. Although DVT can be prevented through the use of available prophylaxis like anticoagulants or non-pharmacological measures, uncertainty with decision about the optimal choice of intervention arises. This is partly because of the risks involved and in addition the lack of concrete clinical evidence. This project was aimed at assessing the effects of using anticoagulants versus the use of non-pharmacological interventions on patient outcomes. Using a critical review of the literature, it compares general patient outcomes relative to risks, benefits, and the cost of either of the two or a combination of both within a month post-surgery. With a better understanding of the most effective intervention, nurses providing care to patients post-operatively can best advocate for their patient and ensure the best care available is administered. It compared available literature and studies to make the case for the provision of evidence-based practice. The project assists in understanding the current state of the literature on potential risk of contracting DVT, available interventions and their risks, and guidelines on the use of available prophylactic measures and the adoption of the best strategy based on clinical evidence.

JANE OHEN

Faculty Advisor: Dr. Jan Kaminsky

“Outcomes of Exercise on Prostate Cancer Patients”

Prostate cancer is reported to be the second leading cause of death among men annually. The primary treatments for prostate cancer include androgen deprivation therapy and the use of other medications. These medications have a wide range of side effects from sleep deprivation to bone density loss. The purpose of this project was to critically review the literature around the impact of frequent exercise as a nurse-led intervention for prostate cancer patients. A critical review of the literature was performed using PubMed and other search engines. This review of the literature theorized that frequent exercise therapy improves overall quality of life, reduces the mortality rates from prostate cancer, decreases bone mineral density loss, increases sleep efficacy, and decreases weakness and fatigue. The question was also raised about the additional potential of exercise to eradicate the growth and spread of prostate cancer cells. The recommendations for future study on this topic are to explore nurse-led interventions such as a prescribed exercise regimen as a treatment intervention for prostate cancer patients, and whether these interventions can also eradicate and diminish the growth of cancer cells if diagnosed and treated during the early stages. This would have a great impact on enhancing the standard nursing interventions and treatment regimens for prostate cancer patients, such as patient education about benefits of routine exercise therapy.
ALYNA PINEDA, NABEEHAH SALAAM  
Faculty Advisor: Dr. Prisca Anuforo  
“Pharmacological and Non-pharmacological Interventions: Pain in Pediatric Patients with Sickle Cell Disease”

Is the combination of pharmacological and non-pharmacological pain interventions effective in controlling pain in pediatric patients with sickle cell disease? Sickle cell disease is characterized by pain, and some patients attempt to manage their pain at home; but many patients require hospitalization to treat their pain. We looked at the long-term effects of undermanaged pain, the costs of reoccurring ER visits/hospital stays due to undermanaged pain, and the implications in regards to Medicaid reimbursement. The research suggests that many patients benefit from a combination of pharmacological and non-pharmacological therapies to treat their pain, and when pain is treated effectively hospital admissions decrease.

MYRNA PRINCE  
Faculty Advisor: Dr. Prisca Anuforo  
“Heparin versus Normal Saline Flush in Maintaining Patency of Intravenous (IV) Catheters”

This project was done in order to compare heparin and normal saline flush in the peripheral intravascular catheter. Maintaining the patency of the peripheral intravenous catheter in the adult and pediatric populations is an important nursing responsibility and should be conducted according to the best available scientific evidence. A critical appraisal of the literature was conducted to identify the best evidence in maintaining IV catheter patency. The results concluded that a peripheral catheter flushed with heparin has no significant effect on catheter patency when compared with peripheral catheter flush using normal saline solution. As a result, a proposal was made to revise the catheter maintenance policy and now recommend flushing a peripheral intravenous catheter with normal saline.

RAFIATOU RAIMI, PETALYN ROLLINS  
Faculty Advisor: Dr. Jan Kaminsky  
“Appropriate Time for Mammogram Screening”

In a critical review of the literature, we asked “Is a yearly mammogram more effective in detecting breast cancer compared with a mammogram every three years in women under age 50?”

LINDA RAMOS, BLESSING OKARTER  
Faculty Advisor: Dr. Jan Kaminsky  
“Does Patient Positioning Affect Rates of Nosocomial Pneumonia?”

Nosocomial pneumonia, or hospital-acquired pneumonia (HAP), is a prevalent hospital-acquired bacterial infection. It is common in intensive care units and medical surgical units. Nosocomial pneumonia raises the cost of hospital care and length of hospital stays. The aim of this project was to determine if patient position can decrease the incidence of developing nosocomial pneumonia. It is the responsibility of the primary nurse to position the head of bed (HOB) accordingly. Does positioning the patient in a semi-fowlers position result in a
lower incidence of nosocomial pneumonia when compared to the supine position? In studies, lower respiratory tract cultures and chest radiography were used to clinically diagnosis nosocomial pneumonia. The review of the literature concluded that HOB elevation resulted in a lower incidence of nosocomial pneumonia and correct screening and diagnosis of HAP. HOB elevation is a preventative approach to effectively reducing HAP. Future research should explore factors relating to nurse adherence to HOB elevation policies.

MAYRA SANCHEZ, CHRISTOPHER SPEAKMAN
Faculty Advisor: Dr. Jan Kaminsky
“Does Hourly Rounding Reduce the Risk of Falls in a Hospital Setting?”

Our project explored the question of whether hourly nurse rounding is more effective than basic care in a hospital setting for the prevention of falls. Falls cost American hospitals millions of dollars each year in lawsuits and complications, and cause many additional preventable injuries in patients; preventing them is a matter of grave importance to the medical community. By critically examining the literature, we attempted to gain an understanding of how best to monitor and minimize the risk of falls in the clinical setting. Based on our research, we conclude that hourly rounding has a significant impact on the incidence of falls. Hourly rounding, according to studies, is far more effective in preventing falls than basic care. Future research will include ways to improve nurse adherence to hourly rounding and the impact of prevention of falls on patient outcomes.

GURJITA SIMONAUSKAS, TERESA MCPHATTER
Faculty Advisor: Dr. Jan Kaminsky
“Safe staffing levels: The impact of nurse-to-patient ratios in acute-care facilities on nurse retention and optimum patient safety outcomes”

There has been a shortage of younger people pursuing the nursing profession, with the majority of actively licensed nurses aged 40 and older. A systemic review of the literature of nurses leaving one acute-care facility for another or leaving the profession altogether reveal, among other things, a sensed disregard for their short-staffing plight. There is also empirical evidence that associations exist between measures of nurse staffing and indicators of quality nursing care and patient outcomes. Unsafe nurse-patient ratios undermine morale, patient safety, recruitment/retention of staff and a host of other outcomes. A review of the literature conducted using PubMed, Cochrane, NIH, CDC, ProQuest (Vale), EBM and CINAHL databases produced 10 relevant scholarly articles and systemic studies, all with either level I, II or III evidence. The goal of this literature review was to investigate the impact of short staffing on retention rates of nurses and patient safety outcomes in acute-care settings. The CMS (Centers for Medicare and Medicaid Services) has issued regulations that update the payment policies and rates under the hospital inpatient prospective payment system (IPPS). There is a determined push to transform the Medicare program into a prudent purchaser of health-care services, paying not just for quantity of services but also for quality. A systematic review of the literature indicated that the implications for evidence-based revamping of hospital nurse-to-patient ratios (considering skill mix and patient acuity) will have far-reaching effects on health-care economics, facilitating increased job satisfaction, better patient outcomes and increased interest/enrollment in nursing.
CYNTHIA THOMAS, MARK RAVINSKY, CHRISSY PAPETTI, ALEX ESENA, KRISTEN DENAPLES
Faculty Advisor: Dr. Claire Mulry
“Uncovering Perceptions of Older Adults Following a Community Mobility Program”
This study explored the lived experiences and perspectives of older adults following a community mobility program, Let’s Go. Older adults’ perceptions of their own health are widely considered to be more indicative of treatment efficacy and therefore may provide insight to the effectiveness of community mobility programs on an older adult’s ability to successfully age in place. A phenomenological approach was used to obtain the older adults’ perspectives following Let’s Go through semi-structured one-on-one interviews. Each participant expressed the importance of community mobility as an integral component of their lives. Additional themes of older adults’ lives and suggestions of future research needs are explored.

LAUREN TELSON, BELINDA JACQUES
Faculty Advisor: Dr. Jan Kaminsky
“Comparison of Oral Contraceptives and Depo-Provera”
Birth control is essential in preventing pregnancy, but adherence to the regimen is important for success. The purpose of this study was to discuss the side effects of birth control in women of childbearing age related to compliance of birth control methods within a one-year period. The research question that was used was: In women of childbearing age, do the side effects of taking oral contraceptives impact adherence to medication regimen, as compared to the side effects of the Depo-Provera shot, within a one-year period? A review of the literature showed a correlation between patient adherence to birth control and side effects. If patients experienced side effects, they were more likely to discontinue oral contraceptives and Depo-Provera injections. Future research should include nursing interventions to increase adherence to the patients’ selected form of contraception.

MONIQUE WHALEN
Faculty Advisor: Dr. Prisca Anuforno
“For the Psychiatric Patient, Does Having a Psychiatric RN in ED Decrease Length of Stay?”
The purpose of this project is to explore if having a psychiatric RN in the ED decreases the length of stay in the ED. The number of psychiatric patients in the ED is increasing, causing greater demands on ED staff and increased costs for hospitals. Literature reviews support these findings, although there is more need to study this area. It is found that psychiatric patients’ overall time in the ED was decreased with the presence of a psychiatric RN working in collaboration with ED staff. This improved patient flow, patient and staff satisfaction, and costs. A psychiatric RN spent two shifts a week in the ED working with ED staff to treat the psychiatric clientele. The time the psychiatric patient spent in the ED was documented. This was compared to the length of stay for the psychiatric patient treated in the ED without a psychiatric RN.

Occupational Therapy
CYNTHIA THOMAS, MARK RAVINSKY, CHRISSY PAPETTI, ALEX ESENA, KRISTEN DENAPLES
Faculty Advisor: Dr. Claire Mulry
“Uncovering Perceptions of Older Adults Following a Community Mobility Program”
This study explored the lived experiences and perspectives of older adults following a community mobility program, Let’s Go. Older adults’ perceptions of their own health are widely considered to be more indicative of treatment efficacy and therefore may provide insight to the effectiveness of community mobility programs on an older adult’s ability to successfully age in place. A phenomenological approach was used to obtain the older adults’ perspectives following Let’s Go through semi-structured one-on-one interviews. Each participant expressed the importance of community mobility as an integral component of their lives. Additional themes of older adults’ lives and suggestions of future research needs are explored.
MELANIE ANDERSON, MEGHAN JIRKOFSKY, ANH TRAN, JOE ORDNER, GERARD BELDA
Faculty Advisor: Dr. Mariann Moran
“The Reliability and Validity of Measuring Active Elbow Range of Motion Using the Dr. Goniometer Smartphone Application Versus a Standard Goniometer”

This quantitative correlational study assesses the relationship between a standard goniometer and smartphone application, Dr. Goniometer, when measuring active range of motion of elbow joints on a convenience sample of students and staff members of Kean University. This study seeks to determine if Dr. Goniometer yields intra- and inter-rater reliability, as well as concurrent validity for range of motion at the elbow joint in comparison to a standard goniometer. Range of motion is needed for functional activities; therefore, research to support best practices benefits clients. Determining the reliability and validity of Dr. Goniometer assists clinicians in evaluating whether Dr. Goniometer is an efficient and effective assessment tool for evidence-based practice. Limitations and results have yet to be concluded as research is still in progress.

JESSICA BOMM, AMANDA MUCCI, JOSH REYES, STEPHANIE PITTA, HADEER KHERATA
Faculty Advisor: Dr. Mariann Moran
“Understanding Best Practices for Prescribing Orthoses for CMC OA: A Survey Study”

Osteoarthritis (OA) is the most common chronic joint condition, affecting approximately 27 million individuals in the U.S. Carpometacarpal (CMC) OA, located at the base of the thumb, is the second most common type. Twenty to thirty percent of the population, the majority being women, experiences this condition. Research indicates orthosis use is beneficial in treating CMC OA; however, specific orthosis type, dosage and progression of orthotic use is inconsistent among practitioners. This research wants to explore orthosis use for this client population as prescribed by experienced specialized clinicians. Using a survey developed by the researchers, it focuses on compiling commonalities between practitioners in regards to clinical reasoning made when prescribing an orthosis for CMC OA. Through the American Society for Hand Therapy (ASHT), the survey was distributed and data was collected from 150 practitioners with varying credentials to provide a better understanding in orthosis use and dosage. Once all data is collected and analyzed, we hope to uncover best practices in treating this condition with orthoses.

DAMARIS DOMINGUEZ, KELLIE FURNALD, EMILY THOMAS, HILLARY BRAM
Faculty Advisor: Dr. Mariann Moran
“The Functional Medication Assessment: A Normative Study”

This study collects normative data from middle to older adults for the Functional Medication Assessment (FMA), developed by the Department of Occupational Therapy at University Hospital. The FMA combines the Mini-Cog assessment, a public domain screening tool used to assess mental status, with a functional pillbox screen. The FMA seeks to evaluate medication management of patients. The normative data collected in this study will be used to improve administration and scoring and begin validity and reliability testing for the assessment. This information will also provide data to selectively modify the assessment as needed for
best use in practice. Ideally, this data will be used to assist in patient education and training to prevent re-hospitalization resulting from medication mismanagement. Data will be collected from approximately 50 older adults residing in the Union County and Somerset County areas. This study is currently in progress, and results will be reported upon completion.

DEVON GRIER, ALEXANDRA KENT, CASANDRA LAMBERT, MELISSA WEISS
Faculty Advisor: Dr. Mary Falzarano
“Sensory-Processing Patterns, Learning Styles and Study Habits of Undergraduate College Students”

This research study is seeking to explore the relationship between learning styles, sensory-processing patterns, and study habits among undergraduate college students. The profession of occupational therapy has long had an interest in the area of sensory processing. Occupational therapists believe that individuals constantly experience and respond to sensory stimuli in their environment. College students have their own preferences related to learning styles and study habits; through this research study, the researchers seek to find a link between the variables of interest. Currently, this quantitative, non-experimental, exploratory research study is in its recruitment stage. We are seeking to recruit 30 participants who will be completing three outcome measures: the VARK to identify learning styles, The Adolescent/Adult Sensory Profile to identify sensory processing patterns, and a demographic self-report questionnaire created by the researchers to identify study habits. Descriptive statistical analysis will be utilized to explore the relationship among the outcome measures. The findings from this research study may inform occupational therapists, educators and students about the association between the three variables to understand the habits and routines that may contribute to the success of a college student’s acquisition of knowledge.

AMANDA HARRIS, LINDSAY MORAN, STEPHANIE ALICEA, DANNA LYONS
Faculty Advisor: Dr. Mary Falzarano
“Comparison of Parent Perceptions of Their Young Children with Intellectual Disabilities’ Participation in Young Athletes™ Activities within the Home”

The purpose of this study is to compare two groups of parents of children with intellectual disabilities (ID), enrolled in the Young Athletes™ program, established by Special Olympics International, to discover any differences in perceptions of their own ability to provide sports and play activities at home and also their children’s participation in the Young Athletes™ program. One group of families will be provided with an education module by occupational therapy student researchers, and a control group, which will not receive the education module. Occupational therapists are skilled in educating families how to infuse and adapt activities into daily routines. Therefore, occupational therapists are posed to provide education to assist parents and caregivers to more intimately incorporate play and sports skills into the therapeutic learning process; thus, this may be a critical piece to helping families and children with ID to more easily acquire productive play and activities of daily-living skills at home and across contexts. This research is currently in progress and is a pre-posttest quasi-experimental design. The pre-survey will gain an understanding of parents’ perceptions of using the Young Athletes™ activities in their home and their children’s abilities with the skills; a four-week checklist to track the number of times the parents use the Young Athletes™
activities at home will be provided. To compare if there was a difference, both groups will be contacted after four weeks for a post-survey. The findings will inform parents of children with ID, teachers who use Young Athletes™ in special education classrooms, recreation program staff and occupational therapists about use of Young Athletes™ materials and if the additional occupational therapy education module resulted in a change in the parents’ comfort with facilitating play and sports into their home routines.

MEGAN LEE-FITTIZZI, JAMIE CHRISTENSEN, JULIE DEBELLA, TALIA PRUZANSKY, RENEE CAMPOLONGO
Faculty Advisor: Dr. Mary Falzarano
“A retrospective comparison between CEW in class in combination with CEW home-based handwriting program for typically developing preschool children”
Connect Experience Write (CEW) is a developmentally based handwriting program that integrates a multisensory approach including music, body movement and visual imagery to facilitate handwriting skills. Occupational therapists collaborate with teachers, parents and children to address difficulties with handwriting so children may successfully fulfill their roles as students. The purpose of this in-progress retrospective study is to (1) examine the efficacy of CEW-Classic for 10 typically developing preschool children, (2) examine the difference between groups receiving CEW-Classic only and CEW-Classic in combination with CEW-Online and (3) examine the impact of the extra practice of the CEW-Online handwriting program. Graduate occupational therapy student researchers are retrospectively analyzing the de-identified pre- and post-test assessment data of the CEW program including the initial pre- and post-letter formations, the pre- and post-Beery VMI scores, and the students’ handwritten alphabet prior and post-delivery of the 10-week CEW program. Based upon preliminary descriptive statistical analysis from the Beery VMI, there has been an overall improvement in scores in all three sections: visual motor integration, visual perception, and, most significantly, in the motor component. In addition, preliminary analysis of pre- and post-alphabet forms demonstrates a general increase in legibility. Findings from this study can inform the parent, the occupational therapist and the teacher about strengthening pre-handwriting and handwriting skills that are fundamental to the academic success of a child and involves an interdisciplinary approach.

ALANA PANTALE, KATHERYNE WALL, JULIAN DE MARTINIS, YOCHEVED HOFFMAN
Faculty Advisor: Dr. Laurie Knis Matthews
“Experiences of Females with ASD As They Prepare to Transition from High School”
In the coming decade, 50,000 young adults with autism will graduate from high school every year, which equates to a half million students over the course of the next 10 years. For all youth, including those with and without disabilities, the period of transition from high school is an important time that requires making decisions regarding future plans in order to achieve their personal goals. For youth with ASD, there is little research that presents their experiences as they prepare for this important transition, and there is even less research that specifically focuses on the experiences of females during this time period of transition. Therefore, this research study seeks to answer the question: what are the experiences of female young adults with ASD as they prepare to transition from high school? This qualitative study utilizes
A 20-year-old female suffered a shoulder impingement of the right shoulder due to a congenital grade II/III hooked acromion. A person with a grade II/III hooked acromion is more susceptible to shoulder impingement. This is also an unlikely condition for such a young individual to have. What is interesting is the delayed onset of pain she was experiencing is not common for most people with a grade II/III hooked acromion. The athlete had been playing softball since high school, and had been hitting for years; it was only during her junior year of college that she started to feel pain. A certified Athletic Trainer should realize how important it is to pay attention to what the athlete tells you. This can reveal why there was such a delayed onset to the injury. If the Athletic Trainer thought the injury was a biceps tendinitis, they should have known the differential diagnosis so all other possibilities could have been ruled out. And if the athlete was not progressing, they could have been sent out for an MRI/X-ray sooner.

A 20-year-old male baseball player suffered a partial tear in the labrum of his left hip. The athlete was first assessed with a possible strain and tendinitis, in or around his left hip labrum. Further investigation revealed a cam and pincer impingement that caused a labral tear in his left hip due to the size of his acetabular. During surgery it was discovered that the athlete also had a large chondral flap tear, a loose body os acetabuli and a grade 4 chondral lesion. Femoroacetabular impingement can be caused by either a cam or pincer impingement, or both can be present at the same time. These impingements lead to constant acetabular, chondral and labral injury. In his case, the shape of his acetabular not only caused a labral tear but also a femoroacetabular impingement.
DEANNA PANICO, KEIR LIVINGSTON
Faculty Advisor: Professor Gwen Cleaves
“Os Trigonum Syndrome and Excision in a Collegiate Football Player”

A 19-year-old male football player reported posterior ankle pain when pushing off and “kick stepping” after football practice. Initial treatment for Achilles tendinitis, consisting of rest, ice, prone calf stretch, calf foam rolling, friction massage and electrical stimulation, decreased inflammation and alleviated some pain. But the patient still complained of pain specifically during “kick stepping” motion. The fluoroscope showed accessory bones on posterior aspect of both right and left tali, indicating bilateral ostrigonum. The patient participated as tolerated and limited repetitive footwork during practice. He was taped with arch tear-drop taping and dorsiflexion strapping to reduce end-range plantarflexion during activity. After the season, the patient was referred to a podiatrist, and an MRI revealed an ostrigonum bilaterally of the synchondrosis between accessory ossicle and talus. Surgery was performed to remove accessory bone. After pain-free aggressive rehabilitation, the subject was cleared for participation around five weeks post-op. Os trigonum is rare, occurring in 7% of the population. Athletes are at a higher risk of injuring this structure due to forced plantar flexion, dorsiflexion and repetitive microtrauma. Both conservative and surgical treatment can be effective in treating os trigonum syndrome. Os trigonum syndrome symptoms often are ignored in clinical findings that result in posterior ankle pain and are often undiagnosed. Corticosteroid injection is often administered as initial treatment, while excision is “last resort.”

JANE SWEENEY
Faculty Advisor: Professor Keir Livingston
“Biceps Femoris Rupture & Acute Compartment Syndrome in a Male Athlete”

A 21-year-old male football player suffered a biceps femoris rupture and acute compartment syndrome to his right thigh while playing recreational basketball. A biceps femoris rupture leading to compartment syndrome is extremely rare, with only one documented case found in the literature. Additionally, biceps femoris ruptures more commonly occur as an avulsion at the ischial tuberosity, and compartment syndrome in the thigh is more commonly seen in the anterior compartment from direct trauma. The compartment syndrome in this individual likely resulted from excessive bleeding following the biceps femoris rupture. However, an extensive work-up by vascular surgery did not reveal a source or reason for the amount of bleeding that occurred. Now, approximately 18 months out from the injury, the athlete has successfully returned to full activity without complications.
MARQUITA CARTER, NEHA MISTR, EZRA COWAN
Faculty Advisor: Dr. Jennifer Block-Lerner

“Religious Affiliation as a Predictor of Receptivity to Mindfulness Practices”

Almost all religions of the world incorporate within their rituals some form of meditation (Levinson and Aldwin, 2013). Thus, a person with a religious affiliation is more likely to be exposed to meditation within his or her ritual activity. Mindfulness has been described as a process of nonjudgmental present-moment awareness (Kabat-Zinn, 1994), and meditation practices are often employed to foster this process. Since a religious affiliate is more likely to be exposed to one form of meditation as part of his or her religious rituals, openness to mindfulness meditative practices may be more likely. Other possible linkages between at least some religious traditions and mindfulness and acceptance-based practices are the focus on values-based or purpose-driven living and acceptance of what is as a precursor to growth. Based on these shared characteristics, the focus of this study is to investigate whether or not religious affiliation is a predictor of receptivity to mindfulness practices. One hundred and eighty-seven participants (n = 187) from undergraduate Psychology courses (mean age = 22.4) participated in a mindfulness- and acceptance-based workshop. The workshop consisted of mindfulness practices, discussion of values, and psychoeducation about stress and psychological flexibility. As part of a larger study, prior to and after the workshop, the participants completed a battery of questionnaires; the post-workshop packet largely assessed receptivity to mindfulness practices. A multiple regression analysis will be conducted to quantify the relationship between the status of participants’ religious identification and receptivity to mindfulness practices. Findings from this study should contribute to the limited literature on religious background/affiliation and receptivity to mindfulness practices. Such research has implications for understanding of religious affiliation and the development and marketing of broad-scale and more targeted mindfulness- and acceptance-based interventions.

ARIANA DICHARIA, LARISSA REDZINAK, JED SELTZER
Faculty Advisor: Dr. Jennifer Block-Lerner

“Responsiveness to a mindfulness- and acceptance-based workshop within the college curriculum: perceived value of workshop components and their association with state mindfulness”

Several studies have reported high ratings of the overall experience of mindfulness- and acceptance-based intervention “packages,” such as Mindfulness-Based Stress Reduction (Miller et al, 1995; Astin, 1997; Kabat-Zinn et al, 1987), but it may be helpful for tailoring future interventions to examine the components that participants find comparatively useful. The current study utilizes a mixed-methods design to assess the association between perceived “most helpful” and “least helpful” elements of an intervention and the fostering of an individual’s “mindful state,” or one in which the individual is present-moment focused and open to whatever arises. Participants are 178 students (mean age, 22.2; 68% female; 39% Caucasian, 28.3% Hispanic, 27.8% African American) at a large northeastern university who participated in a brief (i.e., approximately 75-minute) curriculum-based workshop that included components of mindfulness meditative tasks, values exploration and an introduction to experiential
acceptance. As part of a larger battery of self-reported measures, participants were given a feedback form that asked about the elements of the workshop that they found most and least helpful, as well as the Toronto Mindfulness Scale (Lau et al., 2006), a well-validated measure of state mindfulness. Analysis of variance and multiple regression techniques will be used to compare mean mindfulness scores among those listing different aspects of the intervention as most, or least, helpful. An integration of both quantitative and qualitative assessment in relation to a mindfulness-based intervention within a large, non-clinical sample may yield important and generalizable information about receptivity and responses to mindfulness practices.

SHILOH EASTIN, EMILY KOKKINAKIS, BRIANA CALGANO
Faculty Advisor: Dr. Jennifer Block-Lerner

“Adjusting to reality: associations between sexual victimization history, resiliency, psychological flexibility and sexual health”

Sexual health is an important and influential part of adult life. Moreover, sexual health has the potential to impact other areas of functioning. The experience of a sexual assault has been previously demonstrated to negatively affect sexual health in ways that could potentially impact daily life (e.g., increased engagement in risky sexual behaviors and lower sexual functioning, Turchik & Hassija, 2014). This is a particular concern for college females; 20 to 25 percent of college females will experience a sexual assault during their careers as undergraduate students (Fisher, Cullen, and Turner, 2000). As a young woman in college is at an increased risk for sexual assault, even over the average American woman, the effects of a sexual assault experienced before or during college have the potential for far-reaching consequences. Psychological flexibility is the ability to fully contact the present moment and either change or persist in behaviors when doing so serves valued ends (Bond et al, 2011). Resiliency is a dynamic, adaptive process in which an individual attains positive growth in the face of significant adversity. While resiliency is a construct that has been previously looked at in relation to sexual victimization, psychological flexibility, which may have clearer treatment implications, has not. Female students at a large southeastern university completed a series of questionnaires that assessed the participants’ reported levels of sexual health, sexual history, psychological flexibility and resiliency. Preliminary analyses suggest sexual history and psychological flexibility may be important predictors of sexual health. Correlations between all variables will be presented and implications of findings discussed.

GREGORY MARGHERITA
Faculty Advisor: Dr. David Brandwein

“Creating Local Norms for the Child Abuse Potential Inventory (CAPI) in the Scope of Child Custody Evaluations”

This current study is designed to explore the feasibility of creating a set of local norms for the Child Abuse Potential Inventory (CAPI) in the scope of “high stakes” child custody evaluations within the specific location of New Jersey. Local norms of a specific population can often produce better insight than if compared to the general population (Anastasi 1982). The child custody evaluation often includes a battery of tests and an in-depth interview. In the setting of these “high stakes” evaluations, where the evaluator is in the position to recommend taking the child out of the home or letting the child stay, having a set of local norms for this specific population would provide a better snapshot and allow the evaluator to make an
accurate recommendation. This study aims at examining the response styles among subjects who were referred for a child custody evaluation and comparing them to the national sample currently used.

JILLIAN PLESCIA  
Faculty Advisor: Dr. David Brandwein  
“The MCMI-III in a Forensic Setting: The Need for Local Norm Groups in Parental Fitness Evaluations”

The Millon Clinical Multiaxial Inventory-III (MCMI-III) is an assessment used primarily in a clinical population to detect personality disorders. However, it has been widely used in a forensic population given that it can identify personality patterns that may provide insight in legal decision-making. Questions have been raised over whether the MCMI-III should be used in this population since it was standardized on a clinical sample and may not translate well. Past research has identified common elevations on the MCMI-III among parental fitness litigants. The current study aims to solidify these elevations in order to develop a local norm group that will aid in a more clear interpretation of scores. This will allow for more informed legal decisions to be made in parental fitness cases.

AMANDA RHODES  
Faculty Advisor: Dr. Donald Marks  
“The Manifestation of Physical and Psychological Aggression in Intimate Partner Violence”

Intimate partner violence (IPV) is gaining prevalence within the United States and has enormous monetary and health consequences for those directly and indirectly involved. Previous research suggests that witnessing family violence or being a victim of abuse in childhood is linked to later IPV. However, the developmental trajectory for the development and maintenance of IPV has not yet been firmly established. Consequently, interventions for perpetrators of IPV have high recidivism rates regardless of the model used. Because there has been little empirical evidence to support established models for IPV, the present study aims at examining potential mediating factors between childhood maltreatment and IPV including temperament, maladaptive cognitive schemas, self-esteem, experience of anger, psychological inflexibility and sexist attitudes. Additionally, results may suggest that sexist attitudes most significantly contribute to the mediation block and that emotion dysregulation moderates this mediation between childhood maltreatment and IPV. College students (n = 148) completed a cross-sectional survey with nine validated measures of the psychological constructs described above in fall 2015. Implications of findings are discussed in terms of future interventions for perpetrators of IPV.

TAYLOR SCHNAPER, JACKAIRA ESPINAL, BRENDA OSORIO, MICHELE SEREVETAS, ASHLEY WOOD  
Faculty Advisor: Dr. Aaron Gubi  
“Mindfulness-Based Relapse Prevention in Recovery Schools: A Pilot Study”

Substance use disorders continue to be highly prevalent among adolescents, with numerous adverse effects. Research has found that, despite treatment, relapse rates remain high for
D’KOTA BARRIOS
Faculty Advisor: Dr. Verneda P. Hamm Baugh
“The Effects of Texting on Comprehension among College Students”

The use of technology has greatly increased and become a necessity in everyday life. One specific entity of technology that has particularly become more prevalent is text messaging. Texting is one of the most common modes of communication used today among adolescents and young adults. Of concern is the issue of texting in a classroom setting and how the distraction affects students’ comprehension. Some studies report that texting during lecture results in a decrease in comprehension, while other studies state that texting in the classroom does not have a significant effect on comprehension in the classroom. The present study was designed to examine whether or not students can comprehend what is taught in a lecture while being distracted by text messages. It was hypothesized that the students who texted during lecture will comprehend less than those who did not.

JANNETTE BELEN
Faculty Advisor: Dr. Rozanne Marel
“Post-Traumatic Stress Disorder within Veterans and Their Need for Support”

The purpose of this study was to investigate depression as a measure for post-traumatic stress disorder (PTSD) within veterans, its effects and the need for support. The study was conducted at Kean University with a sample of 30 veteran students. The participants completed two surveys: the Depression Measure and The Multidimensional Scale of Perceived Social Support. It was hypothesized that veterans who score high on the Multidimensional Scale of Perceived Social Support would score lower on the depression scale. A regression was calculated and supported the hypothesis that veterans who have more social support have lower depression levels. These findings may help military families in the process of assisting the veteran transitioning back into civilian life.
ALYSSA BIVENS
Faculty Advisor: Professor Alexa Angster
“Bullying Effects on Academic Performance”

Bullying can effect students in obvious emotional ways, but the direct effect of bullying on academic performance is yet to be confirmed definitively. It is important to understand the complex nature of effects of bullying so that preventative measures and support systems can be established to help students affected by bullying. This study investigates the effects of bullying on academic performance by introducing two groups of students to either a positively worded message or a negatively worded message and then evaluating their performance on a standardized math aptitude exam. It is predicted that students exposed to the negatively worded paragraph will feel discouraged and thus perform poorly on the examination when compared to their peers from the opposing treatment condition.

OMARA CARDOZA
Faculty Advisor: Dr. Rozanne Marel
“Effects of Pornography on Adolescent Sexual Risk-Taking Behavior”

This study examines the correlation of pornography and sexual risk-taking behavior in adolescents; in particular, it investigates whether frequently watching pornography is positively correlated to adolescent sexual risk-taking behavior. Correspondingly, if adolescents are sexually active, the degree to which watching frequent pornography is linked to the use of contraceptives is also examined. Pornography is defined as online pornography such as videos in porn sites and pictures in porn sites. Adolescent sexual risk-taking behavior is defined as sex without condoms, sex without birth control or sex with multiple partners in a short period of time (e.g., one year). My sample size was 100 Kean University undergraduate students who voluntarily participated in this study. There was a significant correlation between the age of first sexual encounter and the number of partners the participants had as adolescents. In particular, the older the age of the first sexual encounter, the more likely the participants had fewer sexual partners in their adolescent years. The age of first pornography encounter was significantly correlated to the number of sexual partners participants had as adolescents. In particular, the younger the participants encountered their first view of pornography, the more likely they were to have multiple sexual intercourse partners. The correlation between the number of times pornography was viewed per week by the participants as adolescents was significant to initiation of first time watching pornography. In particular, the older the age of first pornography encounter, the less pornography was viewed. The hypothesis that viewing pornography would be related to use of contraceptives was not confirmed. The correlation between viewing pornography and the number of sexual partners was also not confirmed.

KAITLYN COOK
Faculty Advisor: Dr. Verneda P. Hamm Baugh
“Effect of Plate Color on Food Desirability”

The appearance of food and the setting in which it is served has long been a factor in determining a food’s palatability. Some variables that have been shown to influence a food’s appearance include taste, smell, appearance and color. It has also been determined that variables other than food appearance and taste influence the perceived desirability of a food.
Various studies suggest that background color, lighting, food orientation, table setting and dining location may influence a food’s appeal. The present study was designed to measure the effect of plate color on food desirability. Three different meals were presented to participants on three different colored plates. It was hypothesized that the red and green plated groups will rate the dishes as more desirable and more aesthetically pleasing. It was also hypothesized that the red and green plated groups will be willing to pay more if they were to purchase the meals at a restaurant.

MICHELLE FITZULA
Faculty Advisor: Dr. Verneda P. Hamm Baugh
“Empathy and Charitable Donation”

The field of social psychology conducts extensive research on the factors that underlie charitable giving. There are many variables that impact the willingness to donate money to charity. It may be influenced by external factors such as reward or recognition, or by intrinsic motivations like moral values or altruism. The way the charity portrays itself, the perception of the cause and the empathy generated toward the recipient all play roles as well. The present study was designed to measure the relationship between feelings of empathy and the willingness to donate money to charity. Specifically, this study tested the pets over people hypothesis, that humans care more about animals than each other, with regard to donating money. It was hypothesized that a dog victim needing a lifesaving operation would generate more empathy than a human victim needing the same operation, and thus more money would be donated to help save the dog.

YOYCE GERONIMO
Faculty Advisor: Dr. Verneda P. Hamm Baugh
“Foreign Language, Emotions and Moral Judgments”

As the immigrant population in the United States increases, it is important to understand how language learning influences behavior and perceptions. In 2013, 68 percent of the foreign-born, Hispanic population in the United States reported to have a high English proficiency (Gomez, 2015). However, their ability to speak and understand their second language is not the only factor that influences their perceptions, behaviors, emotions and moral decisions. The processing and interpretation of the language is also a factor. Indeed, researchers have found that people make different decisions about the same problem depending on whether it is presented in their native language or their second language. Many studies on moral judgment have found that emotions, reasoning and biological structure had an important role in these types of decisions (Haidt, 2013). The present study was designed to examine the relationship between foreign language, emotions and moral judgments. College students were asked to make decisions about moral and non-moral dilemmas and report their emotions in regard to those decisions. It was hypothesized that people tend to make more utilitarian choices as a result of the emotional attenuation that is elicited by making moral judgments in a foreign language.
NAFISAH HARLEY
Faculty Advisor: Dr. Verneda P. Hamm Baugh
“News Media’s Influence on Perceptions of Police and the Black Community”

Many people believe that police brutality has been on the rise the past few years, especially in the killings of unarmed black people. Because of the injustice that many felt was being placed over the black community, the Black Lives Matter movement was started. However, many also felt that this movement was unnecessary and was the root cause of killings of police officers. According to a poll, 58 percent of Americans believe there is a war on cops. However, statistics show that this year has seen the lowest number of killings of police in the past 25 years. Many news outlets, however, portray that there is a “war on cops” and that the Black Lives Matter movement is responsible. One possible explanation for this perception is the media’s portrayal of the Black Lives Matter movement and members of the black community as a whole. The present study was designed to study the influence of news media’s portrayal of stereotypes on viewers’ overall perceptions. Participants were shown one of two videos, one stressing the view that there is a war on police officers and the other that there is a war on members of the black community. A hypothesis was made that those who watched the news video that portrayed a war on cops will be influenced to believe that this was true and those who were shown the video depicting a war on members of the black community will believe that to be true. A second hypothesis was made that race would be a significant factor in shaping the participants’ perceptions.

KYLE JACHIM
Faculty Advisor: Dr. Verneda P. Hamm Baugh
“The Effect of Delay Interval on False Recognition”

Our memory system is similar to a filing cabinet as we tend to group related items together into one category to help retrieve items easier. For example, when we think of the words apple and orange, we automatically relate them to fruit. However, the fallibility of the memory system can be problematic. Recovered memories are often a modified version of the original memory. A common way of measuring these modifications is through a recognition task. The present study was designed to determine whether individuals would have a strong false recognition effect under two different conditions. Following a presentation of lists of sentences, one half of participants will be tested immediately, while the other half of subjects will be tested after a short delay. It was hypothesized that the participants who were tested immediately will produce a diminished false recognition effect, while participants who were tested after a short delay will produce a stronger false recognition effect.

OLIVIA MALTEMPI
Faculty Advisor: Dr. Verneda P. Hamm Baugh
“Influence of Name on Job Applicant Success”

There are many factors that contribute to job applicant success. It is often believed that the strongest variables in job applicant outcomes are style of dress and physical appearance such as height, weight, gender and race. However, recent research shows that a major contributing factor to job applicant success is the ethnicity of the applicant’s name. The present study was designed to investigate the unconscious bias adults have in relation to a job applicant’s
qualifications. Participants were given a résumé and application of a job candidate. Half received an application with a Western-European name and the other half received an application with a Middle-Eastern name. The résumés were identical except for the applicants’ names. It was hypothesized that ethnicity of the name will contribute to whether a candidate will be offered a position, and the résumé with the Middle-Eastern name will be rated as less favorable.

SANDRA MARQUEZ  
Faculty Advisor: Dr. Shai Tabib  
“Sex Differences on the WISC-IV”

Are men more likely to be geniuses? According to the male variability hypothesis, they may be. The male variability hypothesis posits that males will consistently prove to be more variable than females in both psychological and physical characteristics. For decades this theory has been a topic debated in the literature pertaining to gender differences in cognition. Previous research indicates that males have greater variance of cognitive abilities (e.g., Hedges & Nowell, 1995; Arden & Plomin, 2006). The aim of this study was to explore the male variability hypothesis in a representative sample of children and adolescents (n = 2,200) using the standardization data of the Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV). It was hypothesized that males would have significantly greater variance in general intelligence. A chi-square analysis was used to analyze the data. Contrary to previous reports, this study found males and females to be equally represented in the extreme scores.

KASSANDRA MARTINEZ  
Faculty Advisors: Dr. Richard Conti and Dr. Jane O’Brien  
“Psychopathic Traits and Academic Success”

This study examines the correlation between academic success and psychopathic traits in college students. Participants were administered the Levenson Self-Report Psychopathy Scale (Levenson, Kiehl, & Fitzpatrick, 1995), which measures the participant’s lack of empathy toward others, tolerance for antisocial orientations and a lack of effort toward socially rewarded behavior. In addition, participants completed a demographic questionnaire that included current GPA. Male gender was related to higher rates of self-reported psychopathy but not academic achievement. Female participants had lower levels of self-reported psychopathy that was unrelated to academic achievement. Implications for further research are discussed.

DARIS MENDEZ  
Faculty Advisor: Dr. Verneda P. Hamm Baugh  
“Celebrities, Social Media Interaction and Likeability”

Celebrities are public figures who are constantly scrutinized and judged by both fans and the general public. Research shows that there are many variables that contribute to how likeable and approachable an individual is. In an era when fans have the possibility of direct interaction with celebrities, through social engagements and social media, the factors that influence likeability can be applied to the way celebrities interact with their fans. The present study was designed to evaluate if celebrities’ social media interaction with fans increases their likeability. It was hypothesized that there is a relationship between the use of social media and the overall likeability of a celebrity as suggested by previous research.
MARYLIN OREJUELA
Faculty Advisor: Dr. Richard Conti
“The Effects of Handedness and Gender on the Results of the Stroop Test”

The present study examined the effects of handedness and gender on Stroop performance. Participants completed a measure of handedness (measured as a continuous variable), the Stroop color word task and a demographic questionnaire. Higher scores for female gender and non-right-handedness were found. Implications for further research are discussed.

GIANNA PERRONE
Faculty Advisor: Dr. Richard Conti
“The Dark Side of Love: The Dark Triad of Personality and Deceptive Dating Strategies”

The present study examined how specific sides of someone’s personality can make him or her more deceptive in the world of dating and give individuals an advantage to be able to catch the deception before feelings develop. It was hypothesized that individuals who have higher levels of the dark triad personality (narcissism, Machiavellianism and psychopathy) will be more likely to use deceptive strategies in their romantic relationships. Gender differences in deceptive dating strategies were also examined. Participants completed the Social Psychopathy Scale (Smith, 1985), the Dirty Dozen Survey (Jonason & Webster, 2010), and a modified version of the Romantic Initiation Questionnaire (Clark, Shaver & Abrahams, 1999), which included three different dating strategies. Results indicated there were no gender differences concerning deception in romantic relationships; however, the level of Dark Triad Personality and Dating Strategy were related, suggesting the higher participants scored on the Dark Triad Personality Scale, the more likely they were to directly communicate future goals to their partner while dating.

DANIELLE RYBINSKI
Faculty Advisor: Dr. Verneda P. Hamm Baugh
“The Effect of Popular Music on Recall”

Variables in the environment such as music, conversations or random noise may influence performance when trying to complete both simple and complex tasks. In the performance of some tasks, our attention may be drawn to features of the environment competing for our attention. These distractions occupy available time and may lead to a detriment in performance. Whether consciously or not, the environment plays a significant role in attention levels. Having a distraction present while trying to retain information has been linked to a reduction in recall. The present study was designed to examine whether familiarity of music serves as a distraction in the recall of words. It was hypothesized that contemporary, popular music would be more distracting than less-popular music.

NATALIE SAYANLAR
Faculty Advisor: Dr. Verneda P. Hamm Baugh
“Stroop Effect on Native Spanish Speakers”

The Stroop effect highlights the difficulty the brain has in regards to shutting out insignificant stimuli during the process of recognition. In particular, when visual stimuli (like a word) has
two visual assets, including the word and the color ink the word is printed in, the brain usually has a difficult time disregarding the word from the color of the ink. This passive response time happens because of a barrier, or a processing delay, caused by competing functions in the brain. The present study was designed to examine cognitive interference among Native Spanish Speakers while taking the Stroop test in Spanish and in English. It was hypothesized that the interference between the automaticity of reading the word and naming the color ink will be more significant when the Stroop task is performed in Spanish than in English.

PATRICIA TAMAGNINI
Faculty Advisor: Dr. Rozanne Marel

“Psychological Effects and Implications of Cancer Diagnosis and Treatment: Prevalence of Depressive and Anxiety Symptoms”

Distress, anxiety and depression are prevalent and treatable symptoms among patients with cancer. These symptoms, however, often go undetected and untreated in the oncological setting. This study aimed to investigate the occurrence and severity of distress, anxiety and depressive symptoms and assess the positive impact of the use of screening measures on the severity of symptoms at pivotal medical visits. It also investigated the impact of stage of cancer on the occurrence and severity of symptoms. This study involved 30 participants, with a current medical diagnosis of cancer, who were aged 18 years or older and were current patients at Rahway Regional Cancer Center. A demographics questionnaire and three self-report measures, the NCCN Distress Thermometer, the Beck Anxiety Inventory and the Beck Depression Inventory-II, were administered at three different sessions. The first administration was an initial visit for the research study, a second session three months after the initial visit and a final session six months after the initial visit. The study supported the hypothesis that there was a statistically significant decline in reported occurrence and severity of depression and anxiety symptoms. Stage of cancer was also found to have a statistically significant impact on level of distress and severity of anxiety and depressive symptoms expressed by participants. Cancer patients were found to experience symptoms of anxiety and depression and various levels of distress throughout their cancer treatment, which had been previously undetected. Oncologists and other health-care professionals dealing with cancer patients can improve quality of life and lessen the emotional and psychological implication of a cancer diagnosis by discussing mental health-care concerns.
REBECCA SIDOTI  
Faculty Advisor: Dr. David Stoesz  
“Corporatism and Big Pharma”  
The pharmaceutical industry has leveraged public policy to its benefit, prohibiting the federal government from discounts on drug prices through bulk purchases while using the tax code to develop Patient Assistance Foundations to claim charitable contributions as well as justifying moving income overseas to reduce tax liability. Consumers and taxpayers are left covering the costs of Big Pharma’s corporatism. Regulatory reforms are proposed to make drug companies more socially responsible.

RENATA SVINCICKA  
Faculty Advisor: Dr. Armine Lulejian  
“Misinformation about Zika virus in social media”  
In January 2016, the World Health Organization pronounced Zika virus as a “public health emergency of international concern.” Zika was first discovered in Uganda in 1947, but this year is the biggest Zika outbreak known to humanity. More than 60 percent of the initial outbreak reports come from unofficial/informal sources. As the events of the Zika virus outbreak unfold, there have been more questions than answers about the actual virus spread, infection cycle, risks and consequences. As the news of Zika increases, so does chatter about Zika in social media. Social media users have quickly reacted, making Zika virus a trending topic on Twitter. The research will investigate the origins and characteristics of Zika virus, as well as misinformation that currently exists in social media. Because there are so many unknowns about Zika, what misinformation exists in social media related to Zika virus? The aim of this research is to expose the severity of misinformation spread online and to understand public misconceptions about Zika virus. In the modern world of electronics, where information is available at the tip of our fingers, it is important to share reliable public health intelligence. Such practices alleviate spreading of rumors and conspiracy theories. Data was collected from Twitter, a popular social media platform, where users share their thoughts via “tweets.” Preliminary data analysis indicates a high degree of misinformation about Zika. Final research data will include no more than 500 tweets, posted no earlier than October 2015, and will not be limited due to the geographical location of the author of the tweet. All of the data will be categorized into the following categories: misinformation, correct information, news and emotions (fear, anger, funny, concern).
Research and Technology is a required General Education foundation course that introduces students to research design and methodology as well as to disciplinary and interdisciplinary perspectives of the research process. The course is geared toward second-semester freshman and all sophomores and builds on previous course work in writing, speech and quantitative reasoning. During this semester-long course, students engage in an original research project while learning about research overall. As part of the course, students select a topic, identify relevant research problems and sub-problems, review the literature on the issue, design a research plan, collect primary and secondary data, analyze and interpret the data, and arrive at logical conclusions. In addition to the final paper, students deliver a formal presentation to the class.

Started in 2013 to showcase student work in Research and Technology, the Research and Technology Student Showcase is a Research Days event that presents a selection of student research projects. Faculty teaching Research and Technology invite students with strong research projects to participate.
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<tr>
<th>Time</th>
<th>Location</th>
<th>Presentation</th>
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<tr>
<td>9-11 a.m.</td>
<td>STEM 307</td>
<td>Psy.D. Dissertation Symposium – 10 presentations</td>
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<td>See program for schedule</td>
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<td>9 a.m.</td>
<td>STEM 308</td>
<td>I Don’t Want to be Ugly</td>
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<td>Joy Humphrey, Psychology</td>
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<td>9:30-11 a.m.</td>
<td>STEM 324</td>
<td>Nancy Thompson WWII Scrapbook: Life as a Soldier (Panel Discussion)</td>
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<td>Jessica DiFranco, Frank Harpster, Erik Lister &amp; Michelle Thompson, History</td>
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<td>10:45 a.m.</td>
<td>STEM 317</td>
<td>I Prolly Shouldn’t Of Wrote This Like This, But Peep Game Because I Got Your Superhero</td>
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<td>Andres Jones, English</td>
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<td>11 a.m.</td>
<td>STEM 308</td>
<td>Changing the Landscape for Peace One Garden at A Time in Newark, NJ</td>
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<td>Joseph Lentini, Jillian Mahon &amp; Justine Zawiaza, Physical Education, Recreation and Health</td>
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<td>11 a.m.-12 p.m.</td>
<td>STEM 324</td>
<td>Army Culture (Panel Discussion)</td>
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<td>Angelina Lysenko, Gabriel Kissoon &amp; Laura Hurley, History</td>
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<td>11:30 a.m.</td>
<td>STEM 317</td>
<td>A.A. Is Not the Only Option — A Literature Review of Alcoholics Anonymous: A Call For Education, Research &amp; Increased Discussion of Alternative Options</td>
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<td>Jesse Echevarria, Counselor Education</td>
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<td>1 p.m.</td>
<td>STEM 307</td>
<td>Life Cycle Assessment of Bottled Water from Green2O</td>
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<td>Naomi Harowitz &amp; Jessica Frago, Environmental &amp; Sustainability Science</td>
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<td>1:30 p.m.</td>
<td>STEM 306</td>
<td>In the Mind of a Superhero</td>
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<td>Joy Humphrey, Psychology</td>
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<td>1:30 p.m.</td>
<td>STEM 317</td>
<td>Analysis of Fast Food Retail Establishment Immediacy to Elizabeth Public Schools and its Correlation to the Obesity Rates Within Elizabeth, NJ</td>
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<td>Lovely Randle, Public Administration</td>
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<td>2 p.m.</td>
<td>STEM 317</td>
<td>Healthy Choice Options/Student Health at Kean University</td>
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<td>Alexander Chernovetsky, Public Administration</td>
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| 2 p.m.       | STEM 318 | Building a Secondary Ion Mass Spectrometer  
Youssef Shaker, Physics  |
| 2-3:15 p.m.  | STEM 324 | Experiencing Overseas: Newark State Teachers College  
Students in World War II (Panel Discussion)  
Leanne Manna, Zachary De Leon, Kevin Fette &  
Briana Gordon, History  |
| 2:30 p.m.    | STEM 317 | The Impact of Residential Treatment Activities and  
Outcomes Post-Discharge, a Three-Year Outcome  
Kwaku Aboagye, Public Administration  |
| 2:30 p.m.    | STEM 318 | Bringing the National Basketball Association Back to New Jersey  
John Robinson, Business Management  |
| 3 p.m.       | STEM 317 | Let's Go and Get Moving: Empowering Older Adults through a Community Mobility Program for Wellness  
Julian DeMartinis, Chrissy Papetti & Mark Ravinsky, Occupational Therapy  |
| 3 p.m.       | STEM 318 | dpy-13 Gene Silencing by RNAi in Caenorhabditis elegans  
Sarah Rodriguez & Yrania Grullon, Biology  |
| 4 p.m.       | Kean Hall 127 | Rwanda Genocide: The Conflict and Why the Western World Betrayed Them  
Mark Ampofo, Holocaust & Genocide Studies  |
| 4:15 p.m.    | Kean Hall 127 | Devoted to Hitler  
Alexandra Beinstein, Holocaust & Genocide Studies  |
| 4:30-6:30 p.m. | Kean Hall 127 | Transitional Justice in Post-Genocidal States  
John Lestrange, Michael Carter & Rachel Wagner, Holocaust & Genocide Studies  |
| 5-6:30 p.m.  | STEM 308 | Early Childhood Graduate Colloquium  
A Study on the Effects of Instructional Strategies on Listening Comprehension in Preschoolers  
Leola Andrews  
Comparing Standardized Assessment Scores of Students in 3rd Grade and Teacher Evaluations from 2009 to 2014 in New Jersey  
Vanessa Melara  
The Effects of Reading Strategies in Reading Comprehension in Pre-Kindergarten Children  
Talisha Robinson  |
PsyD Dissertation Symposium Abstracts
ANGELA ALMEIDA  
Faculty Advisor: Dr. David Brandwein  
“Resiliency to burnout: The role of individual and organizational protective factors”  
Abstract: There has been an increased awareness of the phenomena associated with burnout among those employed in human service positions (Ahola, 2007; Kilfedder, Power, & Wells, 2001; Norcross & Guy, 2007; Payne, 2001; Schmitz, Neumann, & Oppermann, 2000; Toker et al, 2012; McCracken & Yang, 2008). On an individual level, burnout symptoms include emotional exhaustion, depersonalization or cynicism, as well as reduced feelings of accomplishment (Maslach, et al, 2001). On an organizational level, development of burnout has been associated with decreases in job performance, absenteeism, turnover, decreased job satisfaction, lower productivity and effectiveness (Maslach et al, 2001; Waldman et al 2004). Burnout has been considered an occupational hazard based on the nature and responsibilities associated with human services professions; however, there are minimal identified methods to prevent or provide support for those experiencing burnout symptomatology. Further, many within these helping professions navigate through their career unscathed, which brings into question the protective factors these individuals hold that may buffer against these effects. This study hypothesizes these protective factors to include self-compassion, emotion regulation and perceived organizational support. Participants will include all levels of direct care staff and clinical service providers employed at a neuro-rehabilitation center. Participation in the study includes completion of a demographic survey, Predictability and Role Clarity subscales of COPSOQ-II, Role Overload Scale, Self-Compassion Scale, Difficulties in Emotion Regulation, Survey of Perceived Organizational Support, Turnover Intention subscale of MAOQ-JSS and Maslach Burnout Inventory-HSS. This study seeks to explore specific targets to better inform the future development of burnout intervention and prevention methods.

CHARLES BORGEN  
Faculty Advisor: Dr. David Brandwein  
“Bullying, Masculinity and Homophobia in High School Football Players”  
Abstract: Bullying among football teams has gained attention due to high-profile incidents at the professional and high school levels. In many of the incidents, homophobic epithets and slurs were directed at the victims. There appears to be a strong overlap in homophobic aggression and bullying behaviors (Poteat, O’Dwyer, & Mereish, 2012). However, very little research has investigated the relationship between these two behaviors. The current study seeks to explore what factors influence the relationship between bullying and homophobic aggression in high school football players including masculinity, attitudes and team climate.

JUSTINE FULTON  
Faculty Advisor: Dr. Donald Marks  
“Verbal and Visual Skills in Children with Nonsyndromic Cleft of the Lip and/or Palate”  
Abstract: Nonsyndromic cleft of the lip and/or palate is a spinal tube defect that is one of the most common congenital conditions, affecting 1 of every 700 children born. Although previously regarded as a solely physical malformation, recent research has linked the condition to significant neuropsychological deficits in the overall oral cleft population and by cleft type. Recent research indicates there are structural brain differences between cleft sides, but no
study has yet examined the function associated with laterality of cleft (left, right or both). Additionally, while prior studies have indicated significant differences in neuropsychological domains, no studies have yet discussed the profile of a child with nonsyndromic cleft lip and/or palate more descriptively. Thus, the present study aims to 1) describe the sample’s performance on measures of verbal and visual skills overall and compare levels of impairment found in the sample to population norms; 2) create a composite index to determine significant differences between verbal and visual abilities and 3) examine impairment on verbal and visual skills on key demographic variables (e.g., gender, cleft type, cleft laterality). The sample will consist of school-age children with nonsyndromic clefts of the lip and/or palate who were referred for a neuropsychological evaluation at an urban, city hospital. Implications for clinical practice and school planning will be discussed.

SARI (SARA) GLAZER  
Faculty Advisor: Dr. Adrienne Garro  
“The role of shame proneness in the relationship between parental acceptance of negative emotions and child emotion regulation”

Abstract: This research reflects the significance of emotion regulation in healthy psychological development. Given the relationship between emotion regulation in children and parental acceptance of negative emotion, as well as the limited research regarding the contribution of parental processes, this study intends to further expand on existing literature. First, it attempts to replicate findings on the link between parental acceptance of negative emotion and emotion regulation. Second, it aims to explore additional processes that might impact parental belief systems and attitudes towards the emotional experience of their children, such as the acceptability of their own emotions and proneness towards maladaptive shame. Finally, it aims to explore the impact of both parental processes as well as parental acceptance of negative emotion on emotion regulation development in children. Implications for understanding the relationship between parental processes, emotion regulation skills and parental acceptance of negative emotion will be discussed.

LINDSAY MORAN-HAROLD  
Faculty Advisor: Dr. Jennifer Block-Lerner  
“Examining Concepts of Self and Targeting Identity Distress in Emerging Adulthood: Brief Curriculum-based Mindfulness and Acceptance-based Behavioral Workshop for College Students”

Abstract: Emerging adulthood (Arnett, 2015), the developmental stage which encapsulates transition from adolescence to young adulthood, is characterized by youth exploration of major life roles. Facets of exploration include academics, work, romantic relationships, living arrangements and friendships (Burt & Masten, 2010). Emerging adults are evidenced to experience self-focus, instability, feelings of being at an in-between stage, yet a sense of possibility, which may serve as a key critical window and opportunity for resiliency to be developed within the budding adult (Arnett, 2000). Cognitive developmental researchers have indicated that emerging adults may be heavily immersed in the process of building cognitive skills, which enhance perspective-taking, balanced emotional outcomes and ability to intake information that challenge self-concept (Labouvie-Vief, 2006; Tanner & Arnett, 2009).
Researchers have defined identity distress as an individuals’ recent distress, or worry, over the following identity issues: identifying long-term goals, career choice, friendships, sexual orientation, religions, values and group loyalties (Berman, Montgomery, & Kurtines, 2004). This research examines processes that may aid in the decrease of identity distress. Having a strong “sense of self,” or an individual knowing who he or she is, based on opinions, specific choices, and lower levels of tenuous response (Ickes, Park & Johnson, 2012), may predict levels of satisfaction with life, depression, stress and anxiety in emerging adults. A second and important predictor may be “self as context,” which is an important element of psychological flexibility (PF). PF involves taking steps in the directions that one cares most about while holding difficult emotional experiences (Bond et al, 2011). Strengthening connection with self-as-context, in particular, allows for perspective taking and a more flexible stance toward one’s thoughts and feelings. Self-as-context is explored in this study as a factor that might allow emerging adults to experience lower levels of symptomatology and higher levels of well-being above and beyond investing in the strength of sense of self. PF is examined as a variable that may moderate emerging adult identity distress and openness to intervention. Mindfulness and acceptance-based behavioral interventions specifically target these processes (Hayes, Strosahl & Wilson, 2012; Roemer & Orsillo, 2009); implications for services for college students steeped in this model, including curriculum-based workshops, will be discussed.

BRIAN SCHOPFER
Faculty Advisor: Dr. Donald Marks
“Burnout and Trauma: A Path to PTSD”
Abstract: Many of the prevailing psychological models of post-traumatic stress disorder (PTSD) discuss only the etiology of PTSD once the individual has experienced a trauma. This survey-based study seeks to explore other possible contributors to the etiology of PTSD, examining how early life experiences (including trauma) can shape an individual’s orientation toward subsequent emotional experiences and how he or she responds to emotional experiences and other significant life stressors. Drawing upon several models of PTSD (Barlow, 2004; Brewin, Dalgleish, and Joseph, 1996; Ehlers & Clark, 2000; Foa & Rothbaum, 1998; Power & Dalgleish, 1997), the study addresses many of the risk factors that these scholars discuss, including how early life experiences (such as childhood trauma) and temperament could prime an individual to experience PTSD. In addition, however, the study also considers the role of high-stress situations (e.g., work or academic settings) known to contribute to the experience of burnout (Maslach, Jackson, & Leiter, 1996), as well as the potential relationship between the emotional dysregulation associated with burnout and the development of PTSD. Findings of the study, which will survey undergraduate students, may prove useful in improving our understanding of the factors contributing to the development and maintenance of PTSD and in design of assessments and interventions for PTSD symptoms. The study uses serial mediation analyses (Hayes, 2013) to discern pathways to PTSD symptoms.

KENDAHL SHORTWAY
Faculty Advisor: Dr. Andrew Wolanin
“A Pilot Investigation of an ACT Group Intervention to Enhance Sport Injury Rehabilitation”
Abstract: This study was a pilot investigation of an Acceptance and Commitment Therapy (ACT) group intervention to enhance student-athlete injury rehabilitation. The intervention
manual “Return to ACTion” was developed for the purposes of this study and includes didactic components, experiential exercises, and discussion intended to increase adherence to rehabilitation as well as overall well-being during the rehabilitation period. The group was available to injured student-athletes once per week for the fall semester. Qualitative data was collected from athletic trainers and the group facilitator to examine the feasibility of the intervention and its delivery, including aspects of recruitment, acceptability and implementation. The format of the intervention was not deemed feasible according to the lack of student-athlete participation during the course of the study; however, analysis of the data provides findings relevant to future implementation of “Return to ACTion.” This study can be considered an initial step in the direction of increasing and improving meaningful and effective interventions for injured student-athletes.

MEREDITH STORY
Faculty Advisors: Dr. Richard Conti and Dr. Aaron Gubi

“Levels of Juror Psychopathy and Sentencing in Capital Cases”

Abstract: Capital punishment is legal in 31 U.S. states. The criminal justice system prides itself on selecting unbiased juries via the voir dire process (questioning prospective jurors). However, several specific personality traits and attitudes, such as psychopathy, Machiavellianism, legal authoritarianism, and belief in a just world, have been shown to influence jurors’ decision making and, in some instances, a greater willingness to sentence a defendant to death. Participants in the present study were administered the Levenson Self-Report Psychopathy Scale (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995), the Death Penalty Attitudes Scale (DPAS; O’Neil, Patry, & Penrod, 2004), Attitudes Toward the Criminal Legal System Scale (ATCLS; Martin & Cohen, 2004), Belief in a Just World Scale (BJW; Rubin & Peplau, 1975), and the Revised Legal Attitudes Questionnaire (RLAQ; Kravitz, Cutler, & Brock, 1993). It was hypothesized that higher scores on the LSRP, DPAS, RLAQ, BJW and ATCLS will result in an increased willingness to sentence to death in a capital case. Implications for further research are discussed.

ALISHA THOM
Faculty Advisor: Dr. Adrienne Garro

“Emotion Regulation Intervention for Children — Applied Research in an Elementary School”

Abstract: The Emotion Regulation Intervention for Children (ERIC) was designed in order to assist children better regulate emotions and gain the social skills necessary to help them thrive in school and other settings. Children and youth that exhibit challenging emotional, behavioral and interpersonal problems create substantial challenges for schools, teachers and other students. While externalizing symptoms are disruptive and prominent in school environments, such symptoms are often comorbid with internalizing symptoms, such as anxiety and depression. Given this factor, internalizing symptoms in children are frequently overlooked, as they can present as externalizing behaviors. Failure to assess internalizing symptoms in children presenting with externalizing symptoms may result in poor treatment results. Identification and treatment of internalizing symptoms may, therefore, also have positive effects in decreasing levels of externalizing symptoms in children.
ASHLEY ZULTANKY
Faculty Advisor: Dr. Jennifer Block-Lerner
“Examining the Role of Language Proficiency in the Naming Ability of Bilingual and Monolingual Undergraduate and Graduate College Students”

Abstract: Language proficiency (LP) is one of the primary factors in identifying balance within a bilingual speaking population. Researchers debate whether pure balance actually exists and, if so, what potential cognitive benefits and limitations individuals who experience it possess. Misdraji-Hammond and colleagues recently conducted a study exploring the extent to which familiarity and acculturation play a role in the discrepancy between bilingual and monolingual performance on the Boston Naming Test (BNT; Misdraji-Hammond, Kim, Fernandez, & Burke, 2014). The authors determined monolinguals outperformed a matched sample of bilingual individuals despite a high level of self-reported language proficiency, acculturation and reported familiarity with BNT items. Language proficiency, however, was measured subjectively; participants may have perceived and/or reported their skills to be unrealistically adept. The current study seeks to follow up on Misdraji-Hammond and colleagues’ study, implementing an objective measure of LP to measure bilingualism in a population of college undergraduates and graduate students and administering the BNT in a more standardized manner. Monolinguals are expected to perform better on the BNT and report a higher level of language proficiency than bilinguals. The author also hypothesizes that language proficiency led to group differences and thus will predict BNT performance. Implications for the assessment of cognitive abilities in bilingual and multilingual populations will be discussed.
Student Oral Presentations
SARA RODRIGUEZ, YRANIA GRULLON  
Faculty Advisor: Dr. Rongsun Pu  
“dpy-13 Gene Silencing by RNAi in Caenorhabditis elegans”

Abstract: RNA interference (RNAi) is a powerful molecular mechanism used to maintain transposon activity, mediate gene expression and defend the genome from endogenous antigens. RNAi’s specific functions on genome stability makes it an important research tool for the analysis of gene function in vivo. The ability of RNAi to inhibit gene expression by a sequence-specific mechanism is the key to investigate and control disease-causing genes, thus allowing the pursuit a new class of therapeutic molecules. However, this technique faces the challenge of not being able to target only one single gene. An outstanding organism for studying molecular processes and cell division is Caenorhabditis elegans (C. elegans). This organism’s dpy-13 gene was modified to change phenotypical characteristics in C. elegans. Modifications of dpy-13 gene expression results in short and bulky body shape. This gene encodes a member of the collagen superfamily. In order to trigger this specific gene silencing, C. elegans were fed E. coli strain OP50 expressing dpy-13 double-stranded interfering RNA (dsRNAi).

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

JOHN ROBINSON  
Faculty Advisor: Dr. Leonard Naturman  
“Bringing the National Basketball Association Back to New Jersey”

Abstract: This report examines the different areas in which to locate the next NBA team in the state of New Jersey. The significance of where the next stadium is featured is the most important factor in determining how marketable and successful the team will be in the region. The research methods being used in this study are surveys, Internet sources, book sources, interviews and local folklore in somewhat of an outside-the-box approach. In light of the findings based upon this research, the best location of the next NBA team in New Jersey is within a five-mile radius of where the Raritan River intersects the Raritan Valley transit line.
JESSIE ECHEVARRIA
Faculty Advisor: Dr. Robert Kitzinger
“A.A. Is Not the Only Option — A Literature Review of Alcoholics Anonymous: A Call For Education, Research & Increased Discussion of Alternative Options”

Abstract: This paper sought to explore the existing literature on both the positive and negative perceived aspects of Alcoholics Anonymous as a tool in maintaining long-term sobriety, and in that exploration of the literature, the authors observed that much of the past research has focused on positive aspects of A.A. while overlooking information that explores the potentially negative aspects of A.A. Alcoholics Anonymous is one of the most recommended forms of additional assistance to those seeking abstinence from alcohol by families, counselors, psychologists and therapists. It is also utilized heavily by those individuals who choose to participate in A.A. and typically is a large aspect of their lives (attending easily over a thousand meetings in their lives). Considering how influential A.A. is to so many individuals, the authors sought to identify the potentially negative perceived effects of A.A. participation that have been overlooked in the past, highlight numerous evidenced-based and effective alternate options, identify the numerous potentially detrimental effects of ‘clumping’ all recovering alcoholics into an expected mold of treatment and implore the counseling community to increase discussion of the presented information.

ANDRE JONES
Faculty Advisor: Dr. Mia Zamora
“I Prolly Shouldn’t Of Wrote This Like This, But Peep Game Because I Got Your Superhero”

Abstract: It’s become increasingly popular in comics and related media to portray classically handsome, straight, white male superheroes as anything but. Simply changing the gender or race of the superhero, however, and leaving “all” other characteristics of the traditional character distorts not only the character, but creates a schism with the representation of gender and race. The presentation looks to explore/examine how the feminization, or queering, of Miles Morales, the incumbent biracial teenage Spider-Man, constitutes employment of Standard (English) Language ideology qua the linguistic performance of the character, in turn reinforcing a historically under-challenged “white is right” dogma (concerning language) that belies progress, diversity and so-called multiculturalism. In other words, it continues to marginalize and by extension invalidate voice(s).

Research supported by: Dream Award, Conference on College Composition and Communication and the National Council of Teachers of English.
NAOMI HOROWITZ, JESSICA FRAGO
Faculty Advisor: Dr. Dongyan Mu

“Life Cycle Assessment of Bottled Water from Green2O”

Abstract: Bottled water is a fast-growing industry, with more than 5 percent annual increase in consumption in the U.S. since 2004. The booming industry, however, has raised increasing concerns over resource use, human health, and the impacts on ecological systems. In particular, enormous amounts of PET bottles have ended up in the Pacific Ocean and formed plastic bottle islands that destroy ocean ecosystems. In order to resolve the consequences that result from the use of plastic bottles, Green2O, a New Jersey-based water bottle company, has endeavored to create a water bottle that has a smaller detrimental impact on the environment. Green2O applied plastics with ENSO additives that allow the bottles to break down within 10 months in simulated landfill conditions. There are other biodegradable bottle technologies such as the corn/starch-based plastic (PLA) bottles available on market. However, the comparison between the ENSO-based bottles, the corn-based bottles and the conventional PET bottles is not currently clear. This project utilized life cycle assessment (LCA) as a tool to evaluate environmental performance of ENSO-based bottles. The environmental impacts were then compared to PLA bottles. The results of the study showed that environmental performance of ENSO bottles were generally better than PLA bottles. This research also identified aspects for the company to further improve its environmental performance. The results of the study are expected to better our understanding of the environmental impacts from the water bottle industry, and recommend strategies to reduce the negative effects.

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

History

JESSICA DIFRANCO, FRANK HARPSTER, ERIK LISTER, MICHELLE THOMPSON
Faculty Advisors: Dr. Jonathan Mercantini and Dr. Elizabeth Hyde

“Nancy Thompson WWII Scrapbook: Life as a Soldier”

Abstract: During World War II, the librarian of Newark State Teachers College (NSTC), Nancy Thompson, kept contact with many NSTC alumni serving our country, which she compiled into a scrapbook. Through these letters we have the unique opportunity to read about how these students lived as soldiers. Their letters give insight into their training and education, the living conditions of their bases, how their lives evolved as they grew and how they expressed humor through their correspondence. Frank Harpster will be presenting on the influence of training during the military, and how it helped soldiers to achieve their educational goals. NSTC allowed some courses, such as basic training, to be used for college credits. Jessica DiFranco will be discussing the living conditions that the soldiers wrote about. For example, some described their rations, as some gained weight from the excess of food supplied. Other places were so hot they endured weight loss. And some went from living comfortably in hotels
and then were relocated to bases where they lived in tents. Michelle Thompson will address the topic of coming of age while in service. Through this she will be exploring how the younger soldiers compared to the older ones, including how their mindset and outlook changed as their wartime experiences continued. Erik Lister focuses on the humor contained within the letters. In war, soldiers often undergo psychological stress, and many found that the best way to combat this stress was through humor. In some of their letters, the NSTC alumni would use humor in describing situations that they faced in everyday life while enlisted, oftentimes demonstrating a conscious effort to bring a sense of levity to these situations. By showcasing some of these senses of humor, Erik hopes that people can see a different side of these brave soldiers.

ANGELINA LYSENKO, GABRIEL KISSOON, LAURA HURLEY
Faculty Advisors: Dr. Elizabeth Hyde & Dr. Jonathan Mercantini

“Army Culture”

Abstract: World War II and its impact caused American society to permanently alter. This presentation will explore the lives of students who attended Newark State Teachers College, presently known as Kean University, through letters of their harrowing journey during World War II. The presentations will address the role of women in the war, depression and homesickness that the soldiers experienced, and how the soldiers were able to stay connected to loved ones on the home front. The question of despondency will be examined in conjunction with that of honor, as well as the soldiers’ distinct desire to be home. The brave accounts display a type of courage that can only be thought of as heroic. However, it is ever so evident that these men were suffering a quiet torture, one that seeps through your soul and tugs at your tears. The apparent melancholy is accompanied by unmistakable homesickness. The extensive collection of letters that were preserved by NSTC librarian, Nancy Thompson, captured the migration of hundreds of people and ideas spanning across the entire world. Because she preserved these letters, we are able to salvage a piece of history that revealed how a local community was changed by a global event. These presentations will highlight how the technology used then to keep student soldiers connected has become of great importance to today’s society. We will also explain what type of technology Kean students are creating not only in order to honor those serving, but to allow others access to this vast scholarship. WWII offered women an opportunity to aid the war effort in a more hands-on way on the home front. Women fulfilled the vacant spots of the factory jobs that were necessary for the economy to run, and even found themselves transporting aircrafts. Eventually military forces opened doors for women to join the military, and created WAVES, WACC, etc. World War II provided women opportunities to assist the war effort in new ways that brought them out of the home front, and consisted of support other than fundraising.

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

LEANNE MANNA, ZACHARY DE LEON, KEVIN FETTE, BRIANA GORDON
Faculty Advisors: Dr. Johnathan Mercantini and Dr. Elizabeth Hyde

“Experiencing Overseas: Newark State Teachers College Students in World War II”

Abstract: Using the Nancy Thompson World War II Scrapbook Collection, this panel will discuss the experiences of Newark State Teachers College students as they traveled the world...
in service of their country. Doing so will help people to understand what these men and women went through and understand WWII from their perspectives. Brie Gordon will focus on the home front experience of NSTC student soldiers while in training as they prepared for overseas engagement. She will focus on the “Out of Jersey” experience as soldiers experienced new parts of their own country, generating a feeling of being abroad while at home. Leanne Manna will discuss the different cultures experienced by using quotes about local life pulled from the letters. She will then contrast those cultures with what that soldier would have experienced in New Jersey at that time. Zachary De Leon will focus on the daily lives of the soldiers overseas, specifically in three distinct areas: Europe, the Pacific and the Middle East/Africa. He will examine the training in these areas as well as the routines and recreational activities that the soldiers took part in. He will demonstrate, through the collections of letters from soldiers stationed throughout the world, the similarities and differences in the daily life of a soldier in these separate regions. Kevin Fette will discuss the experiences and journeys of Newark State Teachers College students as they traveled Asia during World War II. These men found themselves in a totally foreign and often dangerous place while serving their country. He will examine and present their stories and how their experiences affected them.

Holocaust & Genocide Studies

MARK AMPOFO
Faculty Advisor: Dr. Carole Shaffer-Koros

“Rwanda Genocide: The Conflict and Why the Western World Betrayed Them”

Abstract: Many have purported “ethnic hatred” as the cause of the Rwanda Genocide. And while an ethnic divide was indeed present in Rwanda around the time of the conflict, the reasons for the genocide are multiple and far more complex. In analyzing the Rwanda Genocide as an ethnic conflict, it is essential that ethnicity be examined as it influenced and was influenced by economic, political and social factors. The challenge for defining the violence in Rwanda as an ethnic conflict is that while, on the one hand, the atrocities were a clear cut case of genocide, committed with the criminal intent to destroy or to cripple permanently a human group, the lines along which the victims were grouped were not just ethnic but also political.

ALEXANDRA BEINSTEIN
Faculty Advisor: Dr. Melodie Toby

“Devoted to Hitler”

Abstract: My thesis is a study of Magda Goebbels, Leni Riefenstahl and Winifred Wagner and how they became enamored of Hitler and went along with his Nazi ideology. These three women were not ordinary Germans. Magda was married to Joseph Goebbels, the Minister of Public Enlightenment and Propaganda, and one of the most powerful men of the Third Reich. Leni, an actress and renowned film director, was responsible for key propaganda films such as: “The Triumph of the Will” and “Olympia.” Winifred was married to composer Richard Wagner’s son and took charge of Wagner’s legacy. Hitler was fascinated by each of these women and utilized them to further his desire to restore Germany to its past glory. I plan
to demonstrate that these three women willingly assisted Hitler in his quest and possibly exploited their association with him to further their own agendas.

JOHN LESTRANGE, MICHAEL CARTER, RACHEL WAGNER
Faculty Advisor: Dr. Dennis Klein

“Transitional Justice in Post-Genocidal States”

Abstract: This presentation explores the concept of transitional justice, the theory and practice of building stable relationships between former adversaries after periods of sustained and endemic social conflict and violence. We will be examining and evaluating models of transition in three different case studies: the South African Truth and Reconciliation Commission (TRC), the Nuremberg Trials and the International Criminal Tribunal in Yugoslavia (ICTY). While the TRC and the Nuremberg Trials are generally seen as paradigms of successful transitions, the ICTY has had limited success in expediting the transition to an open society. By examining the mechanisms of transitional justice, this panel will ask when and why the model, which emerged just 25 years ago, works in some cases and not in others.

Occupational Therapy

JULIAN DE MARTINIS, CHRISSY PAPETTI, MARK RAVINSKY
Faculty Advisor: Dr. Claire Mulry

“Let’s Go and Get Moving: Empowering Older Adults through a Community Mobility Program for Wellness”

Abstract: Let’s Go is an occupational therapy (OT) community mobility program designed to support older adults’ (> 65 years old) ability to age in place, an increasingly important issue as the U.S. Department of Health and Human Services estimates this population will grow to approximately 80 million Americans by 2040. A pre-and post-intervention design, with data collected at the end of the program and six months post, was used to explore whether this multimodal educational program increased frequency of community trips, improved awareness of transportation alternatives, and increased confidence and autonomy outdoors. Quantitative and narrative data suggest that participants improved their social lives and relationships, increased the frequency of their outdoor trips and felt more autonomous when out in their communities.

Research supported by: Students Partnering with Faculty (SpF) Summer Research Program, Kean University
Physical Education, Recreation & Health

JOSEPH LENTINI, JILLIAN MAHON, JUSTINE ZAWISZA

Faculty Advisor: Dr. Norma Bowe

“Changing the Landscape for Peace One Garden at a Time in Newark, NJ”

Abstract: Newark is the largest city in New Jersey, with a population of 277,140. The crime rate in Newark is considerably higher than the national average, with a rate of 46 crimes per one thousand residents. Newark has 3.65 acres of parkland per 1,000 residents; National standards call for 325-500 acres for a population of this magnitude. Other high-density cities (New York, San Francisco, Chicago, Boston, Philadelphia, Miami, Baltimore and Los Angeles) average 7.17 acres per 1,000 residents. “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.” These efforts have been highly successful in “bringing unity to the community,” as one resident said, and creating a dialog regarding peace and nonviolence as well as demonstrable drops in violent crimes. These gardens promote visual improvements to city neighborhoods, empower residents to take back their streets and to understand the roles that they can have in local issues that affect their quality of life and promote food justice. The pilot study showed a significant decrease in violent crime in the Garden Impact Area (a radius of five blocks in all directions).

Physics

YOUSSEF SHAKER

Faculty Advisor: Dr. Jing Goa

“Building a Secondary Ion Mass Spectrometer”

Abstract: The goal of this project is to construct a secondary ion mass spectrometer using parts from several spectrometers that were damaged at different stages, to assemble one fully functional mass spec. Basic principles of light optics, including focusing and dispersion, apply to ions traveling in both electric and magnetic fields, where dispersion by energy in electric fields and momentum in the form of charge to mass ratio in magnetic fields are utilized to accomplish mass separation from an accelerated beam of charged ions. A working knowledge of the physics behind the properties of both light optics and beams of charged ions is needed in order to accomplish this goal. Since many of the parts used had not been touched for many years, each had to be tested and assessed for damage and functionality. Parts were put to use as needed for our purposes rather than specific pre-defined locations. This required frequent testing and retesting, which yielded a great experience working in the field of physics, providing a real-world experience of applying the physics with equipment assembly as well as repair.
JOY HUMPHREY
Faculty Advisor: Professor William Bellach
“I don’t want to be ugly”

Abstract: Is beauty really in the eye of the beholder? Do people get special privileges just for being pretty? Are the most physically attractive people prone to be the most successful? These questions and more will be explored throughout the presentation. We will analyze the pros and cons to beauty and physical attraction along with identifying what is considered beautiful in not only the United States, but throughout the world. This presentation will entail findings from evolutionary psychology as well as social and developmental psychology. We hope you enjoy it!

JOY HUMPHREY
Faculty Advisor: Professor Melissa Pace
“In the Mind of a Superhero”

Abstract: Batman, Spider-man, Wonder Woman, Iron Man, Phoenix, Superman, and the many other comic book superheroes and heroines seem to be perfect; able to do any and everything they set to accomplish. Created with their own individual special set of skills, many people, young and old alike, emulate and wish to be just like them. However, has the public ever really payed attention to these heroic tales? It seems many of these heroes have traits in high forms of neuroticism and personality disorder, such as DID, GAD, and a long list of phobias. In this presentation I will explore just that. I will be analyzing and diagnosing some of the popular heroes from Marvel comics, such as Hulk, Wolverine, Spider-man, Deadpool and Storm. After taking a good look at the research and my presentation the audience will not be able to look at superheroes the same way again!

KWAKU ABOAGYE
Faculty Advisor: Dr. Armine Lulejian
“The impact of Residential Treatment Activities and Outcomes Post-Discharge — a Three-Year Outcome”

Abstract: A residential treatment center (RTC) is a place where at-risk youth with serious behavioral and emotional problems reside for a time period to get necessary help. Intensive 24-hour care and services are provided, as RTCs are a medium between psychiatric hospital and at-home or foster-care placement. Residents in RTCs are usually admitted into the facilities for about 6 to 18 months depending on how far each individual goes with treatment, yet not much is known about the activities and outcomes these practices have in place. An RTC serving male youths in New Jersey will be the focus of this study. Residents are grouped into three different treatment tracks including (1) sex offenders, (2) emotional management and (3) road to recovery. Additionally, there are three affinity groups within the RTC and these
include (1) ambassadors — who travel and represent the agency, (2) builders — who learn construction, maintenance and landscaping, and (3) drum-line — for students interested in arts and creativity. This study will analyze secondary data from an RTC to evaluate the impact of residential activities on residents post-discharge. Outcome measures include involvement enrollment in education and employment status. The impact of group involvement will be specifically included in the analysis.

ALEXANDER CHERNOVETSKY
Faculty Advisor: Dr. Armine Lulejian

“Healthy choice options/student health at Kean University”

Abstract: Classes, studies and overall education are usually the short list of things students at Kean University tend to focus on. Equally important to a good education is maintaining a healthy lifestyle. Consuming a nutritious diet and being physically active is an integral aspect of overall life and longevity. There is an overabundance of ease of access to poor food choices and a scarcity of healthy choices at Kean, similar to most college campuses. This study examines the health status of students at Kean University, with a particular focus on healthy habits such as diet, dietary choices and fitness. The goal of this research is to administer an anonymous survey to students at Kean. Preliminary results indicate that students try to make healthy choices (73 percent at least three times a week), and 41 percent exercise on a regular basis. However, 70 percent of the respondents indicated that they have exercised to lose weight, and 62 percent have dieted to lose weight. Results also indicate that most students (77 percent) do not eat the recommended three to five fruits and vegetables per day. Furthermore, 30 percent of the students indicate that it is difficult to make healthy choices. Understanding nutritious food choices and physical fitness activities of students at Kean University would help us better address student needs related to healthful living. How likely are students at Kean University to make healthy food choices and be physically active? Having a healthier campus would make for a much more productive learning environment on campus, fueling minds with nutritious food choices and snacks, and possibly provide for a healthier student population and improve student grades and overall performance.

LOVELY RANDLE
Faculty Advisor: Dr. Armine Lulejian

“Analysis of Fast Food Retail Establishment Immediacy to Elizabeth Public Schools and Its Correlation to the Obesity Rates within Elizabeth, New Jersey”

Abstract: The City of Elizabeth is well known throughout New Jersey for its robust economic development. Elizabeth’s retail opportunities seem to attract entrepreneurs and consumers alike. However, many residents and local lawmakers lack the realization that there is an overabundance of fast food retail establishments throughout Elizabeth, with a large number of them in close proximity to the city’s schools. This issue leaves Elizabeth’s students vulnerable to the countless fast food retail establishments near their schools that provide the means for quick but unhealthy food choices on a regular basis. This study will determine the quantity of fast food retail establishments within a ½-mile radius of every school in Elizabeth. The study will also analyze schools near the greatest bulk of fast food retail establishments to determine if there is a correlation with childhood obesity data for those particular areas. The study will interpret childhood obesity data and retail food establishment data from 2013 through 2015.
LEEOLLA ANDREWS  
Faculty Advisor: Dr. Jennifer Chen  
“A Study on the Effects of Instructional Strategies on Listening Comprehension in Preschoolers”

Abstract: The goal of this action research project was to identify the most effective instructional strategies that would increase interest and motivation and ultimately enhance listening comprehension in preschoolers. Research shows that when children struggle with listening comprehension, they have difficulty retaining story details and consequently are unable to retell stories that are read to them. Difficulty in this area tends to lead children to become less motivated and display low levels of interest and engagement. In order to promote listening comprehension in preschool children, I examined different strategies during various reading opportunities such as read-aloud, small group and one-on-one interactions. Some of the strategies utilized involved the use of props, dramatizations and making predictions. The research took place in an urban school district and involved 15 preschoolers between the ages of four and five years in one classroom. I conducted observations of children’s responses to different reading strategies. Each observation lasted for half an hour each day over an eight-week period. The results of this study and implications for practice will be discussed.

VANESSA MELARA  
Faculty Advisor: Dr. Jennifer Chen  
“Comparing Standardized Assessment Scores of Students in 3rd Grade and Teacher Evaluations from 2009 to 2014 in New Jersey”

Abstract: The No Child Left Behind (NCLB) Act promises that every child will succeed in school regardless of racial, cultural, economic and linguistic backgrounds. The goal of this study was to assess the overall effectiveness of NCLB in New Jersey in terms of student and teacher performances. This study analyzed the yearly standardized assessment scores of students in 3rd grade as well as teacher evaluations collected by the State of New Jersey Department of Education (NJDOE). According to the NJDOE website, “New test designs and achievement standards for NJ ASK 3-4 LAL and mathematics were implemented in 2009; thus, direct comparisons between pre-2009 NJ ASK 3-4 data and NJ ASK 3-4 data from 2009 and subsequent years are inappropriate.” Therefore, this study compared only student scores as well as teacher evaluations from 2009 to 2014.

TALISHA ROBINSON  
Faculty Advisor: Dr. Jennifer Chen  
“The Effects of Reading Strategies in Reading Comprehension in Pre-Kindergarten Children”

Abstract: The purpose of this research was to learn about how a preschool teacher used effective strategies to help children comprehend what she was reading to them. One teacher was observed for a 14-week period. This research project took place at a gifted and talented school located in an urban neighborhood. I observed how a teacher in a pre-kindergarten classroom read to the children to determine what strategies she used to enhance the children’s reading comprehension. Each observation lasted for 30 minutes.
The Office of Research and Sponsored Programs acknowledges the national efforts of the Council on Undergraduate Research in promoting research collaborations by undergraduate students and faculty members. Kean University is an institutional member of the Council on Undergraduate Research.

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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 research 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 23 students participating in Research Days 2016.
The Office of Research and Sponsored Programs (ORSP) provides assistance in all areas of external grant funding to the Kean University community. ORSP provides information, services and support to assist faculty and staff to compete successfully for external funding to conduct research and scholarship; engage in creative work; develop curriculum; advance student learning; aid recruitment and retention; and support campus programming and community outreach.