NYIT
New York Institute of Technology

KEYNOTE SPEAKER
DR. STUART FIRESTEIN
COLUMBIA UNIVERSITY

10 YEARS

SOURCE

SYMPOSIUM OF UNIVERSITY RESEARCH AND CREATIVE EXPRESSION

FRIDAY APRIL 26, 2013: 10 A.M. - 4 P.M.

PROGRAM 2013

EVENT LOCATIONS

CONFERENCE REGISTRATION AND SESSIONS: 16 W. 61ST ST.
KEYNOTE: NYIT AUDITORIUM ON BROADWAY, 1871 BROADWAY (BETWEEN 61ST AND 62ND STREETS)

Symposium on University Research and Creative Expression (SOURCE) 2013

New York Institute of Technology

Dear NYIT Faculty, Staff, Students, and Friends:

Welcome to the Tenth Annual SOURCE of NYIT!

Creative expression and research with faculty members have become integral parts of a student's educational experience at New York Institute of Technology. The SOURCE is intended to provide a unique opportunity for students to present their research and creative scholarly work in collaboration with their faculty members and mentors. The SOURCE also generates a common ground for interdepartmental, interschool, and interdisciplinary communication.

I am very pleased to inform you that 70 abstracts were accepted for presentation and more than 170 undergraduate and graduate students of NYIT, representing all campuses, schools and colleges, have authored or co-authored these abstracts. The depth and breadth of the projects are strong indications of the quality of our teaching and learning at NYIT. I would like to take this opportunity to congratulate all the students for their academic excellence at NYIT.

Many individuals in the NYIT community have worked on the event diligently to make it a success. I would like to extend a very special thank you to all the students, faculty, administrators and volunteers who assisted with the preparation, management, and operation of SOURCE.

Sincerely,

Dr. Roger Yu, Dean
College of Arts and Sciences
Chair, SOURCE Committee

Symposium on University Research and Creative Expression *2013 Program*	
10:00 AM - 10:20 AM	**REGISTRATION and BREAKFAST** **NYIT Conference Center, 11th Floor, 16 W. 61st Street, New York, NY 10023**
10:30 AM - 11:45 AM	**SESSION I**
12:00 PM - 1:00 PM	**LUNCH and KEYNOTE PRESENTATION** ***Ignorance, Doubt, Uncertainty, and the Beauty of Science*** **By: Dr. Stuart Firestein** **NYIT Auditorium on Broadway, 1871 Broadway, New York, NY 10023**
1:15 PM – 2:00 PM	**EXHIBITION HALL**
2:15 PM - 3:30 PM	**SESSION II**
3:45 PM - 4:45 PM	**CERTIFICATE PRESENTATION** **Dean Roger Yu, College of Arts and Sciences** **NYIT Auditorium on Broadway, 1871 Broadway, New York, NY 10023**

Session I 10:30 AM-11:45 AM	7th Floor Room 722 Moderator: Nick Bloom	8th Floor Room 821 Moderator: Lisa Sparacino	8th Floor Room 822 Moderator: Claude Gagna	10th Floor Room 1029 Moderator: Youjeong Kim
10:30 AM	"[Re]constructing the Water's Edge"	"Hand Tracking and Finger Recognition with Microsoft Kinect/ Real-Time 3D Reconstruction"	"Glial Cell-Derived Neutrophic Factor Variation in Parkinson's Disease"	"An Introspective Muse"
	Daniel Horn	Min Chen and Nnanna Okorie	Chanakya Bavishi	David R. Cole II and Brandon Hugo Arroyo
10:45 AM	"Public Opinion of the Police"	"Can Exposure to Cool Ambient Temperature Affect Cognitive Performance in Persons with Tetraplegia"	"The Demonstration of B-DNA in Human Melanoma Tissue, Part 1"	"Art Talks Back"
	Kensony Rene, Kendra Bellamy, and Tomas Morgenthaler	Shou-An Liu and Megan Krajewski	Pooja Berdia, Prattasa Paul, Vansh Chopra, Ben Kuriakose, and Serene Naduparambil	Fawaz Saeed and Reem Smadi
11:00 AM	"The Impact of Locus of Control on Attitudes Towards Guns"	"Karate Kids: Is There a Gender Gap in Flexibility in Children Who Train in Martial Arts?"	"The Demonstration of Z-DNA in Human Melanoma Tissue, Part 2"	"Capturing the Illusion of Life"
	Arooj Nusret, Crystal Estey, Sheena Thompson, and Stephen Mekkatil	Divya Mathew, Daniel O'Leary, Kerri Boerner, Jillian Clarke, and Nida Naseem	Mayra Belez, Annette Alexander, Karolina Parciak, Deepa Punnoose, and Natasha Sheikh	Brian Markowitz
11:15 AM	"The Effects of Disparaging Language on Social Dominance Orientation"	"Does Exercise Provide a Positive Therapeutic Effect for Patients with Cancer Related Fatigue? A Systematic Review"	"The Microscopic Demonstration of Nucleic Acids in Human Melanoma Tissue, Part 3"	"Globesville"
	Katherine Karalis, Michael Groover and Kristina Garafola	Lauren Storic, Jamie Linder, Lindsay Kane, and Charles Foster	Tanya Thuruthuvelil, Nabeel Arain, and Varun Verma	Donald D'Amato, Dawn-Marie Waits, Catherine Gulotta, Karishma Kumar, Keith Upton, and Nicole Ficarra
11:30 AM				

Session II 2:15 PM - 3:30 PM	7th Floor Room 722 Moderator: Ana Petrovic	8th Floor Room 821 Moderator: Elizabeth Donaldson	8th Floor Room 822 Moderator: Rose Gallagher	10th Floor Room 1029 Moderator: Yuko Oda
2:15 PM	"Behavioral Study on the Interactions of Japanese Macaques Based on Habitat Usage"	"Faculty Sufficiency and AACSB Accreditation Compliance With a Global University: A Mathematical Modeling Approach"	"The Effect of Football on Domestic Violence"	"Animation Techniques in Flash"
	Ena Tulsiani	Xinlu Kong	Brian Schell, Ying Yi Chen, Irene Astras, and Rohail Rahmani	Harmony Johnson
2:30 PM	"Investigation of the Functions of Protein Kinase C-2 by Site Directed Mutagenesis of its Pseudo Substrate Domain"	"Enhancing Cloud Computing Authentication Mechanism"	"Cycling and PD Study"	"Social Media in Advertising"
	Yuliya Zamota, Chanakya Bavishi Rayan Sarfaraz, Hamza Khalid,Nicole Thomas, and Bestin Kuriakose	Anas Albaw	Eliian Ramezani, Danielle Buglione, Meredith Crowley, Cynthia John and Marios Haritos	Christa Pascucci
2:45 PM	"Follicle Stimulating Hormone Receptor Expression in Cancer Cells"	"Traveling Wave Solutions to Complex Ginzberg-Landau Equation"	"The Effectiveness of McKenzie Principles Versus Manual Therapy and Exercise on Pain and Disability: A Meta-Analysis of Current Evidence"	"Are Game Developers Afraid of Innovation: The Saturation of the Gaming Market"
	Aysha Javed	Alexander Myrah, Andrew Kornblatt, and Philip Strzelecki	Benjamin Muller, Nancy Villagran, and Eric Lawler	Daniel McClain
3:00 PM		"Darknets: Crime Warfare in Cyber Space"	"The Effects of Active vs Passive Sitting on Attention"	"Like! Rate! Buy!"
		Rafael Martinez	Robin Joseph, Mancy Mehta, and Anita Kuray	Noelle Scindian
3:15 PM				

On Permanent Display in Exhibition Hall Conference Center Lobby, 11th Floor	
"Can Tele-rehabilitation Decrease Caregiver Burden of Elders and Return Lost Occupations?"	Amrisha Gill, Cherish Ignacio, and John DiLiberto
"Hello My Name Is Campaign"	Ashley Jimenez
"A Survey of Spanish-Speaking Churches for Network-based Health Programs"	Christine Adibe, Alix Lee, Jessica Smith and Bret Sparling
"Extinction Is Forever"	Christian Bolorinos
"United We Stand: New York State Nurses Association Lobby Day Albany, NY - Safe Patient Handling and Safe Staffing - Group 1 Bill: A2180-A/51123-A Bill: S3691"	Gina Columbo, Tindu Arikpurathu, Meghan Burke, Elizabeth Sierra, Darlene Sanchez, Milana Abrakhimova, Alixzondra Jasmin, Rinu Mathew, and Darren Park
"Variability in the Administration of Liquid Medications By Prescribing Clinicians Using a Spoon"	Tara Vanderburg, Katy Cloughen, Amanda Gesten, and Meghan Dooney
"The Cardiovascular Effects of the Nintendo® Wii and Microsoft® XBOX Kinect"	Vinay Taneja, Stephanie Bradbury, Frank Cesare, Inderjit Kainth, and Elise Yawney
"Chronic Ivabradine-Induced Heart Rate Reduction Does Not Modify Collagen Accumulation in Myocardial Infarction Scar of Middle-Aged Rats"	Yevgen Bogatyryov and Daniela McCooey
"California Sea Lions"	Briana Warner
"Is This Real Life? Look into Special Effects Using Computer Graphics"	Robert Arzberger
"From Achiral to Chircal Molecular Bis-Porphyrin Ladders"	Karolina Parciak and Ashley Delpeche
"The 6MWT: Do Different Methods of Instruction Affect Performance Between Healthy Older Adults and Adults with Parkinson Disease?"	Matthew Brownstone, Tracey Paschal, Lauren Sabio, Shivani Shah, and Danique Williams
"Attitudes toward Bullying in College"	Taylor Reheusser, Natali Arana, Kelvin Mendona, and Paolo Acuna

On Permanent Display in Exhibition Hall Conference Center Lobby, 11th Floor	
"United We Stand: New York State Nurses Association Lobby Day Albany, NY - Safe Patient Handling and Safe Staffing - Group 2 Bill: A2180-A/51123-A Bill: S3691"	Luciene Vieira, Lyudmila Zhirnova, Jagriti Bawa, Nicole Bieli, Charlene Harris, Uzma Khan, Kaitlyn Meegan, Ranjit Nair, Rachel Ram, and Cavella Tokarczyk
"Long Island Ducks Mural"	Christa Pascucci, Tara-Mae McSparron, Diana Papa, Chloe Johnson, and Tara Warshowsky
"NYC Subway Ridership"	Bernard Mendoza
"Occludin, ZO-1 and ZO-2 Proteins Are Involved In Hydrogen Peroxide-Induced Increase In Paracellular Permeability Of Renal Epithelial Cells"	Angelina Voronina, Nancy Singh, Danielle Janosevic, and Josephine Axis
"Is Medical Informatics Being Taught Uniformly Throughout Physician Assistant Programs"	John Dalton, Will DiBlasi, and Hannibal Gambino
"A Posterior Approach to the Brachial Plexus"	Shaun Hager, Tim Backus, and Ben Futterman
"Character Development 101"	Thomas Farace and Manny Munoz
"Mapping the Aquatic to Terrestrial Transition: A Look at Dental Pathologies as a Function of Diet, Feeding Location and Behavior in Otters Seals,and,Walruses"	Muhammad Durrani
"Dynamic Exploration in Autodesk Maya"	Giuseppe Prisco
"Taking Set Driven Keys To The Limit"	Steven Lopez
"Becoming a One Man Network"	Daniel Olsson
"Enhanced Buffer Capacity for Boric Acid and Buffer Mixtures"	Manthan Patel and Thuy Tien Le Cao
"Infographics"	Catalina Salgado

On Permanent Display in Exhibition Hall Conference Center Lobby, 11th Floor	
"Structural Elucidation of Chiral Organophosphorus Insecticides"	Susan Kunjachan
"Structural Elucidation of Chiral Medicinal Natural Product"	Melissa Inderjit and Susan Kunjachan
"Buffer Capacity Profile of Complex Buffer Systems"	Orin Pramanik and Monica Nakhla
"A Comparative Study of Working and Non-Working Matriculated Physician Assistant Students"	Elizabeth Abreu, Mahbubur Rashid, and Magdalena Ravkin
"How to Combine 2D Animation into 3D Animation"	Diamond Vega and Anthony Steglik
"Sleeping Troubles in the U.S."	Ilvania Mendoza
"Feeding and Dental Wear of the Terrestrial to Aquatic Transition in Mammals: Otters as a Model"	Ashima Saif
"Posture Detection Device for Parkinson's Patients"	Nnanna Okorie
"Buffer Titrations"	Nikolay Gogin, Fatin Fuad Nabil, and Donald Chen
"Hunger Hurts"	Michael Smyth
"NYC Crime Statistics Info Graphic"	Dalton McDonald
"Sleepless America"	Michelle Giff
"Molecular Orbital Energy Calculations via use of Modified Hydrogenic Atomic Orbitals"	Kristel Yee Mon

<u>Session I Presentations</u>
7th Floor
Room 722
Moderator Nick Bloom
10:30 am-11:45 am

- "[Re]constructing the Water's Edge"
  By: Daniel Horn

- "Public Opinion of the Police"
  By: Kensony Rene, Kendra Bellamy,
  and Tomas Morgenthaler

- "The Impact of Locus of Control on Attitudes Towards Guns"
  By: Arooj Nusret, Crystal Estey, Sheena Thompson,
  and Stephen Mekkatil

- "The Effects of Disparaging Language on Social Dominance Orientation"
  By: Katherine Karalis, Michael Groover, Kristina Garafola

[Re]constructing the Water's Edge

Student Name: Daniel Horn
Faculty Mentor: Farzana Gandhi
Department: School of Architecture and Design

Newtown Creek, located in the City of New York, is a tributary of the East River and is part of the New York/New Jersey harbor estuary system. It forms the northern border of Brooklyn and the southern border of Queens in NY. In the mid-1800s, the 3.5 mile creek became one of the busiest hubs of industrial activity in the country. More than fifty industries emerged along the water's edge of the creek, including refineries, petrochemical plants, glue factories and coal plants. Massive industrial pollution resulted from this heavy activity. What is worse, NYC began dumping raw sewage into the creek in 1856 - something that continues to this day via combined sewer outflows. Currently, factories and facilities still operate along the creek and it was proposed as a national superfund site in September 2009. On October 5, 1950 an estimated 17-30 million gallons of oil leaked into the water, settling on the creek bed and seeping into the soil underneath local communities. The spill continues to burn underground and is estimated to course below 55 acres of Greenpoint residential, commercial and industrial property; affecting hundreds of homes and dozens of businesses. This has all contributed to the creeks overall failure as a natural ecosystem. Initial research focused on these issues which affect the livable quality of adjacent communities surrounding the creek and its neglected ecology. The existing post-industrial sites along the water's edge have created sporadic pockets of "terrain vague" or areas of land that are under-utilized and undeveloped. Deteriorating bulkhead types in this fragile zone act to shut out the water and its dynamic natural cycles. This led me to look at a similar issue - the increase in the frequency of strong storms, much like last year's devastating Hurricane Super-storm Sandy. It was clear that I examine opportunities in this extremely vulnerable zone for a series of building interventions that work with the land and water in new ways. New zoning patterns, community based programs, and storm surge barriers have been my primary methods of intervention thus far. My building will act to embrace both regular tide cycles and more severe flooding events with the purpose of revealing and educating the adjacent residential population to the dangers of storm surges and sea level rise. The building will be a community center and research laboratory with two goals: To conduct daily tide cycle reports and climate based research, and to give residents recreational spaces to connect with the water.

Public Opinion of the Police

Student Names:	Kensony Rene, Kendra Bellamy, Tomas Morgenthaler
Faculty Mentor:	Emily Restivo
Department:	Behavioral Sciences, College of Arts and Sciences

Effective communication between the police and the community is vital to run any law enforcement organization. Paramount to this is an understanding of attitudes towards police in the general population. Attitudes are impacted by race, gender, residency, age, and past history with the law. This study will examine the hypothesis that the public's opinion will correlate negatively for those who are part of a minority group and/or had prior experiences with the police. It is hypothesized that age, gender, and residency will also have an impact on attitudes concerning law enforcement This study surveyed classes in the Behavioral Science department at the NYIT's Old Westbury campus. Approximately 120 students were sampled with a survey that asked about race, gender, residency, age, and past history with the law as well attitudes about police. This experiment will help elucidate underlying factors which contribute positively or negatively to relationships with law enforcement and the communities they serve.

The Impact of Locus of Control on Attitudes Towards Guns

Student Names:	Arooj Nusret, Crystal Estey, Sheena Thompson, Stephen Mekkattil
Faculty Mentor:	Blair Hoplight
Department:	Behavioral Sciences, College of Arts and Sciences

Attitudes toward gun control is a major policy topic that is affecting American culture today. People's attitudes on guns are derived from many sources. The purpose of our study was to find out if locus of control play a role in attitudes about gun control. Locus of control is defined as the extent one believes that he/she is in control of one's own destiny, whether it is strong or weak and would leave an individual to believe the environment has a great influence. We hypothesize that a person locus of control does influence their attitudes towards guns whether it be strong or weak correlation. In order to conduct our study, two different surveys were used to assess how they feel on different aspects towards guns and how an individual's perception on how their destiny is controlled. Before the experiment was conducted, the group members clearly explained what the topic at hand was and the purpose of the study. We created consent forms for the student participants before they partook in the study so they knew what type of survey and what they were asked of. These consent forms were handed out and were signed and returned, as per our requirements. After the consent forms were collected, the group members distributed the surveys that were to be completed by about 160 participants in a few of the behavioral science classes at the Old Westbury Campus of New York Institute of Technology.

The Effects of Disparaging Language on Social Dominance Orientation

Student Names:	Katherine Karalis, Michael Groover, Kristina Garafola
Faculty Mentor:	Dina Karafantis
Department:	Behavioral Sciences, College of Arts and Sciences

The purpose of this experiment is to study the effect of disparaging language on social dominance orientation. In the college environment, disparaging language is used to a varying degree within the student body. Past research shows that social dominance orientation can be effected by various factors. What makes this research unique is the fact that it specifically focuses on how disparaging language effects social dominance orientation. As student researches, we have taken upon this task to determine if disparaging language effects social dominance orientation. This study will emphasize variables including race/ethnicity, level of empathy, and gender. The procedure we utilized to collect data was surveying undergraduate students of the New York Institute of Technology's Old Westbury campus. We collected data from approximately 130 students. Students completed a questionnaire containing an induction, a measure of social dominance orientation, a measure of gender identity, and a measure of empathy. Participants were randomly assigned to either the experimental group or the control group. Participants in the experimental group read commonly used phrases that contain disparaging language, while participants in the control condition will read phrases communicating the same message but without the use of disparaging language. This study will determine whether disparaging language is a reflective factor of development of social dominance orientation.

<u>Session I Presentations</u>
8th Floor
Room 821
Moderator Lisa Sparacino
10:30 am-11:45 am

- "Hand Tracking and Finger Recognition with Microsoft Kinect/ Real-Time 3D Reconstruction"
  By: Min Chen and Nnanna Okorie

- "Can Exposure to Cool Ambient Temperature Affect Cognitive Performance in Persons with Tetraplegia"
  By: Shou-An Liu and Megan Krajewski

- "Karate Kids: Is There a Gender Gap in Flexibility in Children Who Train in Martial Arts?"
  By: Divya Mathew, Daniel O'Leary, Kerri Boerner, Jillian Clarke, and Nida Naseem

- "Does Exercise Provide a Positive Therapeutic Effect for Patients with Cancer Related Fatigue? A Systematic Review"
  By: Lauren Storic, Jamie Linder, Lindsay Kane, and Charles Foster

Hand Tracking and Finger Recognition with Microsoft Kinect/ Real-Time 3D Reconstruction

Student Names:	Min Chen, Nnanna Okorie
Faculty Mentor:	Abdolhossei Kashani
Department:	Electrical Engineering, School of Engineering and Computing Sciences

With the help of Augmented Reality technology, the information about the objects in the surrounding real world is interactively added to them, the moment the user looks at them. The augmented information can be in the form of text, sound or 3D objects and it is digitally manipulable. The most natural way to interact with the augmented information is the use of hands and body gesture. Use of depth sensors/cameras is the best method to achieve such interactivity. In this paper Microsoft Kinect sensor is used to create an application that displays the exact size of any object as being held by the user in real time. This application is called “Invisible Measuring Tape”. We also demonstrate our application that uses hand gesture to manipulate computer generated 3D object that are placed in the augmented real world. The "Invisible Measuring Tape" has been tested on a building construction site.

As part of this project a low cost real-time 3D scene capture is implemented using Asus Xtion Pro 3D camera assisted by a state–of-the-art high power dedicated graphic processors array. The captured scene is rendered in real-time. The resulting point-cloud object is then transformed to a 3D mesh that is used to replicate the object using 3D printer. The complete process will be demonstrated on site.

Can Exposure to Cool Ambient Temperature Affect Cognitive Performance in Persons with Tetraplegia?

Student Names: Shou-An Liu, Megan Krajewski
Faculty Mentor: John Handrakis
Department: Physical Therapy, School of Health Professions

To determine the effect of cool ambient temperature (18Â°C) on body core temperature and cognitive performance in persons with tetraplegia. Design: Prospective, two-group observational study. Setting: National Center of Excellence for the Medical Consequences of Spinal Cord Injury, James J Peters VA Medical Center. Methods: Seven male individuals with tetraplegia (C3-C7, AIS A-C, DOI 16.4Â±6.5 years, mean age 43Â±6.4 years, BMI 23Â±1.6 kg/m2) and 7 age- and gender-matched controls (mean age 41Â±4.2 years, BMI 27Â±0.9 kg/m2) volunteered to participate in sequential ambient temperature exposure of 15 minutes of 27Â°C baseline (BL), followed by 120 minutes of 18Â°C exposure (Cool Challenge) while wearing only shorts in the seated position. The dependant variables, rectal temperature (Tcore) and distal skin temperature (Tsk), were continuously collected throughout while the neuropsychological battery (cognitive performance), Delayed Recall (working memory) and Stroop Color and Word Interference tests (executive function), was administered once at the end of BL and once at the end of the Cool Challenge. Results: Body core temperature decreased -1.2Â±0.12Â°C ($p<.0001$) in the group with tetraplegia after an average of 109Â±16 minutes of exposure compared to no change in Tcore (0.07Â±0.08Â°C) in able-bodied (AB) controls after 120 minutes. Bilateral index finger temperatures (Tsk) declined in both groups but the decline in controls was significantly greater than in those with tetraplegia (-44.4Â±5.4% versus -21.7Â±13.5%, respectively; $p<0.01$). In the group with tetraplegia, Delayed Recall and Stroop Interference scores declined -55Â±47.4%; $p<0.05$ and -3.9Â±3.8%; $p<0.05$, respectively both of which were different than the consistent performance observed in controls ($p<0.05$). Conclusion: Even limited exposure to mildly cool temperatures can overwhelm the impaired thermoregulatory mechanisms of persons with tetraplegia as evidenced by the attenuated decline in Tsk which most likely contributed to accelerated heat loss and the significant decline in Tcore. This decline in Tcore was associated with deterioration of cognitive performance in the areas of working memory and executive function. The findings of this pilot study underscore the cognitive implications of thermoregulatory fragility in persons with tetraplegia and the need to address this impairment by efficacious medical interventions (targeting impaired thermoregulatory mechanisms), specific guidelines for safe temperature exposure for patient/caregiver education and novel bioengineering solutions (insulated outdoor transportation areas, wheelchair-mounted core temperature monitoring devices, etc.).

Karate Kids: Is There a Gender Gap in Flexibility in Children who Train in Martial Arts?

Student Names:	Divya Mathew, Daniel O'Leary, Kerri Boerner, Jillian Clarke, Nida Naseem
Faculty Mentor:	Cheryl Hall
Department:	Physical Therapy, School of Health Professions

The purpose of this pilot study was to determine if there are differences in the change of flexibility achieved between boys and girls, ages 6-11, who participate in martial arts. Participants: Six children (boys, n=3, girls, n=3, mean age 8.5 years+1.64 SDs) participated in this pilot study. Subjects were recruited from the Nassau County Oyster Bay-East Norwich Police Activity League (PAL) Martial Arts program. Inclusion criteria included that the children were school-aged, have not had previous training in martial arts, may or may not have participated in other sports or activities, and had no recent musculoskeletal injuries. Materials/ Methods: Materials used for this pilot study included a flexibility box, standard scale, and measuring tape. Height and weight were measured prior to administration of the test and BMI was calculated. For the Back Saver Sit and Reach test (BSSR), participants were instructed to sit in long sitting. The subject was then positioned with their right foot against the measurement box and instructed to slowly reach forward as far as possible along the measuring board. The distance was recorded. The BSSR was repeated for the subject's left leg. Data were recorded on the data collection form. The BSSR was re-administered one month following the initial testing date. Results: We are expecting the change in flexibility to be greater in girls than boys. Data collection is in progress at this time. Appropriate statistical tests will be used to analyze the collected data. Paired and independent t-tests will be used to assess for significance within group changes and between group differences, respectively. Conclusions: Our data may enlighten us to the possibility in gender differences in physiological response to stretching and can be used to modify training techniques that require flexibility for performance.

Does Exercise Provide a Positive Therapeutic Effect for Patients with Cancer Related Fatigue? A Systematic Review

Student Names:	Lauren Storic, Jamie Linder, Lindsay Kane, Charles Foster
Faculty Mentor:	Mark Gugliotti
Department:	Physical Therapy, School of Health Professions

The primary purpose of this systematic review is to determine if exercise provides a positive therapeutic effect for patients with cancer related fatigue (CRF) by comparing studies that used the Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-F) to assess the changes. This outcome tool has been proven to be both a valid and reliable method in assessing the effects of fatigue on cancer patients. Methods: Six databases and Google Scholar were searched from inception to February 2013 for articles that met the following inclusion criteria: (1) the study was a randomized controlled trial (RCT), (2) a therapeutic exercise intervention was performed, (3) FACIT-F was used as the standardized tool. Results: The search yielded a total of 904 citations, of which only 9 met our criteria. The exercise programs for the experimental groups varied within each study; however, all 9 studies reported a positive therapeutic effect of exercise on CRF. Discussion and Conclusion: Examination of the literature in the review revealed exercise has a beneficial effect on CRF. Recommendations for further research include: a meta-analysis to determine if there is a significant effect of therapeutic exercise on CRF.

<u>Session I Presentations</u>
8th Floor
Room 822
Moderator Claude Gagna
10:30 am-11:45 am

- "Glial Cell-Derived Neutrophic Factor Variation in Parkinson's Disease"
  By: Chanakya Bavishi

- "The Demonstration of B-DNA in Human Melanoma Tissue, Part 1"
  By: Pooja Berdia, Prattasa Paul, Vansh Chopra,
  Ben Kuriakose, Serene Naduparambil

- "The Demonstration of Z-DNA in Human Melanoma Tissue, Part 2"
  By: Mayra Belez, Annette Alexander,
  Karolina Parciak, Deepa Punnoose,
  and Natasha Sheikh

- "The Microscopic Demonstration of Nucleic Acids in Human Melanoma Tissue, Part 3"
  By: Tanya Thuruthuvelil, Nabeel Arain,
  and Varun Verma

Glial Cell-Derived Neutrophic Factor Variation in Parkinson's Disease

Student Name: Chanakya Bavishi
Faculty Mentor: David Tegay
Department: Medicine, College of Osteopathic Medicine

Parkinson’s Disease is a neurogenerative disorder that is often histopathologically described as the loss of neurons in the substantia nigra, along with deposits of neuronal cytoplasmic ubiquitinated protein bodies (Lewy Bodies) in remaining neurons. With research advancing in the genetic causes of diseases, it has recently come to light through studies involving genes and studies involving asymptomatic people with genetic markers for being at risk of developing Parkinson’s Disease that Parkinson’s Disease may have genetic roots. While early research has had some success in finding single gene candidates for the disease that have had a high penetrance but low prevalence by analyzing multiplex Parkinson’s Disease families using traditional methods including linkage analysis, more recent attempts to determine the missing heritability of Parkinson’s Disease such as genome wide association studies have been rather unsuccessful in finding gene loci associated with a moderate or high risk of Parkinson’s disease. This study attempts to find this missing heritability using microarray comparative genomic hybridization that uses an oligonucleotide microarray platform that targets exons genome wide. This is being used to find the copy number variation for certain candidate genes, which are then prioritized based on functional significance and put through traditional Sanger sequencing. This presentation itself focuses on the analysis of one of the exons found using this method, which is the third exon in the first isoform of the gene for Glial cell derived neurotrophic factor (GDNF), which has been found by studies to play a role in the early development of dopaminergic neurons.

The Demonstration of B-DNA in Human Melanoma Tissue: Part 1

Student Names:	Pooja Berdia, Prattasha Paul, Vansh Chopra, Ben Kuriakose, Serene Naduparambil
Faculty Mentor:	Claude Gagna
Department:	Life Sciences, College of Arts and Sciences

As people are living longer one of the problems that we are encountering as a society is an increase in skin cancer among the elderly. Many different types of skin cancer can occur such as basal cell carcinoma, squamous cell carcinoma, and the most dangerous melanoma. Most researchers are examining the distribution of double-stranded (ds-) right-handed B-DNA in normal and cancerous skin are characterizing “generalized DNA.” We believe that characterizing “general DNA structure” is not enough. Researchers must examine specific types of DNA. As a continuation of Dr. Gagna’s peer-reviewed research, in which he looked at different types of DNA in normal epidermis, we are now extending that project by viewing alternative (i.e., exotic) types of DNA in human melanoma tissue sections (i.e., under a light microscope). In order to achieve this, paraffin-embedded tissues sections (2.5 microns) have been immunohistochemically stained with polyclonal anti-B-DNA antibodies (i.e., B-DNA probes). This will help in discovering the roles, of specific DNA’s in the development of cancerous tissues. NYIT students helped Dr. Gagna by performing cell counts (control studies) involving normal and abnormal (melanoma) tissue. We concluded from the control studies that melanoma had not expanded beyond the area of biopsied tissue. Additionally, NYIT students took photographs of the B-DNA immunohistochemically stained tissue sections. Our initial observations are that melanoma cells stain deeply for B-DNA.

The Demonstration of Z-DNA in Human Melanoma Tissue: Part 2

Student Names:	Mayra Belez, Annette Alexander, Karolina Parciak, Deepa Punnoose, Natasha Sheikh
Faculty Mentor:	Claude Gagna
Department:	Life Sciences, College of Arts and Sciences

Many different types of human skin cancer can occur such as basal cell carcinoma, squamous cell carcinoma, and the most dangerous melanoma. Most researchers are examining the distribution of double-stranded (ds-) right-handed B-DNA in normal and cancerous skin are examining generalized DNA. We believe that characterizing “general DNA structure” is not enough. Researchers must examine specific types of DNA, such as left-handed ds-Z-DNA. Z-DNA is an alternative conformation of DNA involved in transcription, recombination, as well as RNA editing. As a continuation of Dr. Gagna’s peer-reviewed research, in which he looked at different types of DNA in normal epidermis, we are now extending that project by viewing alternative (exotic) types of DNA in human melanoma tissue sections. In order to achieve this, tissues sections have been immunohistochemically stained with anti-Z-DNA antibodies. This will help in discovering the roles, of specific DNA’s in the development of cancerous tissues. NYIT students helped Dr. Gagna by performing cell counts (various control studies) involving normal and melanoma tissue. Our group concluded from the control studies that melanoma had not expanded beyond the area of biopsied tissue. Additionally, NYIT students took color photographs of the Z-DNA immunohistochemically stained tissue sections. Our initial observations are that melanoma cells stain lighter for Z-DNA. It seems that Z-DNA may act as a specific target site for anti-cancer drugs. However, much more work needs to be done analyzing the data.

The Microscopic Demonstration of Nucleic Acids in Human Melanoma Tissue: Part 3

Student Names: Tanya Thuruthuvelil, Nabeel Arain, Varun Verma
Faculty Mentor: Claude Gagna
Department: Life Sciences, College of Arts and Sciences

Microscopy is an important tool in biomedical research. Different types of skin cancer can occur such as basal cell carcinoma, squamous cell carcinoma, and the most perilous being melanoma. Most researchers who are examining the distribution of intact, unaltered double-stranded (ds-) right-handed B-DNA in normal and cancerous skin are examining "generalized DNA." Scientists must examine specific types of ds-DNA, such as right-handed ds-B-DNA and left-handed ds-Z-DNA. As an extension of Dr. Claude E. Gagna's research, in which he looked at different types of ds-DNA in normal epidermis, we are now extending that project by viewing alternative types of DNA in human melanoma tissue sections under a light microscope and with a high tech camera. In order to achieve this, tissues sections have been immunohistochemically stained with anti-B-DNA antibodies and anti-Z-DNA antibodies. These antibodies produced color reactions (brown) which we were able characterize visually. This will help in discovering the roles, of specific DNA's in the development of cancerous tissues. NYIT students helped Dr. Gagna by performing cell counts (control studies) involving normal and abnormal (melanoma) tissue. We concluded from the control studies that melanoma had not expanded beyond the area of biopsied tissue and that Z-DNA could be targeted one day by new classes of drugs. Additionally, NYIT students took color photographs of the B-DNA and Z-DNA immunohistochemically stained tissue sections. This was achieved using a Zeiss Scope A1 microscope and PrgResC5 micro camera (Jenoptik). Our initial observations are that melanoma cells stain deeply for B-DNA and much lighter for Z-DNA. Using oil immersion at 1,600 X we were able to obtain high quality photographs of the immunostained tissue sections for future study.

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<u>Session I Presentations</u>
10th Floor
Room 1029
Moderator Youjeong Kim
10:30 am-11:45 am

- "An Introspective Muse"
  By: David R. Cole II and Brandon Hugo Arroyo

- "Art Talks Back"
  By: Fawaz Saeed and Reem Smadi

- "Capturing the Illusion of Life"
  By: Brian Markowitz

- "Globesville"
  By: Donald D'Amato, Dawn-Marie Waits, Catherine Gulotta, Karishma Kumar, Keith Upton,
  and Nicole Ficarra

An Introspective Muse

Student Names: David R. Cole II, Brandon Hugo Arroyo
Faculty Mentor: Youjeong Kim
Department: Communication Arts, College of Arts and Sciences

As one of our most recognized projects, we produced about a 3-minute shot film in the studio. We tried to tell a story using different colors manipulated by studio lights and a mask. The mask symbolizes our identities and each color shows different meanings. No audio involved. The color only tells the story to us. This is an experimental film.

Description of the video: Her eyes open rapidly as she gasps for air. She sits up looking around as if she's lost. Standing... she reaches the walls nearest her and slowly panics darting from wall to wall in search of a door. She encounters a doorknob and twists it open as a mysterious hand reaches at her from behind. The door opens and floating in the air is a mask. She's startled and stumbles backwards tripping over her feet as the mask falls to the ground. The mask rises upward and out of the darkness two forearms appear, deformed and demented. The figure starts to crawl to her. She covers her face in fear...only to find that the figure has disappeared. The figure then appears extremely close to her face from above, she jolts backward hitting her head on the floor. The masked figure lingers over her body as her lower back arches upward as if having life sucked from her. Glimpses of a woman dressed in white falling flash between these moments. The girl awakens moments later, sweaty and scarred. In front of her is a mirror. In the mirror her reflection talks to her trying to convince her of human's weakness and vulnerabilities. The girl stands up head facing downward as masked figures move speedily around her blurring past. She slowly lifts her head to reveal that she too is wearing a mask, blood drips down the girls arm as she then transforms into the lady in white. The lady extends her arms freezing the masked figures... A bright blinding light appears from her eyes... White Out.

Art Talks Back

Student Names: Fawaz Saeed, Reem Smadi
Faculty Mentors: Jacqueline Taylor Basker, Ahmad Azzouni Hussein
Department: Fine Arts, College of Arts and Sciences

Most writing about art is the viewer discussing the artwork. My project reverses this dynamic. I have created an animated gallery in 3D Max, where you can see famous artworks from Art History. However these works of art are talking back to the viewers! The project began as an Art History Timeline, when I selected famous art works from Gardner's History of Art textbook, then I added comments directed to the viewer. I then placed these artworks on posters that are in a 3D animated Gallery. The animation will be a walk-though display and the viewers will hear the point of view of the art works themselves! This reverses the usual process of aesthetic perception, where the viewer dictates the meaning of the art. Here, the art itself creates a dialog and reverses the usual idea of the aesthetic experience. As the aesthetician George Dickie points out, art is confusing and hard to understand because we miss the important connections that make it meaningful. It can be a struggle to judge a piece of art through analyzing meaning and technique. My project attempts to expand the way of thinking about art, and permit the artwork to speak for itself. Sometimes the commentary is satirical, sometimes serious. The software used for the process was Photoshop, AfterEffects and 3D Max. Music will also be added to the animation reflecting the historical period of the art.

Capturing the Illusion of Life

Student Name: Brian Markowitz
Faculty Mentor: Yuko Oda
Department: Fine Arts, College of Arts and Sciences

I am going to be talking to you about how animation, whether it be through 3d, 2d, stop motion, motion capture, is showing the viewer a look into the animators head and how they feel through images that cannot be replicated in real life. It is an illusion of life through the eyes of an artist. Every artist is different and wants to show different works. That's why we have different methods of animation. One method that has been used more in recent years has been Motion Capture. Motion Capture is capturing motion using specific types of cameras tracking specific points on an actor's body. It then takes the data it has recorded into a workflow that works for that specific animator. The end result is having a character acting out the exact movement the actor was originally doing. Examples of motion capture can be seen in The Hobbit, Avatar, Polar Express, Final Fantasy: Spirits within. It can also be seen in video games such as Max Payne 3, Red dead redemption, Uncharted 3, Tomb Raider, Assassin's Creed 3. Now I listed some films that are really good examples of motion capture and some bad examples of motion capture. The Hobbit is a good example of motion with Gollum/Smeagle. Looking at him move through the scene and we know what he is thinking just be the way he is approaching Bilbo. When the animators receive the data from the performance from Andy Circus they also combine it with their knowledge of animation. For when you use motion capture you need to add in some of the key principles of animation such as squash and stretch and Anticipation. It may seem that motion capture is the best way possible. You get the most humanlike movement in a very fast process. Well it's not the greatest way possible. It also has to deal with the specific project you are doing. If you have a hyper stylized character and you have a realistic movement to the character it will not look right to the human eye. Also the equipment needed to do motion capture is very expensive and complicated to an average animator and it takes extra time to learn how to do motion capture. If the movement you desire defies some laws of physics it cannot be done in motion capture properly. In traditional 3d animation you do not have those problems. The only problem with traditional 3d animation is that is time consuming. Also when you want to have a super realistic scene you will need the most realistic movement as possible. That is where motion capture is suggested. It is knowing when to use motion capture and traditional 3d animation that will make the project sink or swim.

Globesville

Student Names:	Donald D’Amato, Dawn-Marie Waits, Catherine Gulotta, Karishma Kumar, Keith Upton, Nicole Ficarra
Faculty Mentor:	Don Fizzinoglia
Department:	Communication Arts, College of Arts and Sciences

Globesville unites NYIT'S current students and alumni located all around the world via a social network that strives to be the premier media outlet on and off campus. The global platform will not only connect various cultures through knowledge and awareness, but also inspire our members to share their experiences and visions of growth through interactive exchange in the community. Currently, we are in production of several shows, including *PangeaNOW*, *PangeaSports*, *Water Cooler*, *The Time Capsule*, *Take 2* and many more.

<u>Session II Presentations</u>
7th Floor
Room 722
Moderator Ana Petrovic
2:15 pm-3:30 pm

- “Behavioral Study on the Interactions of Japanese Macaques Based on Habitat Usage”
  By: Ena Tulsiani

- “Investigation of the Functions of Protein Kinase C-2 by Site Directed Mutagenesis of its Pseudo Substrate Domain”
  By: Yuliya Zamota, Chanakya Bavishi,
  Rayan Sarfaraz, Hamza Khalid, Nicole Thomas,
  and Bestin Kuriakose

- “Follicle Stimulating Hormone Receptor Expression in Cancer Cells”
  By: Aysha Javed

Behavioral Study on the Interactions of Japanese Macaques Based on Habitat Usage

Student Name: Ena Tulsiani
Faculty Mentor: Eleni Nikitopoulos
Department: Life Sciences, College of Arts and Sciences

The Japanese Macaque, also known as the snow monkey, is a quadrapedal mammal, which is native to the islands of Japan. The objective of this study was to observe and record the proportion of time Japanese macaques spend in the different areas of their habitat in Central Park Zoo, New York. This will allow an analysis of the efficacy of the zones to assure the area is being used to its potential. The habitat consists of a large rocky island and with shrubs and other vegetation, plus smaller rocky islands, surrounded by a moat. The habitat was separated into 5 different zones and 4 different stations along a 2-3 minute walk around the habitat were marked in order to record the location and behavior in each zone. Observations were conducted 5 times a day with 5 minute rest periods in between. I expect most of the resting, grooming, and eating to be carried out in zone 5 because it is more sheltered compared to the other zones. I think most of the moving and playing I expect to be done in zone 3 and 4 because they are very open and the difference in elevation allow jumping around. Zones 1 and 2 will probably be least utilized because there is less area to move around, as these zones are small islands in the moat.

Investigation of the Functions of Protein Kinase C-2 by Site Directed Mutagenesis of its Pseudo Substrate Domain

Student Names:	Yuliya Zamota, Chanakya Bavishi, Rayan Sarfaraz, Hamza Khalid, Nicole Thomas, Bestin Kuriakose
Faculty Mentor:	Marianne Land
Department:	Life Sciences, College of Arts and Sciences

Protein Kinase C (PKC)s are a family of enzymes which phosphorylate specific serine/ threonine amino acids in their substrates to regulate many functions, such as growth, secretion, differentiation, and neuronal function. PKCs are mis-regulated in a number of diseases such as Alzheimer's, Parkinson's and in aging. However, the role of PKCs in these disease states and aging is not well known. Signals that generate diacylglycerol (DAG) and calcium (Ca2+) are disseminated by classical PKCs. When neurotransmitters, hormones or growth factors bind to their receptors, this leads to the stimulation of phospholipases. Activated phospholipase Cs generate DAG and inositol triphosphate (IP3). IP3 binds to its receptor on the endoplasmic reticulum and releases Ca2+ into the cytoplasm. The cPKCs are activated by DAG and Ca2+ and in mammals are comprised of Î±, Î²I, Î²II, and Î³ isoforms. PKC-2 is the only cPKC isoform in the nematode worm, Caenorhabditis elegans. Most signal transduction pathways and genes that are found in mammals are present in C. elegans, for example the aging and cell death pathways were elucidated in this worm. Study of PKC-2 in the worm may lead to its role in disease states and aging and new therapeutic agents. Using site directed mutagenesis, we have generated a PKC-2 mutant in which the alanine amino acid of the pseudo substrate (PS) site of PKC-2 was converted to glutamatic acid. The PS site binds to the active site of the kinase and inhibits its activity. Binding of cofactors, DAG, Ca2+ and phosphatidyl serine, relieves the inhibition of the PS site. The conversion of alanine to glutamate mimics a phosphorylated serine/threonine, due to its negative charge, prevents the association of the PS with the kinase domain of PKC and generates a permanently active enzyme. This constitutively active form PKC-2 also has a FLAG tag genetically engineered at its amino terminus, which allows purification using the FLAG antibody bound to affinity beads. We have utilized an in vitro kinase assay with this constitutively active PKC-2, to analyze its substrates. PRDX-2 was identified as a potential PKC-2 substrate, as it is differentially expressed protein in PKC-2 over expressing nematodes. PRDX-2 is a peroxyredoxin that is involved in the detoxification of peroxide and reactive oxygen species. We are currently testing wild type and mutant forms of PRDX-2 as substrates for our constitutively active PKC-2. Will also express this constitutively active PKC-2 using cell specific promoters in the worm and determine its behavioral and physiological effect in vivo.

Follicle Stimulating Hormone Receptor Expression in Cancer Cells

Student Name: Aysha Javed
Faculty Mentor: Claude Gagna
Department: Life Sciences, College of Arts and Sciences

The follicle-stimulating hormone receptor (FSHR) is a transmembrane receptor that binds follicle stimulating hormone (FSH) and belongs to the family of G protein-coupled receptors. It is reported that the expression of this receptor is necessary for follicular development and is expressed on the granulosa cells. In men, FSHR can be found in the Sertoli Cells and in females it is found in the secretory endometrium of the uterus during the luteal phase of the menstrual cycle. Recently however, it has been discovered that FSHR is also expressed by vascular endothelial cells in a wide range of human tumors while being anatomically restricted in normal tissue. The location of the FSHR signal at the boundary between the tumor and the normal tissues makes it useful for defining the target volume for radiation therapy or surgery. Furthermore, the presence of the FSHR on the surface of these cells in a wide range of tumors makes it a potential target for both tumor imaging and various forms of therapy. Immunohistochemistry techniques were used to stain 26 slides of breast cancer tissues for expression of FSHR. During this process, the sections were imbedded with a primary antibody, as well as a secondary antibody and later stained for expression of the FSHR. Blood of various breast cancer patients was also examined for expression of FSHR using flow cytometry. Fingerprints of flow cytometry data were generated using flowFP in R programming language. DNA-Protein binding of FSHR gene was examined by converting B-DNA into Z-DNA using the Z-Hunt database. It was examined that the level of intensity that FSHR expressed within each tissue of breast cancer did not correlate with the phase of cancer each patient was in, or whether the cancer returned in the patient. It did, however, designate a clear area of cancerous tissue. The flow cytometry fingerprints indicated that it may be possible to identify the presence of cancer through FSHR expression in blood. These studies suggest that the expression of FSHR can potentially provide a new technique for identifying cancer as well as a new outlook for medicinal treatment.

<u>Session II Presentations</u>
8th Floor
Room 821
Moderator Elizabeth Donaldson
2:15 pm-3:30 pm

- "Faculty Sufficiency and AACSB Accreditation Compliance With a Global University: A Mathematical Modeling Approach"
  By: Xinlu Kong

- "Enhancing Cloud Computing Authentication Mechanism"
  By: Anas Albaw

- "Traveling Wave Solutions to Complex Ginzberg-Landau Equation"
  By: Alexander Myrah,
  Andrew Kornblatt, and Philip Strzelecki

- "Darknets: Crime Warfare in Cyber Space"
  By: Rafael Martinez

Faculty Sufficiency and AACSB Accreditation Compliance within a Global University: A Mathematical Modeling Approach

Student Name: Xinlu Kong
Faculty Mentor: Jess Boronico
Department: School of Management

This manuscript proposes a mathematical model to address faculty sufficiency requirements towards assuring overall high quality management education at a global university. Constraining elements include full-time faculty coverage by discipline, location, and program, across multiple campus locations subject to stated service quality standards of the Association to Advance Collegiate Schools of Business (AACSB). The model offers perspectives as to efficient faculty management policies, including unique approaches to integrating fixed and flexible labor classifications when operating within a multi-campus global delivery system. Empirical results have been implemented by the New York Institute of Technology's (NYIT) School of Management in developing its global faculty deployment strategies in support of NYIT's AACSB accreditation initiative.

Enhancing Cloud Computing Authentication Mechanism

Student Name: Anas Albaw
Faculty Mentor: Mostafa Ali
Department: School of Engineering and Computing Sciences

Cloud computing is a network that consists of cloud providers and clients. Cloud providers provide the cloud service and must ensure authentication to their clients. Cloud clients load their data into the cloud to be able to access the data from different places. User authentication must be robust to avoid hacking or breaking the authentication and permitting invalid access to the loaded data. Some of the solutions for the authentication is ensuring things you know (like username and password), things you own, (like a smart card) and things you are, (like biometrics). I propose a new mechanism for authenticating cloud computing clients using mobile technology by adding the mobile service provider to the authentication process. My method consists of sending a verification code to the client through the mobile service provider that checks the client information in the cloud before sending the verification code. My proposal provides a three level security mechanism by entering your username and password on your device first. After verifying you in their database, the cloud service provider will tell the mobile service provider to check on your information in their database, then send the verification code by an SMS to the your mobile phone. The objective from this proposal is not only using mobile technique to send the verification code or using username and password for authenticating the client, I also proposed to include the mobile service provider by signing a service level agreement with the cloud service provider so that each side will commit to do what they are required to do to ensure a secure and reliable authentication process. Signing a contract between cloud provider and mobile service provider will raise the security level to a higher level if compared with the method used in Hotmail.

Traveling Wave Solutions to Complex Ginzburg-Landau Equation

Student Names:	Alexander Myrah, Andrew Kornblatt, Philip Strzelecki
Faculty Mentor:	Jungho Park
Department:	Mathematics, College of Arts and Sciences

We examine the dynamics of the traveling wave solutions to the complex Ginzburg-Landau equation which describes the nonlinear evolution of patterns in fluid dynamics. We show that the equation has the traveling wave solutions which have constant amplitudes. We also show that there exist traveling wave solutions which have variable amplitudes and connect the two constant amplitude traveling wave solutions.

Darknets: Crime and Warfare in Cyber Space

Student Name: Rafael Martinez
Faculty Mentor: Paolo Gasti
Department: School of Engineering and Computing Sciences

This project goes over the various unseen elements of the internet and what occurs right under people's noses. The main focus of this project is the term known widely as Darknets, the part of the internet that is private where most of the government transactions and cybercrime actually takes place. I cover things such as the dominant currency of the Tor Darknet, Bitcoins, which are strangely a very strong currency. As well as Internet activist groups such as Anonymous and Lulzsec which are commonly referred to as Internet Terrorism groups. There will also be a section concerning actual organized cybercrime and where they hide. Russian mafia activity, Credit Card/Hacking forums and Silk Road, an online drug marketplace will be dominant parts of this. The economy and how it functions is a part that will be integrated while I inform the audience of Bitcoins. Warez forums will also be targeted for dissection, but as part of the surface net section. Now there will also be a comparison between the surface net and Darknet that explains to the audience the difference between them. Such as Facebook being surface net while Silk Road is not. How Facebook's databases are dark net while Google's web search database is not. How the Tor dark net can be accessed will be reviewed but not gone into depth so as to avoid any legal issues. That part is still under debate. I'll speak of sites such as 4chan and how they function on anonymity while also helping form dangerous raid squads and how they were integral in the creation of Internet Activist group Anonymous will be central to this part. If possible, interviews with Government agents and actual Internet Activists/Hackers will have its own part as well. A little piece will be dedicated to viruses, tools and how they play their part in cybercrime and warfare. It will be Pastebin, LOIC, Slowloris and etc. being some of the covered ones. The central idea of this presentation is that it goes deep while maintaining a simplicity that allows those who do not know much about the presentation to enjoy it like as if they did. The whole purpose of this presentation panel is education on how the internet is most definitely not as safe as it seems to be, even with Antivirus software.

<u>Session II Presentations</u>
8th Floor
Room 822
Moderator Rose Gallagher
2:15 pm-3:30 pm

- “The Effect of Football on Domestic Violence”
  By: Brian Schell, Ying Yi Chen, Irene Astras,
  and Rohail Rahmani

- “Cycling and PD Study”
  By: Eliian Ramezani, Danielle Buglione,
  Meredith Crowley, Cynthia John, and Marios Haritos

- “The Effectiveness of McKenzie Principles Versus Manual Therapy and Exercise on Pain and Disability: A Meta-Analysis of Current Evidence”
  By: Benjamin Muller, Nancy Villagran,
  and Eric Lawler

- “The Effects of Active vs Passive Sitting on Attention”
  By: Robin Joseph, Mancy Mehta, and Anita Kuray

The Effect of Football on Domestic Violence

Student Names:	Brian Schell, Ying Yi Chen, Irene Astras, Rohail Rahmani
Faculty Mentor:	Beth Adubato
Department:	Behavioral Sciences, College of Arts and Sciences

Domestic violence is part of major crimes that occur in the United States. Criminologists have been studying for many years the reasons for the high domestic violence crime rates, how to identify what the leading factors are and how to address these issues. Criminology still lacks the significant study of sports in relation to crime. The research project was conducted to see if there is a correlation between domestic crime and football game violence. It was proposed that domestic crime incidences would indeed rise during and following a televised football game. Crime statistics from the city of Baltimore were compared with times of Baltimore Ravens football games. To expand on whether the correlation was only with football, the study also compared days with high alcohol consumption (holidays), baseball games, basketball games, and hockey games. Domestic violence in the US is a major problem and is due to many societal problems that are difficult to identify. The purpose of this study is to raise awareness of the potential impact of the mass exposure of football games and its negative effects on society. By raising awareness on at least one factor that highly contributes to domestic violence; we as a society can implement preventative actions and programs that will bring light to this issue and to educate people on this problem.

Cycling and PD Study

Student Names:	Eliian Ramezani, Danielle Buglione, Meredith Crowley, Cynthia John, Marios Haritos
Faculty Mentor:	Rosemary Gallagher
Department:	Physical Therapy, School of Health Professions

Stationary cycling interventions are widely used in the treatment of individuals with physical disabilities as well as neurological disorders including those with Parkinson's disease (PD). Cycling can address impairments such as decreased muscle strength and range of motion. Cycling is also used to improve cardiovascular fitness while minimizing stress on joints and provide a safe form of exercise for individuals with decreased balance. Limited evidence exists on trunk and lower extremity (LE) kinematics during cycling in individuals with PD. The purpose of this study was to compare cycling kinematics in people with PD and healthy controls (HC) during stationary upright and semi-reclined cycling. We hypothesized there will be a difference in cycling kinematics in those with PD as compared to healthy controls between upright and recumbent cycling. Data collected from this study may help guide clinicians in the most beneficial style of bicycle to use in the rehabilitation of individuals with PD. Participants: Seven adults with PD, (70.9 +/- 6.8 yrs, Hoehn and Yahr mean stage 2.5), and four HC, (69.5 +/- 8.3 yrs) participated. Individuals with a history of severe cardiovascular disease, stroke or neurologic disease other than PD, prior neurosurgery or musculoskeletal disorders such as osteoarthritis, knee, hip, or ankle surgery, or any other conditions that would impair their ability to ride a stationary were excluded. Participants were tested during their on phase. On the day of testing, trunk and lower extremity range of motion measurements were taken. Gait speed and the Timed up and Go test were also performed. Passive reflective markers were placed on the subject on the following anatomic landmarks: ASIS, greater trochanter, lateral epicondyle, lateral malleolus, and posterior heel, web space between 1st and 2nd metatarsal heads. Subjects then cycled on both an upright and recumbent bicycle (order was counterbalanced) at an average cadence of 60 rpms and constant power of 40 watts. Kinematics of the trunk and lower extremities were collected by the Vicon Peak Motus motion capture system for 2 trials of 30-second duration each. Relative joint angles were calculated for the trunk, hip, knee, and ankle in the sagittal plane. Results: For people with PD, there was significantly less hip extension on both the upright and recumbent bicycle when compared with HC. There were no significant differences in trunk or LE kinematics between the upright and recumbent bicycle in people with PD. For the HC, there were significantly greater excursions in the trunk and hip flexion and extension on the upright bicycle. Conclusion: This preliminary study found the choice of bicycle did not influence cycling patterns in people with PD. However, cycling kinematics did differ in those with PD, particularly in hip extensor range and trunk motion, compared to HC on both styles of bicycle. This may be related to the decrease in hip extension range in the people with PD, or to rigidity associated with PD interfering with the ability to adjust their hip and trunk during the cycling pattern.

The Effectiveness of McKenzie Principles Versus Manual Therapy and Exercise on Pain and Disability: a Meta-Analysis of Current Evidence

Student Names:	Benjamin Muller, Nancy Villagran, Eric Lawler
Faculty Mentors:	Andras Fulop, Peter Douris
Department:	Physical Therapy, School of Health Professions

The effect of McKenzie principles compared to manual therapy and exercise on pain and disability was determined by aggregating literature and using a statistical meta-analysis to analyze pertinent studies published between 2000 and 2012. Background: The McKenzie Method was developed by Robin McKenzie in the late 50s as a means to classify and treat patients with lower back pain. Principles of this treatment system have been studied, however the methodology employed by most research is incongruent with the McKenzie method. To account for the discrepancy between methodologies, the term McKenzie principles is employed in this study. Methods: Three independent investigators collected trials via literature review of nine electronic databases. Data on pain and disability were independently extracted from each trial. The Cohens D statistic for effect size was calculated comparing McKenzie principles to manual therapy and exercise for all studies that met the inclusion criteria. Effect sizes were divided into short-term outcomes (< 4 weeks), long-term outcomes (> 4 weeks), and combined outcomes (short-term plus long-term). Results: Seven trials comparing McKenzie principles to therapeutic exercises, and 6 trials comparing McKenzie principles to manual therapy were included. McKenzie principles demonstrated moderately greater efficacy than exercise on pain in short-term ($d = 0.53$) and combined ($d = 0.51$) outcomes. McKenzie principles demonstrated a small effect size compared to exercise on pain in long-term outcomes ($d = 0.38$), as well as on disability in short-term ($d = 0.33$) and combined ($d = 0.35$) outcomes. No significant differences were found in the comparison between McKenzie principles and exercise on disability in long-term outcomes, as well as in McKenzie principles compared to manual therapy on pain and disability in all outcome measures. Conclusion: The principles of McKenzie treatment demonstrated moderately greater efficacy on reducing low back pain compared to exercise. There appeared to be a positive trend supporting the efficacy of McKenzie principles compared to manual therapy on pain and disability, however these outcomes were not significant.

The Effects of Active vs. Passive Sitting on Attention

Student Names:	Robin Joseph, Mancy Mehta, Anita Kuray
Faculty Mentor:	Melanie Austin-McCain
Department:	Occupational Therapy, School of Health Professions

Previous research examined the effects of sitting on a therapy ball on attention, lower back, workplace ergonomics, cardiovascular responses, anxiety, trunk strength, and mood. The purpose of this pilot study was to demonstrate differences in attention while sitting on a therapy ball with undergraduate students. The researchers hypothesized an increase in attention while sitting on a therapy ball. Seventeen undergraduate students at NYIT's Old Westbury Campus were asked to participate in this study in which they were separated into group one and two. Participants were randomly assigned to the experimental or control group, in which they performed the CUNY Sentence Test. Group one followed a three-week protocol and group two followed a two-week protocol. The subjects in the experimental group were asked to sit on the therapy ball, while the subjects in the control group were asked to sit on a standard chair with armrests. Results of this experimental design indicated that those who sat on the therapy ball performed better on the CUNY Sentence Test versus those who sat on a standard chair with armrests, thus implicating a suggestive trend.

<u>Session II Presentations</u>
10th Floor
Room 1029
Moderator Yuko Oda
2:15 pm-3:30 pm

- “Animation Techniques in Flash”
  By: Harmony Johnson

- “Social Media in Advertising”
  By: Christa Pascucci

- “Are Game Developers Afraid of Innovation: The Saturation of the Gaming Market”
  By: Daniel McClain

- “Like! Rate! Buy!”
  By: Noelle Scindian

Animation Techniques in Flash

Student Name: Harmony Johnson
Faculty Mentor: Yuko Oda
Department: Fine Arts, College of Arts and Sciences

My research project will be a comparative study of the specific Adobe Flash animation capabilities using hands on examples. Flash is an extensive 2D animation program that allows the artist the choice of several different methods to go about creating a project. The specific that I will be researching are the Brush tool with frame by frame animation, the Tween tool, and the Bone tool. I will also research how these tools are used in existing animations in the industry and art world. This project will reveal what each method allows and what their pros and cons are in comparison to each other. I have always been fascinated with animation, as that is my ultimate career path. Particularly, I am most partial to 2D animation. Though I have a long history with animation, I am not fully aware of every method that is used when creating 2D animation, especially in the program Adobe Flash. Flash is still widely used in the business of computer animation, therefore it is worthwhile for me to research all of the ways in which one can animate with the program. I will conduct this research project by creating three separate animations, all of which use one of the three different methods of animation I will be reviewing. These animations will be identical to each other aside from the method in which they are animated. With this, I will be able to show firsthand exactly what kind of animation each method can produce and how to go about using each one. Whilst showing each method and animation, I will explain which methods are more commonly used in the industry, which ones are used in specific examples outside of my animations, and which method is the most effective for the effects I am creating.

Social Media in Advertising

Student Name:	Christa Pascucci
Faculty Mentor:	James Fauvell
Department:	Communication Arts, College of Arts and Sciences

Even though integration of social media tools into the marketing practice of advertising has not been fully taken advantage of as of yet, similar practices already exist and are proving to promote a healthy dialogue between companies and consumers. With the use of Web 2.0 tools that are designed to engage in communication and interact with the consumer, this can lead to the building of relationships that will result in an influx of useful marketing information.

Are Game Developers Afraid of Innovation: The Saturation of the Gaming Market

Student Name: Daniel McClain
Faculty Mentor: Yuko Oda
Department: Fine Arts, College of Arts and Sciences

For my research project, I am conducting a study on video game design/development in the west and how American developers seem to be stuck in an uncreative rut and are simply recycling concepts that big developers know will sell well while the weight of coming up with new ideas falls upon the smaller companies who don't readily have the same assets as the bigger names. Through this topic, I wish to be able to better understand the mentality behind these decisions and shed some light on how drastically the video game field has changed and companies are more focused on making a game for a profit rather than seeking enjoyment from making a product people can enjoy. To conduct my research, I will interview people whose passion for games are on a similar level to mine, and ask their opinion on how the video game field in America has changed. Why do developers here put more thought into how they can make money instead of how they can make their game good? Why are many American gamers so opposed to outside games, i.e. Japan, and will shun them without giving them a chance? Why do we need to have a macho dude with guns-a-blazin' as the main character just to have a chance of selling well in America? I guess this research project isn't just "What has happened to game developers" but also "What has happened to the modern day 'person-who-enjoys-playing-video-games' ".

Like! Rate! Buy!

Student Name: Noelle Scindian
Faculty Mentor: Zennabelle Sewell
Department: Student Affairs, Campus Life

This presentation will discuss the effect of Social Media on consumerism. It will discuss how social media is used to influence our daily purchases as well as how social media is used to market products.

On Permanent Display in Exhibition Hall
Conference Center Lobby, 11th Floor

- "Can Tele-rehabilitation Decrease Caregiver Burden of Elders and Return Lost Occupations?"
  By: Amrisha Gill, Cherish Ignacio, and John DiLiberto

- "Hello My Name Is Campaign"
  By: Ashley Jimenez

- "A Survey of Spanish-Speaking Churches for Network-based Health Programs"
  By: Christine Adibe, Alix Lee, Jessica Smith and Bret Sparling

- "Extinction Is Forever"
  By: Christian Bolorinos

- "United We Stand: New York State Nurses Association Lobby Day Albany, NY - Safe Patient Handling and Safe Staffing - Group 1 Bill: A2180-A/51123-A Bill: S3691"
  By: Gina Columbo, Tindu Arikpurathu, Meghan Burke, Elizabeth Sierra, Darlene Sanchez, Milana Abrakhimova, Alixzondra Jasmin, Rinu Mathew, and Darren Park

- "Variability in the Administration of Liquid Medications By Prescribing Clinicians Using a Spoon"
  By: Tara Vanderburg, Katy Cloughen, Amanda Gesten, and Meghan Dooney

- "The Cardiovascular Effects of the Nintendo® Wii and Microsoft® XBOX Kinect"
  By: Vinay Taneja, Stephanie Bradbury, Frank Cesare, Inderjit Kainth, and Elise Yawney

- "Chronic Ivabradine-Induced Heart Rate Reduction Does Not Modify Collagen Accumulation in Myocardial Infarction Scar of Middle-Aged Rats"
  By: Yevgen Bogatyryov and Daniela McCooey

- "California Sea Lions"
  By: Briana Warner

- "Is This Real Life? Look into Special Effects Using Computer Graphics"
  By: Robert Arzberger

- “From Achiral to Chircal Molecular Bis-Porphyrin Ladders”
  By: Karolina Parciak and Ashley Delpeche

- “The 6MWT: Do Different Methods of Instruction Affect Performance Between Healthy Older Adults and Adults with Parkinson Disease?”
  By: Matthew Brownstone, Tracey Paschal, Lauren Sabio, Shivani Shah, and Danique Williams

- “Attitudes toward Bullying in College”
  By: Taylor Reheusser, Natali Arana, Kelvin Mendona, and Paolo Acuna

- “United We Stand: New York State Nurses Association Lobby Day Albany, NY - Safe Patient Handling and Safe Staffing - Group 2 Bill: A2180-A/51123-A Bill: S3691”
  By: Luciene Vieira, Lyudmila Zhirnova, Jagriti Bawa, Nicole Bieli, Charlene Harris, Uzma Khan, Kaitlyn Meegan, Ranjit Nair, Rachel Ram, and Cavella Tokarczyk

- “Long Island Ducks Mural”
  By: Christa Pascucci, Tara-Mae McSparron, Diana Papa, Chloe Johnson, and Tara Warshowsky

- “NYC Subway Ridership”
  By: Bernard Mendoza

- “Occludin, ZO-1 and ZO-2 Proteins Are Involved In Hydrogen Peroxide-Induced Increase In Paracellular Permeability Of Renal Epithelial Cells”
  By: Angelina Voronina, Nancy Singh, Danielle Janosevic, and Josephine Axis

- “Is Medical Informatics Being Taught Uniformly Throughout Physician Assistant Programs”
  By: John Dalton, Will DiBlasi, and Hannibal Gambino

- “A Posterior Approach to the Brachial Plexus”
  By: Shaun Hager, Tim Backus, and Ben Futterman

- “Character Development 101”
  By: Thomas Farace and Manny Munoz

- “Mapping the Aquatic to Terrestrial Transition: A Look at Dental Pathologies as a Function of Diet, Feeding Location and Behavior in Otters, Seals, and Walruses”
  By: Muhammad Durrani

- “Dynamic Exploration in Autodesk Maya”
  By: Giuseppe Prisco

- “Taking Set Driven Keys To The Limit”
  By: Steven Lopez

- “Becoming a One Man Network”
  By: Daniel Olsson

- “Enhanced Buffer Capacity for Boric Acid and Buffer Mixtures”
  By: Manthan Patel and Thuy Tien Le Cao

- “Infographics”
  By: Catalina Salgado

- “Structural Elucidation of Chiral Organophosphorus Insecticides”
  By: Susan Kunjachan

- “Structural Elucidation of Chiral Medicinal Natural Product”
  By: Melissa Inderjit and Susan Kunjachan

- “Buffer Capacity Profile of Complex Buffer Systems”
  By: Orin Pramanik and Monica Nakhla

- “A Comparative Study of Working and Non-Working Matriculated Physician Assistant Students”
  By: Elizabeth Abreu, Mahbubur Rashid, and Magdalena Ravkin

- “How to Combine 2D Animation into 3D Animation”
  By: Diamond Vega and Anthony Steglik

- “Sleeping Troubles in the U.S.“
  By: Ilvania Mendoza

- “Feeding and Dental Wear of the Terrestrial to Aquatic Transition in Mammals: Otters as a Model”
  By: Ashima Saif

- “Posture Detection Device for Parkinson’s Patients”
  By: Nnanna Okorie

- “Buffer Titrations”
  By: Nikolay Gogin, Fatin Fuad Nabil, and Donald Chen

- “Hunger Hurts”
  By: Michael Smyth

- “NYC Crime Statistics Info Graphic”
  By: Dalton McDonald

- “Sleepless America”
  By: Michelle Giff

- “Molecular Orbital Energy Calculations via use of Modified Hydrogenic Atomic Orbitals”
  By: Kristel Yee Mon

Can Tele-rehabilitation Decrease Caregiver Burden of Elders And Return Lost Occupations?

Student Names: Amrisha Gill, Cherish Ignacio, John DiLiberto
Faculty Mentor: Ellen Greer
Department: Occupational Therapy, School of Health Professions

The role of a caregiver can be a highly rewarding experience. Caregivers play a significant role to individuals, particularly the elderly, who are in need of such care. Duties of a caregiver include a variety of tasks such as providing assistance with home management, meal preparation, financial management, bathing, dressing and other ADLs and IADLs. However, such demands and responsibilities have the potential to be physically and emotionally draining for caregivers, thus negatively affecting their well-being. This is where the issue of caregiver burden lies. In most cases, the negative affect on a caregiver's quality of life may cause loss of occupation. The burden increases if the caregiver has a family of his or her own, as it can also impact family dynamics. The role of occupational therapy is to focus on regaining, maintaining, and promoting independence in daily occupations in order to enhance the quality of life of an individual. Occupational therapy can indirectly aid in reducing caregiver burden by increasing independence among the elderly, thus ultimately relieving the caregiver of some responsibility. This investigation emphasizes the multidisciplinary approach of occupational therapy through the use of modern technology. The significance of this literature review is to further recognize caregiver burden and to investigate possible solutions, such as tele-rehabilitation, in hopes to regain loss of occupation of caregivers of the elderly population.

Hello My Name Is Campaign

Student Name: Ashley Jimenez
Faculty Mentor: Susan Landgraf
Department: Communication Arts, College of Arts and Sciences

The *Hello My Name Is* (H.M.N.I.) campaign is an opportunity for self-empowerment through the visual description of a word that symbolizes the essence of an individual's life story. My goals and hopes are to bring awareness of different generation's thoughts, ideas, feelings, and their personal perception of their own life. The success of this campaign will only flourish with the help and participation of all ethnic backgrounds, racists, ages, and religions. Everyone's voice will be welcomed and heard through my campaign's visual imagery.

A Survey of Spanish-speaking Churches for Network-based Health Programs

Student Names:	Christina Adibe, Alix Lee, Jessica Smith, Bret Sparling
Faculty Mentor:	Zehra Ahmed
Department:	Physician Assistant Studies, School of Health Professions

Corona and Jackson Heights are two Latino-populated neighborhoods in Queens, New York that exemplify the lack of regular health care that is typical among hard-to-reach populations. The objective of this research was to survey Spanish-speaking religious institutions located in these neighborhoods to assess each institutions suitability for partnering with medical groups that offer free health initiatives. Church members were assessed for their health care needs and receptiveness to health care interventions; church leader were assessed for their ability to motivate congregants and for their understanding of their congregants' health concerns. Ample evidence suggests that churches act as effective networks for the dissemination of health care promotion. This research presents partnership recommendations for organizations hoping to offer health initiatives to the Latino community in Corona and Jackson Heights. Methods and Participants. Spanish-speaking churches in zip code areas 11368 and 11372 in Corona and Jackson Heights were identified through Internet searches. Introductory letters were sent to 42 church leaders and were followed up by phone calls and in-person visits. Ten church leaders agreed to participate. Church leaders were asked to complete their own questionnaires, before they distributed separate questionnaires to church members. The leaders estimated: (1) how many congregants would participate in the survey; (2) how many would be willing to participate in health care initiatives; and (3) what congregants would report as their top health concerns. Each leader served as a conduit for assessment of his/her congregants by distributing questionnaires, soliciting congregant's participation, and collecting completed questionnaires. Results. With ten participating churches, 380 completed questionnaires were collected. The percentage of respondents ranged from 0% (no surveys returned) to 52 percent. Lack of health care insurance by congregation ranged from 0% to 74%, with an aggregate average of 34 percent. Lack of regular care ranged from 0% to 60%, with an average of 32 percent. Ninety-two percent of respondents expressed willingness to participate in health initiatives, though this number was as low as 44% in one church. Leader accuracy in predicting congregant behavior and health concerns varied widely. Conclusion. From this data, three congregations stand out as especially suitable for health care initiatives: Church Y (who wishes to remain anonymous in this study), St. Marks Episcopal, and Queens 7th Day Adventist. These congregations are underserved populations that have expressed a desire to participate in health initiatives. They can be accessed easily, and their willingness and ability to participate have been demonstrated by their completion of questionnaires. These congregations offer an exceptional opportunity for the efficient utilization of health care resources.

Extinction is Forever

Student Name: Christian Bolorinos
Faculty Mentor: Patty Wongpakdee
Department: Fine Arts, College of Arts and Sciences

This piece is called *Extinction is Forever*. My goal in this project was to give a visual idea of how fast animals all over the world are becoming extinct. The full gravity of this situation is hardly ever appreciated, and I wanted to make something that would put it plain and simple. The piece covers fish, birds and mammals. The data had more species (reptiles and insects) but I figured it would be good to simplify it, as the idea gets across. The little labels show the percentage of indigenous species that are in danger of extinction, as they move up from a body to a corpse. The info is very simple, and a great crash course for children, making it a very effective info graphic.

United We Stand: New York State Nurses Association Lobby Day
Albany, NY
Safe Patient Handling and Safe Staffing – Group 1
Bill: A2180-A/S1123-A
Bill: S3691

Student Names:	Gina Columbo, Tindu Arikpurathu, Meghan Burke, Elizabeth Sierra, Darlene Sanchez, Milana Abrakhimova, Alixzondra Jasmin, Rinu Mathew, Darren Park
Faculty Mentors:	Cheryl Zauderer, Susan Neville, Carol Caico, Barbara Diggle-Fox
Department:	Nursing, School of Health Professions

As future nurses, political activism is crucial to our practice. We work not only to provide care at the bedside of our patients, but to advocate for our profession and our patients. This is for the benefit of our entire community! Specifically as student nurses, it is extremely important that we become politically active as early in our career as possible and this is often frightening to some! On April 16, 2013, the Student Nurses Association will participate in the New York State Nurses Associations Lobby day where we will consult New York state representatives regarding the following bills that are pivotal to the nursing profession: safe patient handling and safe staffing. Safety is an important factor in the nursing profession; it affects patient outcomes as well as the nurse. When we have inadequate staffing, safety is compromised; there is less staff available to provide the quality of care that patients need. Patient outcomes are compromised and there is an increase in patients readmission to the healthcare facility. They affect the nurse by increasing the chances of burnout, self-injuries and medication errors. After visiting Albany, we will present the information on a poster including flyers and brochures. It will display the research that is involved in this project as well as the educational benefits of the experience!

Variability in the Administration of Liquid Medications by Prescribing Clinicians Using a Spoon

Student Names:	Tara Vanderburg, Katy Cloughen, Amanda Gesten, Meghan Dooney
Faculty Mentor:	Lawrence Herman
Department:	Physician Assistant Studies, School of Health Professions

Tablespoons and teaspoons are found in virtually every American household and are often used instead of standard measuring devices for the administration of liquid medication. There is tremendous variation in the volume that household spoons can hold, and using them to dispense medication risks both over and under dosing. Previous studies have found that spoons selected by lay people ("those not licensed to prescribe medications") vary greatly from the standard 5 milliliters that define a teaspoon. The purpose of this study is to determine if, when using spoons for medication dosing, both physician and non-physician prescribers select household spoons with less volume variability than those not licensed to prescribe medication. Methods: A convenience sample of a single household spoon was collected from prescribers physicians, physician assistants (PAs) and nurse practitioners (NPs) encountered on clerkships in the greater metropolitan New York area by physician assistant students. The volume of each spoon was measured by one of the researchers. Results: Of the 119 spoons collected, the spoons ranged in volume from 3.3 to 11.7 mL. Significantly, more than 77% were less than 4.5 ml or greater than 5.5 ml, a variability of greater than 10% from a standard 5.0 mL dose. Conclusion: It was determined that the variability in perception of spoon accuracy for dosing of medications is present amongst prescribers and can lead to significant errors in dosing and possible harm to patients. There is a virtual certainty that prescribers using spoons to dose medications will not precisely dose patients and/or family members (p-value of < 0.00001) when utilizing common household spoons. There are both relatively easy and effective ways that may eliminate these errors in the future and decrease these unfortunate and preventable mistakes, including packaging changes and warnings on medications.

The Cardiovascular Effects of the Nintendo® Wii and Microsoft® XBOX Kinect

Student Names:	Vinay Taneja, Stephanie Bradbury, Frank Cesare, Inderjit Kainth, Elise Yawney
Faculty Mentor:	Teresa Ingenito
Department:	Physical Therapy, School of Health Professions

A sedentary lifestyle can lead to a variety of cardiovascular pathologies, one of the most serious being coronary heart disease (CHD). CHD is the leading cause of death in the United States for both males and females. It is characterized by the narrowing of small blood vessels surrounding the heart, caused by plaque build-up on the walls of the coronary arteries. This ultimately results in slowing or a blockage of blood flow to the heart. The World Health Organization (WHO) has ranked physical inactivity as number four among the top fifteen risk factors for the Global Burden of Disease. A sedentary lifestyle is a modifiable risk factor and companies such as Nintendo® and Microsoft® have developed gaming systems that allow the participant to perform more physiological work through upper body or total body movements. Evidence already suggests that gaming systems are a safe alternative for patients who are physically and cardiovascularly de-conditioned. This study incorporated both an upper body and lower body game for the Nintendo® Wii and Microsoft® XBOX Kinect. Healthy subjects from the New York Institute of Technology community aged 18-30 years, who exercised less than three days a week were included in this study. A Latin Square design was used to randomize the treatment conditions. The purpose of this study was to investigate the cardiovascular effects of the Nintendo® Wii and Microsoft® XBOX Kinect. Our aim was to compare these effects to determine which device posed the greatest benefit to the cardiovascular system. We hypothesized that the Microsoft® XBOX Kinect will yield greater cardiovascular effects than the Nintendo® Wii. Each subject played four games in total: Zumba for lower body exercise and boxing for upper body exercise, each for both gaming systems. The treatment conditions did not occur on the same day as they were separated by a minimum of 24 hours. Each session lasted for approximately 15 minutes. Resting heart rate and blood pressure were recorded prior to the start of each game, immediately after the game was played, and five minutes after the game was completed. Blood pressure was taken with a standard cuff and stethoscope, and heart rate was taken with a Pulse Oximeter. The Borg 15-point Rating of Perceived Exertion (RPE 6-20 scale) was used to monitor fatigue/exertion during all exercises. All information collected has been kept secure and confidential. The independent variables for this study are the four games: an upper body and lower body game for each gaming system. The dependent variables are the cardiovascular effects, including heart rate, blood pressure, RPE, and hedonics. In order to test our hypothesis, we will perform a repeated measure ANOVA for each dependent variable. An alpha level $p<0.05$ will be used for all statistical comparisons.

Chronic Ivabradine-Induced Heart Rate Reduction Does Not Modify Collagen Accumulation in Myocardial Infarction Scar of Middle-Aged Rats

Student Names:	Yevgen Bogatyryov, Daniela McCooey
Faculty Mentor:	Eduard Dedkov
Department:	Biomedical Sciences, College of Osteopathic Medicine

A large myocardial infarction (MI) of the left ventricle (LV) initiates progressive structural remodeling of the heart, consisting of the thinning and scarring of the infarcted region, dilatation of LV chamber, and compensatory hypertrophy and interstitial fibrosis of the noninfarcted LV myocardium. In recent years, the accumulating body of evidence derived from experimental animal studies has demonstrated that chronic heart rate reduction (HRR) induced after MI with ivabradine (IVA), a selective inhibitor of the pacemaker If current, was associated with the reduced fibrillar collagen accumulation in surviving LV myocardium. Although this effect is considered to benefit LV performance, the decrease in fibrillar collagen can diminish a tensile strength of the scar and lead to development of ventricular aneurism or scar rupture. Therefore, we designed our study to determine whether chronic HRR with IVA affects the content of fibrillar collagen in the post-MI scar. A large MI was induced in12-month-old male Sprague-Dawley rats by ligation of the left descending coronary artery and the rats were then assigned in two experimental groups. In the first group, rats were treated with IVA i.p. via osmotic pumps in a dose of 10.5 mg/kg/day for 3 months (MI+IVA), while in the second group rats received placebo treatment only (MI). At the end of experiment, rats with transmural infarctions, greater than 50% of the LV free wall, were selected for a final evaluation. Their hearts were arrested in diastole by the infusion of 2% lidocaine, excised, and perfuse-fixed with 4% paraformaldehyde in phosphate-buffered saline. Then the hearts were cut transversely into 2-mm-thick parallel slices with a blade guillotine. From each heart, a mid-ventricular slice was processed and embedded in paraffin. Transverse 8.0-Âµm-thick sections were prepared with the use of a rotatory microtome, placed on the glass slides and processed for histological staining with picro-sirius red stain to identify collagen fibrils. The stained sections were examined under the Olympus BX53 microscope. In each heart, the series of high-resolution images covering the entire left ventricle were captured at x4 magnification with an Olympus DP72 digital camera and imported into the computer. Finally, the digital assembly of the complete left ventricles, including the scar region, was done using Adobe Photoshop CS5 software. Morphometric and stereological analyses were conducted on assembled figures using Image-Pro Analyzer 7.0 software. The fractional volume of fibrillar collagen was determined in non-infarcted LV free wall and the scar. We found that the scar size and thickness were comparable between MI and MI +IVA rats (63.1Â±2.7% vs. 59.6Â±1.8% and 0.93Â±0.09 mm vs. 0.90Â±0.05 mm, respectively). Although, there was a significant reduction of fibrillar collagen in LV free wall of IVA-treated rats as compared to untreated animals (5.1Â±0.5% vs. 7.8Â±0.8%, pâ‰¤0.01) the content of fibrillar collagen was comparable in scars of MI+IVA and MI rats (71.7Â±6.9% vs. 71.8Â±3.9%, respectively). Our data are the first to show that chronic IVA-induced HRR does not reduce the content of collagen in post-MI scars.

California Sea Lions

Student Name: Briana Warner
Faculty Mentor: Eleni Nikitopoulos
Department: Life Sciences, College of Arts and Sciences

The California Sea Lion, Zalophus Californianus, is known for its playfulness, intelligence, and loud barking. I am studying three California Sea lions, which I can identify individually. For each subject I will conduct focal observations every minute for a duration of 10 minutes. My research question is whether the sea lions interact more with each other in the presence of a crowded audience (20 or more people) versus a small audience (<20 people). I have constructed and am implementing an ethogram with behaviors such as aggression, swimming in formation and contact rest. Based on the playful nature of sea lions, I predict them to interact more in the presence of a crowd.

Is This Real Life? Look into Special Effects Using Computer Graphics

Student Name: Robert Arzberger
Faculty Mentor: Yuko Oda
Department: Fine Arts, College of Arts and Sciences

Special effects are used all the time in entertainment. These effects can be practical effects, real-life, or computer generated effects. I want to find out why one is chosen over the other. I want to look into why CG is preferred to practical. How can an effects artist make something created with computer software look as if it belongs in a real world space occupied by real people? My research project will take part in three comparative studies, where I investigate the existing ways directors use special effects created using computer graphics in entertainment. Being a CG student and an avid fan of film and TV, I want to see why movies and shows like the *Lord of the Rings* or *Game of Thrones* use CG to bring the world to life when other movies use physical objects and real people to create their stories/worlds. I will also look into the use of computer graphics to create full on characters that have direct involvement with other characters. Some examples of this are Gollum from *The Lord of the Rings Saga* or Caesar from *The Rise of the Planet of the Apes*. Both characters where acted out by a human actor than replaced with the CG character they were portraying. I will also look at how using CG may not work in a film and also where it works perfectly with what is being done. For examples, George Lucas releasing the original *Star Wars Trilogy* with new effects and addition CG animations that were not in the first release of the films and were not really needed. It works for a YouTube group called Corridor Digital which make short films weekly and rely heavily on their CG effects to tell their stories. I know that the decision to use CG or not is based on a few factors. Budget, time, locations, director's vision, all of these things come into play when trying to create something. I want to learn if CG creates better results when it comes to special effects. What is preferred in the industry? And what it takes to make CG the preferred way to handle effects and objects/ characters not of this reality.

From Achiral to Chircal Molecular Bis-Porphyrin Ladders

Student Names: Karolina Parciak, Ashley Delpeche
Faculty Mentor: Ana Petrovic
Department: Life Sciences, College of Arts and Sciences

This project falls within a domain of chiral supra-molecular chemistry and it advances the area of research associated with the chiral induction1-3 of initially achiral double-stranded molecular architectures. Specifically, we are exploring the propensity for induction of double-stranded helical configurations from initially ladder-based bis-porphyrin architectures. The induction is based on host-guest complex formation between achiral guest and an a chiral bis-porphyrin ladder host. The coordination between the nucleophilic groups of the chiral guest and Zn-centers of the bis-pophyrins has propensity to induce a helical twist (stereo-differentiation) between the prophyrins, as evidenced by the tweezer methodology. The ultimate aim is to assess the feasibility of using the bis-porphyrin twist as the means of propagating the chirality down the ladder. We will present molecular modeling studies, based on Multiple Minimization and Monte Carlo conformational searches, that provide insight for cost-effective synthesis of perspective candidates for double-helix induction.

References: 1. Yashima, E.; Katsuhiro, M. Macromolecules (Review). 2008 , 41, 3“12. 2. Sanji, T.; Takase, K.; Sakuria, H. J. Am. Chem. Soc. 2001 , 123, 12690“12691. 3. Nieto-Ortega, B.; Nebot, V.J.; Miravet, J.F.; Escuder, B.; Lopez, N. J.; Casado, J.; Ramirez, F.J. Journal of Phys. Chem. Letters, 2012, 3, 2120-2124.

The 6MWT: Do Different Methods of Instruction Affect Performance Between Healthy Older Adults and Adults with Parkinson Disease?

Student Names:	Matthew Brownstone, Tracey Paschal, Lauren Sabia, Shivani Shah, Danique Williams
Faculty Mentor:	Veronica Southard
Department:	Physical Therapy, School of Health Professions

The purpose of this study was to assess the validity of the use of a pedometer measurement when compared to the measured linear distance in the 6-minute walk test (6MWT) on a 15 meter (m) and 30m course in those with Parkinson disease (PD). These values were compared to age and gender matched healthy controls. Hypothesis: The pedometer is a valid measure of linear distance during the 6MWT on the 15m and 30m track. Secondly, the distances recorded will be slightly greater on the fast trial; however, the differences will not be significant. Thirdly, reducing the size of the track decreases the total amount of distance walked during the 6MWT in individuals with PD. Fourthly, there will be no differences noted between predicted distance and actual distance achieved in the PD group. Lastly, the Rated Perceived Exertion (RPE) of the PD group will be greater than the controls, but will not significantly differ between trials of different track size and instruction. We also examined the difference in the instructions of "walk as fast as you can" versus "walk as far as you can" while administering the 6MWT. Methods: This study was approved by the IRB at NYIT. Subjects between ages of 50-85 participated. Subjects with PD, meeting the inclusion criteria who attended the Wellness program and Physical Therapy clinic at the NYCOM Academic Health Center were invited to participate. Healthy subjects were recruited from the local NYIT community. Consents were signed at the initial session. Vital signs were taken before and after each trial on all subjects. All subjects completed a trial to reduce learning effects. Subsequently, the two calculated trials of the 6MWT were completed on each track, with each subject wearing a DIGI-WALKER SW-651 pedometer. The numeric value for RPE was recorded at the end of each trial. A 15m and 30m taped line was placed on the floor with markers placed every 3m. Stride length was calculated as recommended by the manufacturer. Subjects were told randomly to either "walk as fast as you can" or "walk as far as you can." Researchers recorded each lap, pedometers were collected and the final distance at the end of the 6 minutes was recorded. The correct linear distance was measured from the subject's starting position. This was conducted on the 15m and 30m tracks for all subjects. Statistics: A repeated measures design will be used to assess for effects and interaction by group during these conditions: linear versus pedometer measures, fast versus far, track size, and RPE versus condition. Descriptive statistics will be computed for each group, as the study is still ongoing. Conclusion: This study will add to the evidence base for determining a valid means of measuring physical activity and to assess for any differences in performance of the 6MWT with different instruction in adults with mild to moderate PD.

Attitudes Toward Bullying in College

Student Names:	Taylor Reheusser, Natali Arana, Kelvin Mendoza, Paolo Acuna
Faculty Mentor:	Blair Hoplight
Department:	Behavioral Sciences, College of Arts and Sciences

Bullying is a major topic of concern in schools across the United States. It is commonly assumed that bullying primarily occurs in a younger population; however longitudinal studies show that bullying occurs in older populations, especially in college. In the college population bullying may occur in several modalities, including student to student, teacher to student and in social media. The purpose of the study was to survey perceptions towards bullying in college. In the study we conducted we surveyed college students at The New York Institute of Technology. Participants were given different scenarios to read and then asked to evaluate the degree of bullying in each scenario. The data was collected from classes in the Behavioral Science department, spring 2013 from approximately 100 students. The scenarios were all different but they all pertained to bullying in one way or another. The survey's results showed us the opinions and attitudes of college bullying. This study will help us understand how a young adult population will view bullying during their college experience.

United We Stand: New York State Nurses Association Lobby Day
Albany, NY
Safe Patient Handling and Safe Staffing – Group 2
Bill: A2180-A/S1123-A
Bill: S3691

Student Names:	Luciene Vieira, Lyudmila Zhirnova, Jagriti Bawa, Nicole Bieli, Charlene Harris, Uzma Khan, Kaitlyn Meegan, Ranjit Nair, Rachel Ram, Cavelle Tokarczyk
Faculty Mentors:	Susan Neville, Cheryl Zauderer, Carol Caico, Barbara Diggle-Fox
Department:	Nursing, School of Health Professions

Nurses are the eyes and ears of the health care system. They are the closest link to the patient, able to provide a unique view on the inner working of policy related to the effectiveness of care. Nurses are educated to advocate for their patients and use critical thinking to discover the most effective solutions to problems. There are many famous nurses in our past that fought to change policy from laws that lacked insight into patient care. Dorthea Dix won many court battles for the mentally ill-using her firsthand accounts of the extreme conditions in jails. Margaret Sanger endured persecution, arrests, and many failures at lobbying, but determined in her cause never declared defeat; in the end her work brought about the legalization of birth control changing the face of health care. As future nursing professionals, the opportunity to have your ideas mold the policies of our practice is one of overlooked importance. It is our professional duty to use our experiences and knowledge to voice the changes that need to be made. In collaboration with our school faculty, the senior class is preparing a project themed on ideas about the nursing shortage and safe patient handling. We will present to our ideas to selected members of the NYS legislature who meet annually at the NYS Nurses Association Lobby Day in Albany. Included in the project is a poster documenting the research process, two fliers depicting the legislators, and two brochures stating the key points of the proposed changes to legalization. Our research has focused us on the nursing shortage and lack of proper staffing in the hospital setting. It is the legal obligation of healthcare institutions to provide safe staffing level so that nurses do not find themselves in unsafe environment. By allowing mandatory nurse to patient ratio we can improve patient quality of care, which can decrease mortality rates in hospitals. Another issue posing a threat to quality of care is safe patient handling. This term refers to policies and programs that enable nurses and other health care workers to move patients in a way that does not cause strain or injury. This bill proposes to implement statewide policies that include a written statement, employee training and education on assistive devices, and program evaluation and modification as necessary. These policies will not only benefit nurses and health care workers, but also provide positive outcomes for patients and individual health care facilities.

Long Island Ducks Mural

Student Names:	Tara-Mae McSparron, Christa Pascucci, Diana Papa, Chloe Johnson, Tara Warshowsky
Faculty Mentor:	John Hanc
Department:	Communication Arts, College of Arts and Sciences

We are designing and creating a paint/vinyl mural that will be located at the entrance of the Long Island Ducks Stadium. The mural will highlight the Ducks' values, accomplishments, and of course their beloved mascot “Quacker Jack.”

NYC Subway Ridership

Student Name: Bernard Mendoza
Faculty Mentor: Patty Wongpakdee
Department: Fine Arts, College of Arts and Sciences

As a designer, my job is to deliver messages and information in a clear and creative method. My info-graphic is a visual representation of the accumulated statistics which illustrates the annual NYC subway riders from 2007-2011. This is an interesting compilation of data because it signifies the dependency towards the subway system in this fast paced New York lifestyle. This graphic represents the average weekday, yearly annual, and also the top five busiest subway stations.

Occludin, ZO-1 and ZO-2 Proteins Are Involved in Hydrogen Peroxide-Induced Increase in Paracellular Permeability of Renal Epithelial Cells

Student Names:	Angelina Voronina, Nancy Singh, Danielle Janosevic, Josephine Axis
Faculty Mentor:	Kurt Amsler
Department:	Biomedical Sciences, College of Osteopathic Medicine

Epithelial cell sheets separate body compartments. Tight junctions (TJ) connect adjacent epithelial cells along the immediate subapical membrane region and, thereby, limit movement of solutes between cells from one body compartment to another (paracellular pathway). Tight junctions are composed of multiple membrane proteins, including occludin and claudins, and cytoplasmic proteins, including Zonula occludens ZO-1 and ZO-2. The paracellular pathway is comprised of two components, the pore pathway, a large capacity pathway for small ions and small solutes, and the leak pathway, a small capacity pathway for large solutes. One of the factors that contributes to organ failure during renal ischemia/reperfusion injury is an increased permeability of the paracellular pathway in the renal epithelial cells. This is mediated, at least in part, by formation of reactive oxygen species such as hydrogen peroxide. We are studying the molecular mechanisms causing this increased renal cell paracellular permeability using a model system of renal epithelial cells in culture treated with hydrogen peroxide. Treatment of renal cells with hydrogen peroxide produces a dose-dependent increase in paracellular permeability, primarily, at least at low hydrogen peroxide concentrations, by increasing leak pathway permeability. Pore pathway also increases at higher hydrogen peroxide concentrations but this is also associated with increased cell death. Knockdown of occludin protein in the renal cells increased their sensitivity to hydrogen peroxide, whereas, occludin protein overexpression decreased their sensitivity. Similarly, ZO-1 protein knockdown decreased renal cell sensitivity to hydrogen peroxide, whereas, ZO-2 knockdown increased sensitivity. These results implicate these three TJ proteins in mediating the effect of hydrogen peroxide on leak pathway permeability. Hydrogen peroxide did not alter the total cellular contents for any of these TJ proteins. Subcellular localization for these TJ proteins was also not affected dramatically by hydrogen peroxide treatment. Hydrogen peroxide did disrupt the F-actin stress fibers located at the basal pole of the renal epithelial cells. These experiments indicate that hydrogen peroxide modulates renal epithelial cell permeability through effects on several TJ proteins, including occludin, ZO-1 and ZO-2.

Is Medical Informatics Being Taught Uniformly Throughout Physician Assistant Programs

Student Names: John Dalton, Will DiBlasi, Hannibal Gambino
Faculty Mentor: Frank Acevedo
Department: Physician Assistant Studies, School of Health Professions

With the many changes involving technology and healthcare it has become essential that healthcare professionals be both knowledgeable and competent in the area of Medical Informatics. The goals of Medical Informatics include the delivery of better quality healthcare while also minimizing cost and errors during the process. Although there is a new call for healthcare providers to be efficient in this area, it is apparent that there are no standards for education. The researchers of this project seek to survey Accredited Physician Assistant Programs in hopes of revealing any uniformity in the education of Medical informatics. Method: This study utilized a quantitative research, in the form of a questionnaire, to determine uniformity among Accredited Physician Assistant Programs and how they are educating their students in Medical Informatics. Program Directors of each Physician Assistant Program were sent an electronic survey, containing: (1) yes/no, (2) multiple choice, and (3) check box question(s) regarding if their program provides such education as well the extent to which they do so. The data was collected and organized using a spreadsheet program and underwent graphical analysis. Results: The data was collected in an online survey. There were 22 anonymous participants. The results determined that 64% of respondent physician assistant programs do not teach their students medical informatics. This is in spite of the fact that 90% of the respondents feel that their students need to be educated in this topic. Additionally, of the reported population that does teach Medical Informatics 56% of the respondents felt they do not adequately educate their students in the selected topic area, and 80% believe there should be standards for teaching Medical Informatics in the Accreditation Standards for Physician Assistant Education. Conclusion: This study showed that there is a significant difference in the way that Physician Assistant Students are educated across the county in the topic of Medical Informatics. There are no current national standards for Physician Assistant Programs to follow even though the majority of them desire some direction and uniformity. The NYIT Department of Physician Assistant Studies though does teach this important facet of technology to its students.

A Posterior Approach to the Brachial Plexus

Student Names:	Shaun Hager, Tim Backus, Ben Futterman
Faculty Mentor:	Matthew Mihlbachler
Department:	Anatomy, College of Osteopathic Medicine

The objective of this study is to describe a novel brachial plexus dissection that enhances the current technique. The standard brachial plexus dissection involves approaching the distal branches of the brachial plexus within the axilla, and viewing it from an anterior perspective. This approach fails to expose the more proximal sections of the plexus and leads to a poor exposure of the posterior cord and its branches. Recent research on the brachial plexus of non-human mammals demonstrates an alternate posterior, subscapular approach that results in complete exposure of the brachial plexus requiring minimal damage to surrounding structures. Similar methods are used in the surgical approach to the human brachial plexus although they have not been adopted in human gross anatomy labs. By combining these two methods students will be able to access an expanded view of the brachial plexus in the subscapular space. This technique was developed and refined using four human cadavers and revealed nearly all but two branches of the brachial plexus in each dissection. It was then used by first year students in a medical anatomy lab course and resulted in expanded views of the brachial plexus in all cases. We conclude that including a posterior approach in the dissection of the brachial plexus during human anatomy courses will give students the most complete and relevant view of all the structures involved.

Character Development 101

Student Names: Thomas Farace, Manny Munoz
Faculty Mentor: Yuko Oda
Department: Fine Arts, College of Arts and Sciences

As a research project for Source we are interested in finding out what it takes to develop a new character in an existing game environment. As game lovers we know that a new character also needs to relate artistically to the theme and art style of the game, as well as how the power of a given character balances in relation to the others, promoting fair and equal play that is based on skill. The main influence for this project comes from our common interest in the game *League of Legends* and its constant new character integration. We will be using *League of Legends* as a standard for the process we are studying. Both of us are Computer Graphics majors and have a deep passion for the video game medium. We realized the difficulty of creating new ideas and still completing them under strict time constraints. This has motivated us to study the techniques and processes the professionals use in order to better ourselves, as well as prepare us for a future job in the industry. As previously mentioned, we are planning to research how riot games creative process works and what kind of pressures they undergo to release a new character. In doing so we would like to study how different art styles clash but also figure out how to uniform the sketches to work well as part of the game. Our research will look deeper into the new character production pipeline of a large studio production and in addition we will create our own new characters for the *League of Legends*. We are planning on creating a character based on a specific idea but drawn completely independent of influence from each other.

Mapping the Aquatic to Terrestrial Transition: A Look at Dental Pathologies as a Function of Diet, Feeding Location and Behavior in Otters, Seals, and Walruses

Student Name: Muhammad Durrani
Faculty Mentor: Brian Beatty
Department: Anatomy, College of Osteopathic Medicine

The oral environment of marine mammals is flush with water on a regular basis, potentially having a large effect on oral chemistry and the proliferation of bacteria and associated pathologies. To explore the comparative and subtle effects of this, we studied 637 specimens of otters (Lutrinae), seals (Phocidae), sea lions (Otariidae) and walruses (Odobenidae) for osteological indicators of dental pathology. Pathologies such as malocclusions, caries, calculus formation, and periodontal disease (including alveolar bone erosion, periapical abscesses, and dento-alveolar abscesses) were evaluated, and logistic regressions of their frequencies between groups were analyzed to determine their correlative relationship to factors such as time spent in water, diet, feeding location (above or below water) and trophic level. This analysis indicates that feeding location affects the presence of periodontal disease, such that the fully aquatic pinnipeds (Phocidae, Otariidae, and Odobenidae) have a significantly smaller incidence of periodontal disease than otters. Among otters, diet (specifically hard-bodied prey items) correlates best with the frequency of periodontal disease.

Dynamic Exploration in Autodesk Maya

Student Name: Giuseppe Prisco
Faculty Mentor: Yuko Oda
Department: Fine Arts, College of Arts and Sciences

For my SOURCE research project, I have decided to acquire a deeper understanding of what Adobe Maya Dynamics actually are, what they do, and how they affect each other and the objects in the environment, as well as some problems I personally ran into when working on a previous project. In addition to this research, I wish to find out more about some of the options I have shied away from during the project such as hinges, and other dynamic capabilities of the program, as well as nCloth, and other various options available that may seem somewhat daunting to someone just tinkering with the software. I have chosen the topic of Dynamics in Maya because as stated above, I have already done a small project dealing with Dynamics. This project was to see what the Dynamic options have to offer on the surface. The project was to design a Rube Goldberg Machine and have a ball run through an obstacle course colliding with other objects in the scene. While working on this project I noticed many options I was curious about, but did not use due to ignorance of their functions and what they would do. Such options as Hinge Constraints, different Area Fields such as wind and air, and other options such as nCloth and how they would interact with the scene. This project will explore these additional Dynamic options. Since software seems to update at least once a year, I feel most of my research will be done online due to the fast changing nature of the topic. Various tutorials, forums and even the Help section of the Maya software will be my main venue for information on the subject. While working on the project described above, I found myself on YouTube looking up how to do simple tasks and explanations of what certain things were. Watching other users actually carry out the task and being able to follow along, or go back and re-watch a section if better for me to pick up on, personally. Having the freedom to look up a specific problem you may be having in a program and seeing others have had the same problem, and in most cases found a solution for it makes exploring software a lot less daunting than it may have been in the past.

Taking Set Driven Keys to the Limit

Student Name: Steven Lopez
Faculty Mentor: Yuko Oda
Department: Fine Arts, College of Arts and Sciences

The use of Set Driven Keys in Autodesk Maya can be used for multiple reasons which produce a wide range of successful results. My goal is to research all these possibilities and explore the limits and capabilities. For example Set Driven Keys are used to create relationships between two objects in Maya so that they react with each other according to the parameters set. I would like to use this technique to animate a futuristic vehicle composed of multiple individually moving components. After researching I would like to have discovered if Set Driven Keys could facilitate the animating process and if it would be possible to animate a chain reaction using Set Driven Keys. I am currently in the process of creating and producing a short digital animation and have only scratched the surface when it comes to learning the use of Set Driven Keys. I would like to experiment with a futuristic vehicle I modeled that undergoes a three stage transformation to take its three distinct forms. If successful it would not only save me time during the animation process but it could possibly increase the quality and end result of the animation. I intend to create Set Driven Keys that defines the relationships between each moving component. I will attempt to link the Driven Keys from one to another so that the first moving component triggers a chain reaction which completes the transformation. While I conduct my research I will gather numerous video web tutorials and Maya course textbooks that specify or include information of the use of Set Driven Keys. I will also further investigate the uses of the Set Driven Keys to insure I did not overlook any possibilities. With Maya, many techniques can be used to produce a variety of multiple results. After completing tutorials and watching demos, I will then try to implicate the techniques I learned to my own production. At the end it would be a success if the techniques I learned can be used to take Set Driven Keys further then its expected capabilities.

Becoming the One-Man Network

Student Name: Daniel Olsson
Faculty Mentor: Yuko Oda
Department: Fine Arts, College of Arts and Sciences

The iconic model of one person using one computer is quickly becoming outdated. More and more I see people setting up their laptops in front of their desktops while checking their phones and I think, “Where are we going from here? What else can we already do? What AREN’T we doing to make this cluster of gadgets more streamlined?” My research project will be on how one person can best sort their tasks amongst their several personal computers (and phones) and create a semi-automated network that allows them to maximize their use and minimize confusion; exploring possibilities for both graphic design and other technical professions. The project will culminate in an info graphic poster that displays a circle of devices branching out of a human figure, and branching from those devices will be color-coded text bubbles that describe the devices’ capacities for exchanging information with other systems in order to make it presently available for the user in the most tangible format possible. The bubbles will form a web, pointing to each other when connections between the described tasks are possible. Some subjects I know I’ll already cover are using other computers on one’s home network as satellites to assist in the massive calculations for rendering video files; how to use a program called Synergy to control multiple computers with one keyboard and mouse, and the ability for smart phones to serve as both remotes for full control of a desktop computer from any location including complete access to its files like a personal cloud server. My aim is for anyone to see this poster, see a couple of devices they own on the web, and discover some new way they can use them to better divide, simplify or transport a digital project. I will research and discover numerous techniques and strategies to that end, from multi-screen interfaces to file sharing to some things I’m sure are possible but I’m not even aware of yet. Even the layman user who has no need for complicated projects will discover some simple tweak from my poster that will allow them to manage their files or communications more easily. I will also write about some less-technical strategies for people who own at least two computers, including using one for work and one for leisure to avoid the stressful habit of slipping between the two. I believe operating multiple devices simultaneously is a quickly-approaching trend in the technological lifestyle and hope that I’ll be able to make the future of multi-tasking much less confusing and more accessible.

Enhanced Buffer Capacity for Boric Acid and Buffer Mixtures

Student Names:	Manthan Patel, Thuy Tien Le Cao
Faculty Mentor:	Grady Carney
Department:	Life Sciences, College of Arts and Sciences

Buffers are important in environment, biology, food industry, and chemical research. Buffer solution is able to retain almost constant pH when small amount of acid/base is added. Quantitative measure of this resistance to pH changes is called buffer capacity. Boric acid is a very weak acid and direct titration with NaOH is not possible. An auxiliary reagent that contributes to the release of protons in a known stoichiometry facilitates the acid-base titration. Buffer action by boric acid occurs in a pH range of pKÂ±1. The purpose of this study was to determine the buffer capacity of Boric acid with addition of axillary components such as alcohols and acids to modify the buffer range of pKÂ± 1, where pK depends upon the complex formed by boric acid and the auxiliary components. Our research was based on the titration of boric acid with strong base, NaOH, in the presence of auxiliary components such as Tartaric Acid and an alcohol such as Propylene Glycol. We obtained the potentiometric titration curves of boric acid with standard NaOH in the absence and in the presence of different auxiliary reagent and the results were analyzed further.

Infographics

Student Name:	Catalina Salgado
Faculty Mentor:	Patty Wongpakdee
Department:	Fine Arts, College of Arts and Sciences

Agricultural and urban development led to the drainage of many tens of thousands of water basins in the United States during the 20th century, when times of economic growth was at its peak. The following info graphic displays the amount of water depletion of water systems across the U.S as a result of these developments. The visuals specifically address the loss of water in the following water systems between the years 1900 and 2008: the Gulf Coastal plain, Western Alluvial Basins, deep aquifers, and the Atlantic Coastal Plain. This info graphic allows for a greater awareness towards our ecosystem, especially for one of our most valued resources, water.

Structural Elucidation of Chiral Organophosphorus Insecticides

Student Name:	Susan Kunjachan
Faculty Mentors:	Ana Petrovic, Gloria Proni
Department:	Life Sciences, College of Arts and Sciences

Chiral Organophosphorus compounds are usually used as insecticides in their racemic forms for economic reasons. However, enantiomers (opposite molecular hands) are known to interact stereo-specifically with biological systems and in many cases the exposure to the racemic mixture (both handed forms) leads to selective microbial degradation of one of the two enantiomers. Additionally, the two enantiomers may degrade or accumulate in the environment differently, or may be toxic in different ways towards other species. This presentation reflects an effort to isolate the enantiomers of several chiral Organophosphorus compounds and determine their chirality, molecular handedness via concerted use of three chiroptical spectroscopic methods: Optical Rotatory Dispersion (ORD), Electronic Circular Dichroism (ECD) and Vibrational Circular Dichroism (VCD). To arrive to the definitive chiral structural elucidation, both experimental and quantum mechanical responses of the three chiropical spectroscopic methods have been considered.

Structural Elucidation of Chiral Medicinal Natural Products

Student Names: Melissa Inderjit, Susan Kunjachan
Faculty Mentor: Ana Petrovic
Department: Life Sciences, College of Arts and Sciences

In the period of last two decades, there has been a notable shift in the composition of life-improving and life-saving therapeutic agents that have been brought by the pharmaceutical industry to the marketplace. Nearly two thirds of currently Food and Drug Administration (FDA) approved drugs are Chiral drugs (exhibiting molecular handedness) with only single handed-molecule being considered as effective and safe for administration. The two handed-molecular forms, called enantiomers, have the same two-dimensional atomic architecture, but are neither identical in the three-dimensional arrangement of atoms in space, nor are they likely to induce the same physiological or toxicological response in living systems. This presentation reflects an effort towards structural elucidation of a chiral molecule which belongs to a unique set of natural products isolated from fungi and which display promising bioactivity as a lead for drug design in pharmaceutical industry. Specifically, compound under consideration has an anti-fungal activity against candida albicans fungi, and hence could serve as a fungicide therapeutic. Determination of the molecular handedness is essential in furthering the utility of this medicinal target with minimal adverse consequences on human health.

Buffer Capacity Profile of Complex Buffer Systems

Student Names:	Orin Pramanik, Monika Nakhla
Faculty Mentor:	Grady Carney
Department:	Life Sciences, College of Arts and Sciences

Buffers are fundamental in living organisms because they ensure homeostasis. For example, a plasma membrane buffer makes sure that the membrane is not too viscous or too dilute rather at a stable point in between. Blood buffers prevent the pH of blood from increasing which would cause oxygen molecules to not be able to bind to hemoglobin. This way buffers play a vital role in biological systems to maintain chemical gradients, enzyme function, and prevent damage of cells and proteins. The key mechanism of buffers is that when acid or base is added to the buffer solution, the pH will not change considerably. This is because buffers are a mix of large volume of a weak acid or weak base with its conjugate. The choice of buffer is based on the buffering capacity in the desired pH range and the ability to maintain constant pH during fixation. Boric acid is a weak acid that can create good buffers when coupled with the right conjugate. The purpose of this experiment was to understand the complex of boric acid and Mandelic acid mixture with NaOH and find the buffer capacity. We completed titrations of Boric acid with and without the presence of Mandelic acid. The titration curves were thoroughly studied to gain an understanding of the boric and Mandelic mixture complex.

A Comparative Study of Working and Non-Working Matriculated Physician Assistant Students

Student Names: Elizabeth Abreu, Mahbubur Rashid, Magdalena Ravkin
Faculty Mentor: Frank Acevedo
Department: Physician Assistant Studies, School of Health Professions

Physician assistant (PA) programs discourage students from working due to demanding class schedules, workload, and the amount of studying required. Unfortunately, the tuition and costs of attending a PA program have steadily increased over the years. The objective of this research is to determine the prevalence of PA students who work during a school term and to determine any differences between working and non-working PA students based on: (1) sociodemographic characteristics (2) level of indebtedness (3) academic performance Identifying which PA students work, for what reasons they work, and possible implications of working on academic performance may help administrators identify ways to help such students. Methods and Participants. Quantitative and qualitative data was collected with an online survey from matriculated full-time physician assistant students in the state of New York. A cross-sectional analysis was performed in order to determine the prevalence of working and non-working students as well as differences between certain: (1) sociodemographic (2) financial (3) academic characteristics A total 256 students responded to the survey, 242 were analyzed because they met inclusion criteria. Results. Of the 242 students whose responses were analyzed, 83.1% of students identified as non-working PA students and 16.9% identified as working PA students. The majority of both groups were: (1) female, (2) white (3) lived off-campus (4) studied at a private school (5) had an independent status (6) in their didactic phase (7) anticipated a Masters degree There were no significant differences based on (1) sociodemographic characteristics (2) financial characteristics (3) grade point average (4) perceived academic performance. An association was found between working status and the (1) average length of the program (2) PA school phase (3) class hours per week. Primary reasons for not working included have no time to work and want to concentrate on my studies. The top reason for working was to pay tuition, bills, fees, and/or living expenses. 63.4% reported that working had no effect on their academic performance. There was no association between hours worked per week and GPA. However, there was an association between work hours and perceived academic performance. No association was found between the number of hours worked and their school tuition or debt prior to matriculation. A strong association was found between the number of hours PA students worked and the anticipated amount of debt after graduating from PA school. Conclusion. A majority of PA students do not work during a PA school term. Among those who report working do so in order to pay off bills, fees, and some of their tuition. Results suggest that due to a lack of association between GPA and working status, PA students should be allowed to work at least some hours a week during a term of PA school. However, students should be cautioned about working too many hours due to its effect on students perceived academic performance.

How to Combine 2D Animation into 3D Animation

Student Names:	Diamond Vega, Anthony Steglik
Faculty Mentor:	Yuko Oda
Department:	Fine Arts, College of Arts and Sciences

For our SOURCE project we wanted to figure out how to incorporate a 2D animation into 3D. The reason we came up with this concept was because in class we are working on a 3D animation group project. In our group's animation, we have a pencil drawing on a piece of paper and we have to figure out how to make the pencil drawing appear, which can't be done in Autodesk Maya. We researched this and came up with a lot of different ways, but some were more complicated. We looked up several different tutorials and You Tube videos and found one way that was the most interesting and based on programs we've used in the past. As a result, we ran a test and found out that drawing in a 3D animation can be done using Adobe Premiere Pro and Adobe After Effects.

Sleeping Troubles in the U.S.

Student Name: Ilvania Mendoza
Faculty Mentor: Patty Wongpakdee
Department: Fine Arts, College of Arts and Sciences

Sleeping Troubles in the U.S. is a modern info graphic that informs the viewer on America's sleep deprivation. The info graphic not only categorizes the survey taken by the number of women and men between the ages 18 through 65 years, it also categorizes the number of people who took sleeping pills to fall asleep. The info graphic also describes in a blurb how much damage not getting enough sleep can affect the human body and mind. This project is a way to show how we can inform the general public with information about just how much harm not sleeping affects their health.

Feeding and Dental Wear of the Terrestrial to Aquatic Transition in Mammals: Otters as a Model

Student Name: Ashmia Saif
Faculty Mentor: Brian Beatty
Department: Anatomy, College of Osteopathic Medicine

The evolution of aquatic mammals from terrestrial species is one of the most compelling phenomena of vertebrate evolution. It has happened many times, and each time there have been novel, and convergent ways in which these air-breathing animals have adapted to this very different physical environment. One common assumption about the reason this has happened is that aquatic environments are highly productive and invading the water has enabled these groups to take advantage of new resources. But other animals already exist in aquatic environments, and it is impossible to determine how much competition factored into these transitions without knowing what the food webs were actually like. Very few methods exist for determining diet and feeding ecology in fossil species, so the development of methods tested with living animals for which we have dietary knowledge is of paramount importance to solving this. The best example of living animals whose species live in transitional environments such as coastal, estuarine, or riparian environments are the carnivoran subfamily Lutrinae, the otters. There are species of otters on all continents besides Antarctica and Australia, and each of them have slightly different feeding ecologies. In this way, the modern diversity of otters mirrors what one might expect to have occurred in the early transitional forms of whales, seals and sea lions. One direct measure of the physical interactions of an animal with its environment is the wear of teeth. The study of microscopic features of wear can be applied to fossil organisms because teeth are not repaired or healed and they fossilize well. This project is focused on the examination of dental microwear of modern species of otters to better understand the connection between wear patterns and the differences in their feeding ecology so that similar patterns could be applied in the future to fossil organisms, such as early whales. The project has 5 stages, and we are currently in the middle of Stage 4. Stage 1 involved molding and casting the teeth of otters from the American Museum of Natural History in NYC Mammalogy collections. Stage 2 involved microscopy and photographing these teeth at high magnification. Stage 3 has been a training experience in the data collection process, familiarizing Ashmia with how to collect the data from these images. Stage 4, which we are currently in the middle of, is the collection of this data from our otter tooth casts using Abobe Illustrator and a modified version of the NIH software, ImageJ. Stage 5 will involve the analysis and write-up of this data, which we expect to be engaged in during May and into June. During Stage 5 we will also prepare a poster presentation for a major international scientific meeting, the Society of Vertebrate Paleontology. Lastly, all micrographs used in the study will be uploaded to the open access site, the Dental Microwear Image Library (http://www.nyit.edu/medicine/research/microwear/).

Posture Detection Device for Parkinson's Patients

Student Name:	Nnanna Okorie
Faculty Mentor:	Cecilia Dong
Department:	Electrical and Computing Engineering, School of Engineering and Computing Sciences

This project addresses the challenges of acquiring posture and gait data from patients with Parkinson's disease. The presented posture detection device was designed to detect and record real-time posture and gait data from patients with Parkinson's disease. The posture data is translated into a visual feedback on a mobile device for the patients to use for posture correction. The device utilizes wearable body sensors which track body position and movement, and communicate the collected data with each other, and store the data in an online database where the information can be analyzed. The process operates on a ZigBee (IEEE 802.15.4) network, stores data on a cloud storage, and uses a mobile application to provide visual feedback. The mobile application provides a friendly graphic user interface with auditory and vibratory alerts to give the patient feedback on improving posture, all from the comfort of home.

Buffer Titrations

Student Names:	Nikolay Gogin, Fatin Fuad Nabil, Donald Chen
Faculty Mentor:	Grady Carney
Department:	Life Sciences, College of Arts and Sciences

The goal of this study was to examine buffer capacities for a set of HCl NaOH titrations for acetic acid/sodium acetate buffer system. DOSBOX software was used to compute our titration data through applying a variety of computer programs, such as LEASTSQ1.BAS, ANALABUF.BAS, XYLOGXY.BAS, DAVIEPAR.BAS, SMOOTHAB.BAS, and PLOTTER.BAS. The purpose was to compare our experimental values to ideal (theoretical) in order to calculate the activity coefficient (Æ"). To check the quality of our data, the LEASTSQ1.BAS program was used to plot our data and to see how much it deviates from the ideal behavior (trend line). In addition to that, the DAVIEPAR.BAS program was used as the activity correction model. Its optimized model could be used to achieve a greater correlation of the experimental data with the ideal.

Hunger Hurts

Student Name: Michael Smyth
Faculty Mentor: Patty Wongpakdee
Department: Fine Arts, College of Arts and Sciences

A designer's job is to solve a problem from a visual approach. The ability to spread information quickly and easily through images is the greatest strength of a designer. The data that is used for this info graphic was chosen because there is an ever-present issue of hunger and malnourishment across a wide array of countries. This info graphic distributes the three major statistics broken down by the 4 continents that suffer from hunger most. These statistics being the prevalence of children underweight, the mortality rate of children under 5 years old, and the prevalence of undernourishment.

NYC Crime Statistics Info Graphic

Student Name: Dalton McDonald
Faculty Mentor: Patty Wongpakdee
Department: Fine Arts, College of Arts and Sciences

The rate of crime in the New York metropolitan area has been in fluctuation over its history. I chose to shed light on this subject since in recent years, the statistics have been steadily dropping. The particular area I chose to speak about was Brooklyn's 77th precinct. The 77th Precinct has had the most drastic decrease in crime rates compared to the rest of New York City. Some of the stats dropped as much as 70% in certain in areas.

Sleepless America

Student Name: Michelle Giff
Faculty Mentor: Patty Wongpakdee
Department: Fine Arts, College of Arts and Sciences

In the United States, many adults suffer from sleeping problems, and most depend on sleeping aids to help improve their issues. Over 30 percent of respondents to a medical survey reported that they often or always had trouble falling asleep, wake up in the middle of the night and struggle to fall back asleep, or wake up too early and cannot fall back asleep. Of the people who had trouble with their sleeping patterns, over 10 percent of them often or always rely on sleeping pills or medication to help them aid with their sleeping problems. This subject is graphically depicted as an info graphic.

Molecular Orbital Energy Calculations via Use of Modified Hydrogenic Atomic Orbitals

Student Name: Kristel Yee Mon
Faculty Mentor: Grady Carney
Department: Life Sciences, College of Arts and Sciences

In 1963, Dr. Jerry L. Whitten of Georgia Institute of Technology attempted to investigate the use of Gaussian Lobe Orbital Function Expansions for 1s, 2s, 2p and four equivalent 3d hydrogen-atom wave functions. Whitten, however, completely discarded this original hypothesis of Hydrogenic Gaussian Lobe Expansions to approximate ground state energy for other atoms and molecules which originally he suggested were sufficiently accurate approximations to find use in molecular energy calculations. Instead he pursued other quantum methods to be used as the basis functions in molecular energy calculations. This research involves evaluating Whitten's original Hypothesis modified simply by use of screening constants which takes into account nuclear attraction and shielding effect to describe first and second row atoms and molecules containing hydrogen. The properties obtained from and based upon Whitten's HAGLOâ€™s (Hydrogen Atom Gaussian Lobe Orbitals) utilized in the SCF-MO program written by Dr. Carney modified by calculated screening constants can be compared to results obtained using the industrial Gaussian Inc. Quantum Chemistry Program (created by Pople) to benchmark the MO energy calculations. Objective: To investigate the usefulness in terms of accuracy and precision of Whitten's Gaussian Lobe Orbital function expansions of the hydrogen atomic orbitals , 1s, 2s, 2px, 2py, 2pz, etc, in molecular orbital energy calculations for molecules that are partially or totally built from elements other than hydrogen. This is in an attempt to evaluate the extent to which screening constants can be used to accurately modify molecular orbital energy values. Method: Ten small hydrogen containing and first & second row Molecules (some organic) such as H2O, LiOH, LiH, LiO2, HF, HCN, methane, methanol, formic acid, formaldehyde were studied by choosing appropriate screening constants determined using the SCF-MO program package. X, Y and Z coordinates are determined by bond length and bond angles of the compounds. Molecular Orbital energy calculations are carried out and optimized using Dr. Grady Carney's SCF-MO electronic structures properties program GASCRON.exe, FASTSCF.exe and POSTSCF1.exe. The energy results are compared to values calculated using STO-3G, 3-21G and 4-31G of Pople Gaussian 98W Quantum Chemistry program package. Results: Comparable to industrial programs, our SCF-MO electronic structure properties program package calculated molecular orbital energies that were equally as and even more accurate. So far results have validated Whitten's initial hypothesis that hydrogen atom Gaussian lobe wave functions can indeed be used as basis for molecular calculations if screening constants are included with accuracy and precision equal to the STO-3G basis sets and of quality better than 3-21G basis sets. Conclusion: Whitten's original theory did not needed to be discarded but simply revised and modified with just as much accuracy and precision as other quantum methods. By taking into account how the nuclear charge is shielded by electrons present in the orbitals (screening constants) is a useful way of increasing accuracy of overall molecular orbital calculations.