NYIT
New York Institute of Technology

SOURCE 2012

SYMPOSIUM OF UNIVERSITY RESEARCH AND CREATIVE EXPRESSION

FRIDAY APRIL 20, 2012: 10 A.M.- 4 P.M.

PROGRAM

KEYNOTE SPEAKER
SIDNEY PERKOWITZ
PROF. OF PHYSICS, EMERITUS
EMORY UNIVERSITY

EVENT LOCATIONS
CONFERENCE REGISTRATION AND SESSIONS
16 W. 61ST ST.

KEYNOTE
AUDITORIUM ON BROADWAY
1871 BROADWAY
BETWEEN 61ST AND 62ND ST.

Symposium on University Research and Creative Expression *2012 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** ***Science and Art: Closer Than You Think*** **By: Professor Sidney Perkowitz** **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** **Provost Rahmat Shoureshi** **NYIT Auditorium on Broadway, 1871 Broadway, New York, NY 10023**

Session I 10:30 AM- 11:45 AM	**8th Floor Room 822 Moderator: Karen Friel**	**8th Floor Room 821 Moderator: Lisa Sparacino**	**10th Floor Room 1029 Moderator: Claude Gagna**	**10th Floor TV Studio/ Room 1021 Moderator: Yuko Oda**	**10th Floor Room 1026 Moderator: Nicholas Bloom**
10:30 AM	"Stretching with Whole Body Vibration Helps to Increase Hamstring Flexibility: A Case Study"	"Harnessing The Elderly"	"Hookah Smoking, A New Rapidly Growing Trend in Social Culture"	"Art as a Means to Adventure"	"The Crossroad of Energy"
	Terrence O'Grady and Michael Tautonico	Brook Stevenson	Mannu Shergill, Nabeel Arain, Rajavijay Lothugedda, and Gurus Abaishvili	Marine Mounier, Han Chen, Diana Papa, Jessica Doughty, Maria Fazio, and Yi Tang	Paul Garcia and Manish Taneja
10:45 AM	"Comparison Of Lower Extremity Kinematic Patterns in Individuals with Parkinson's Disease and Healthy Controls During Stationary Cycling"	"Diffraction Enhanced Imaging of an Alzheimer's Disease Mouse Model"	"The Effects of Two Fixatives on Blepharisma Stained with the Feulgen Reaction: DNA Content, Structure and Morphology"	"Sport Anchor's Impact on Mass Media"	"Spatial Holes Under Conditions"
	Nicole Saladino, Marina Lascarides, Comfort Obadina, Catherine Sturniolo, and Melissa Mathew	Peter Ghali	Anjali Thomas, Sonam Kapoor, Janki Patel, Elphas Kimutai, Upama Maskey, and Marie Delva	Filip Van Eylen	David Chang, Nada Hassan, Neal Sanger, Renne Avalos, Marie Gallo and Eddy Liz
11:00 AM	"Rewriting The Anatomy Textbook: Modern Dissections Reveal A Hand Muscle Most Sources Leave Out"	"A Longitudinal Follow- up of the Balanced Approach Home Physical Therapy Program: Case Study"	"Investigation Of Protein Kinase C In Vitro And In Vivo Substrates (Part I)"	"Senior Thesis Paper"	"Influence People Have on Each Other"
	Peter Morrison	Chelsea Jean, Raymon Lukose, Brooke Nielsen, Ruhul Alam, and Priya Mathews	Madiha Yasin, Bareia Chaudhry, and Anahita Ahuja	John Santamaria	Jaishel Linch Bennett
11:15 AM	"Dermal Structure in the Hind Limb of Dicerorhinus Sumatrensis"	"Comparing The Efficacy of Physical Activity Interventions on Pediatric Obesity: A Review of Literature"	"Investigation Of Protein Kinase C In Vitro and in Vivo Substrates (Part II)"	"Moving Targets"	"A Real Connection: The Social Stigma Attached to Male Emotions"
	Mariya Milko	Robert Ziegelbaum, Jonathan Pekor, Jennifer Kolasinski, Jessica Raspen, and Justine Clifford	Sarita Singh, Neetu Krishnan, and Darshi Patel	Keith Upton	Katherine Fernandez
11:30 AM	"Lock and Load: Functional Morphology and Evolution of Shoulder Lock in Rhinos and Other Large Ungulates"	"Effectiveness of Simulation in Preparation for Global Health Fieldwork: Linking Theoretical Knowledge to Practical Experience"		"Nomads on Motorcycles, Energy Conservation, Efficiency, and Renewable Energy on the Tibetan Plateau"	
	Daniel Kapner	Vanessa Parisi		Andrea Lynn Poniecki	

Session II 2:15 PM - 3:30 PM	**8th Floor Room 822 Moderator: Rosemary Gallagher**	**8th Floor Room 821 Moderator: Youjeong Kim**	**10th Floor Room 1029 Moderator: Niharika Nath**	**10th Floor Room 1021 Moderator: Elizabeth Donaldson**
2:15 PM	"Deep Cervical Flexor Endurance and Associated Cervical Spine Impairments: A Literature Review"	"Control Systems and Lego"	"The Role of Antibiotics in Intravitreal Injections: Characterizing the Rate of Infection "	"Recycling Awareness"
	Pasquale Iannucci and Gary DeBarbieri	Rahul Jain	Peter Alex Stanciu	Victoria Torres Arroyo
2:30 PM	"Retinal Images Classification Based on Eye Features and Lesions Detection"	"Autonomous-Collision Avoidance Robot"	"VCD based Chirality Determination of Fungal Metabolite Oxysporone"	"The Background, Benefits and Risks of Popular Alternative Medicines"
	Shengwei Zhao	Mohamed Shaaban, Sukhdip Singh, Samir Tamang, and Xiaodi Hu	Susan Kunjachan	Pallavi Khanna
2:45 PM	"Effects of Martial Art Training on Arterial Stiffness in Middle Aged Practitioners"	"Applying SIEM in Telecom Industries"	"DNA Sequence Analysis of Plasmids of Corynebacterium"	"Space Based Solar Power (SBSP)"
	John Petrizzo, Caitlin Burke, Vincen Cherian, Meredith Herbst, Christopher McCutchan, George Stamatinos	Layth Abu-Halimeh	Afnan Al Ganawi	Gunpreet Singh
3:00 PM	"Effects of Calf-sleeve versus Full-Length Lower Extremity Compression Garments on Running Performance"	"The Role of Reverse Engineering in Malware Detection"	"Comparison of Two Different DNA Isolation Procedures"	"Agriculture Renaissance: A New Dimension in Between City, People and Food"
	Rori Alter, Andrew Cerullo, Shawn Cheripuram, Christopher Mohammed, Janki Patel and Toral Patel	Haitham Nomans	Ritaum Biswas, Jain Joseph, Elizabeth Thomas, Deena Zacharia, Christina Yohannan, Manpreet Parhar, and Sagar Patel	Chien-Hao Lin
3:15 PM	"Cognitive Behavior Therapy (Change Your Thinking Change Your Actions)"	"Security Guidelines in ASP.NET Applications"		
	Terrence Beach	Jaffar Nizar Shubber		

On Permanent Display in Exhibition Hall Conference Center Lobby, 11th Floor	
“Xalkori: Non-Small Cell Lung Cancer (NSCLC) Treatment”	Irshad Ally
“Levi's Ad Campaign”	Robert Wimmer
“Ethiopian Refugee Camp Design”	Jamena Grant
“Manufacturing Infographic”	Tanisha Isaacs
“Structural Composition of Myocardial Infarction Scar Does Not Differ Between Male and Female Middle-Aged Rats”	Eugene Bogatyryov, Molly Kelly, Lance Christensen and Robert Tomanek
“Effects Of Banning Alcohol Advertising Versus Counter-Alcohol PSAs on Alcohol Consumption”	Roshni Ashar
“Photo Portfolio Demo Reel”	Andrew Lai
“Point of Care Learning Preferences of Physician Assistants”	Matthew Graupman, Amanda Russell, Kristen Cofer and Stephanie Burkhardt
“Optimal Control System of a Wind Turbine”	Hassan Mughal and Omer Zia
“A Palimpsest of Ideas”	Julianne Cantelmi
“All They Have is a Pomegranate”	Nina Mirhabibi
“Art and the African American Experience”	Briana Strong
“Jupiter Sadge”	Earl Holder

On Permanent Display in Exhibition Hall Conference Center Lobby, 11th Floor	
“Life Expectancy in the U.S. Infographics”	Shannon Ifill
“Planetary Boundary Infographic”	Nina Roman
“Sentience”	Mercedeh Mirshamsi
“Smoking Among Women and Men in the USA”	Savvas Pitzio
“The Zombie and You”	Ashley Foster and Victoria Reyes
“Trouble Sleeping?”	Alexandra Correale
“Absolute Configuration Determination of Organophosphorus Pesticides”	Qurratul Jameel and Mosadoluwa Obatusin
“Ammonia-Ammonium Chloride Buffer Capacity Titration & Activity Coefficient”	Fateha Ahmed, Aisha Ashfaq, Fauzia Bagum, and Larab Giniyani
“Characterization of Glutamate Neurotransmission in the RAIC”	Heather Magnuson and Mohammad Zohaib
“Circulating Osteogenic Cells in Type 2 Diabetes Mellitus”	Ligy Thadathil
“Helical Molecular Programming via Supramolecular Complexation Of Bis-Porphyrins”	Dolu Obatusin
“Modification of Non-Steroidal Anti-Inflammatory Drug (NSAID) Structure for Enhanced Anti-Cancer Activity”	Kerin Munawar, Afnan Haq and Mitali Chattopadhyay
“Control Cell Counts: Normal and Cancerous Tissue Sections”	Nisha Rowzani, Roshan Chhatlani and Binju Bose
“Does Territorial Aggession In Wild Blue Monkeys (Cercopithecus Mitis) Escalate With Limited Food Supply?”	Aisha Ashfaq and Fauzia Bagum

On Permanent Display in Exhibition Hall Conference Center Lobby, 11th Floor	
"Epidemiology and Diagnosis of Y. pestis"	Saila Mukta, Crystal Haroon, Amanda Eng, and Charlotte Chen
"Exploring the Expression of Y. Pestis Virulence Factors"	Julie Tang, Neetu Shaji, Andrew Shehata, Alvin Babu, and Irshad Ally
"FCSC M02 Methods of Storage for Renewable Energies"	Frank Annunziata, Brian Matthews, Donald Hebel, William Chen, and Gerald Park
"FCSC-101: The Future of Organ Transplantation"	Ilona Aleksandrovich, Joy Otibu, Monay Clancy, and Erik Singletary
"Fragile X Syndrome: the FMR1 Gene Inactivation Affects Production of FMRP"	Jennifer Ardila
" Hydrogen Sulfide-Releasing Aspirin Inhibits The Growth of Colon Cancer Cells And Induces the Phase II Enzyme NQO1"	Thuy Tien Le Cao
"Tangent Line Method for Determining Titration Equivalence Point"	Ronika Sethi
"The United Nations as a Forum for Undergraduate Nursing Global Education"	Jeannette Cruz, Christian Velez, Jenna Callahan and Shanie Kowlessar
"Bill #A1977-B/S2553-A: Education: Registered Nurses to Earn a Bachelors Degree within 10 Years of Licensure"	Team Leader: Jenna Callahan Vicky Adelson, Hanna Dawidowicz, Viktoria Fodor, Radhaisi Gomez, Sherly George, Hyun Joo Kim and Angie Theronier
"Bill # A921/S4553: Practice: Establish Minimum Nurse to Patient Staffing Ratios in Acute Care Facilities"	Team Leader: Katie Oswald Christine Gasser, Kristin Schmidt, Mary Carson, Shanie Kowlessar and Ruth Bonilla
"Bill # A1370-B/S2470-B: Policy: Safe Patient Handling Policies to Reduce Lifting Injuries Among Nurses"	Team Leader: Kiranjit Sahota Christian Velez, Jeanette Cruz, Fatima Agunaga, Sherry John and Neenu Puthusseril
"Education and Experience: What Affects Physician Assistants' Reporting of Child Abuse?"	Ashley Uhuad, Laura Wagner, Ashley Hill, Jessica Remstein and Matthew Conte
"An Assessment of New York State Physician Assistants' Utilization of Interpreting Services"	Allison Mead, Danielle Camenzuli, Laura Michel and Jessica Pollak
"Is Community Acquired Methicillin-Resistant Staphylococcus auerus Colonizing Primary Care Facilities?"	Jessica Stein, Heather Strahl, Ryan Black and Kerby Pierre-Louis

On Permanent Display in Exhibition Hall Conference Center Lobby, 11th Floor	
“Eve of Construction”	Colton Sheehan
“Arts, Science and Technology”	Amina Tayyub
“Musical Art History”	Jeed Ahmed Alam-El-Deen
“Clockwork Workclock”	William Labourier
“The Opportunities and Challenges Brought by Growing China”	Sitan Jin

Session I Presentations
8th Floor
Room 822
Moderator: Karen Friel
10:30 am-11:45 am

- "Stretching with Whole Body Vibration Helps to Increase Hamstring Flexibility: A Case Study"
  By: Terrence O'Grady and Michael Tautonico

- "Comparison Of Lower Extremity Kinematic Patterns in Individuals with Parkinson's Disease and Healthy Controls During Stationary Cycling"
  By: Nicole Saladino, Marina Lascarides, Comfort Obadina, Catherine Sturniolo, and Melissa Mathew

- "Rewriting The Anatomy Textbook: Modern Dissections Reveal A Hand Muscle Most Sources Leave Out"
  By: Peter Morrison

- "Dermal Structure in the Hind Limb of Dicerorhinus Sumatrensis
  By: Mariya Milko

- "Lock and Load: Functional Morphology and Evolution of Shoulder Lock in Rhinos and Other Large Ungulates"
  By: Daniel Kapner

Stretching with Whole Body Vibration Helps to Increase Hamstring Flexibility: A Case Study

Student Name: Terrence O'Grady and Michael Tautonico
Faculty Mentor: William Werner
Department: Physical Therapy, School of Health Professions

Increasing muscle length is a common goal in rehabilitation and is commonly implemented to decrease overuse injuries of the lower extremity in both patients and athletes. Those affected by Parkinson's disease (PD) can have a variety of movement disorder manifestations and clinicians should be able to adapt their interventions to the needs of their patient. The use of whole body vibration along with stretching has not been examined in a Parkinson's population. Vibration training is believed to increase flexibility by altering pain sensations and by providing reciprocal inhibition; the same mechanisms involved in PNF stretching. Hypothesis: Our hypothesis is that in individuals with Parkinson's disease, there will be a significant increase in hamstring flexibility when stretching along with whole body vibration. Subjects: Two subjects were recruited for this study; one more subject should be completed by the time of the presentation. Subjects had a diagnosis of PD with a Hoehn and Yahr stage of 2. Methods: Outcome Measure: Goniometric measurements were performed with the subject in supine and hip flexed to 90Â°. The subject's knee was positioned to 90Â° and brought into passive knee extension until the subjects felt moderate discomfort, at which point the knee angle was recorded. The contra-lateral limb was stabilized in neutral with Velcro straps attached at the mid-thigh and the pelvis at the level of the anterior superior iliac spine. One tester monitored the hip angle and ensured that the subject maintained the required position. The other tester measured the degree of knee extension. An average of the three measurements were used for pre and post test measures. Intervention: The subjects placed their left heel on the Vibraflex (a platform that vibrated at 15.5 Hz) with the toe pointed toward the ceiling to avoid any internal or external rotation of the hip. The tested knee was fully extended and both hands resting on the leg that was stretched. The pelvis was maintained in an anterior tilt to yield the greatest results. Once the 60-second stretch ended, each subject removed his or her leg from the elevated surface and the other leg was stretched in the same manner. There were 4 stretches on each leg. Results: Hamstring flexibility increased by an average of 13.4 degrees. Conclusions: In this case study, hamstring stretching with vibration increased hamstring flexibility in two subjects. We propose that the experiment is expanded to include more subjects and control groups (stretching without vibration and no stretching) to determine if these improvements are statistically significant and if vibration provides an added benefit to stretching alone.

Comparison Of Lower Extremity Kinematic Patterns in Individuals with Parkinson's Disease and Healthy Controls During Stationary Cycling

Student Names: Nicole Saladino, Marina Lascarides, Comfort Obadina, Catherine Sturniolo, and Melissa Mathew
Faculty Mentor: Rosemary Gallagher
Department: Physical Therapy, School of Health Professions

Cycling is a common tool used in rehabilitation for a variety of patient populations. Many studies have been conducted on the effects of cycling in healthy subjects, resulting in the understanding of normal biomechanics in this population. However, despite recommendations of physical therapy, including cycling, for individuals with Parkinson's Disease (PD), no known studies have been conducted on the biomechanics of cycling in this population. In this preliminary study, we compared the cycling biomechanics of subjects with PD on a stationary bicycle to those without PD. A total of 8 subjects between the ages of 55 and 75 years participated, 4 with PD (Hoehn and Yahr stages 2-3), and 4 healthy controls with no history of neurological disorder. After collection of baseline data, subjects cycled on a stationary bicycle while biomechanical data was recorded using 3D motion capture analysis. Subjects with PD exhibited more knee and ankle flexion throughout with less overall joint excursions compared to control subjects. The results from this study may contribute to future research using the bicycle as an exercise modality to influence joint biomechanics in those with PD.

Rewriting The Anatomy Textbook: Modern Dissections Reveal A Hand Muscle Most Sources Leave Out

Student Name: Peter Morrison
Faculty Mentor: Robert Hill
Department: Anatomy, NYCOM

Several small muscles in the human hand serve to spread the fingers apart (abduct) or pull them tightly together (adduct). These muscles are described as "interosseous" because they lie sandwiched between the metacarpal bones of the hand. Anatomists generally agree that there are four interosseous muscles in the back of the human hand, but the number and identity of the interosseous muscles in the palm remains contentious. Recent studies suggest that a majority of human hands possess four palmar interossei, yet most contemporary textbooks suggest the presence of only three. The pollical palmar interosseous muscle (PPIM), associated with the thumb, has been alternatively interpreted as a distinct muscle, part of another hand muscle, or nonexistent. We examined 45 hands from 23 human cadavers to investigate the prevalence of this muscle and found it present in 91% of specimens. We also tested the hypothesis that the PPIM forms the smaller part of a "parallel muscle combination", acting as a proprioceptive monitor for the nearby, larger adductor pollicis muscle. Our results did not show a significantly higher density of muscle spindles in the PPIM relative to the adjacent adductor pollicis, provisionally refuting this hypothesis. The presence of the PPIM, observed in the majority of hands from several populations, indicates that it should be regularly included in mainstream anatomy texts and atlases as a fourth palmar interosseous muscle.

Dermal Structure in the Hind Limb of Dicerorhinus Sumatrensis

Student Name: Mariya Milko
Faculty Mentor: Brian Beatty
Department: Anatomy, NYCOM

The Sumatran rhino (Dicerorhinus sumatrensis), is the rarest large terrestrial mammal alive today (IUCN Red List). Estimates of the number of remaining D. sumatrensis have fallen to less than 275 individuals (Dinerstein, 2003). Since this species of rhinoceros is so rare, and they tend to be cryptic and solitary, D. sumatrensis has been a challenge to study. Many prehistoric rhinos had lower incisor tusks to fight conspecifics with instead of, or in addition to, horns, and questions persist about whether those tusks had coevolved with integumentary specializations (Mihlbachler, 2005). The primary source of mortality in modern African rhinos is from conspecifics, especially among young males that inflict injuries to each other with their horns while competing over females. In studies of these species, only the skin of the back, flanks, and belly were studied, so it is unclear whether specializations of this dermis exist in specific regions of the body that are commonly injured in intraspecific combat where attacks are made to the limbs in order to flip an opponent. D. sumatrensis is unusual in that its horns are not enlarged and sharp, but its incisors are enlarged and sharp (Groves and Kurt, 1972). Though they have never been observed to engage in behaviors that could lead to socially-mediated mortality, they have been observed to aggressively respond to human threats by opening their mouths and exposing their enlarged lower tusks (Evans, 1904; Hubback 1939). Thus, the presence of durable skin in D. sumatrensis may indicate that it is maintained as a plesiomorphy in this taxon, or that its existence is related to something other than socially-mediated mortality (such as simply protection from predators). However, without knowledge of the origins of these integumentary specializations, we cannot know whether these dermal specializations coincide with the evolution of these dental specializations for fighting. Though it is impossible to know the structure of skin in fossil rhinos or early perissodactyls from which they evolved to put this into a complete context, a first step in answering these questions is to compare the structure of living rhinos to optimize the origins of these features to a common node in their phylogeny. Rapunzel, a Sumatran rhino that had been housed and cared for at the Bronx Zoo in New York died. In July 2006, her remains were loaned to faculty at the New York College of Osteopathic Medicine for dissection and study. In this study, we describe the structure of the integument of this specimen in order to fill in this important gap in the evolution of rhinoceros integument, and explore how it informs us of its relationship to the origins of intraspecific behaviors. Because D. sumatrensis share a most common ancestor with African rhinos so far back in time, this would suggest that these integumentary specializations evolved far back in rhinocerotid history, and that tusk-bearing fossil rhinos are likely to have engaged in intraspecific combat like their horned and tusked modern relatives.

Lock and Load: Functional Morphology and Evolution of Shoulder Lock in Rhinos and Other Large Ungulates

Student Name: Daniel Kapner
Faculty Mentor: Matthew Mihlbachler
Department: Anatomy, NYCOM

Numerous evolutionary parallelisms, thought to reflect repeated adaptation to open habitats that appeared during the Miocene epoch (23-5.2 MA), have been documented among nearly every lineage of mammalian ungulate, living and extinct. A less adequately studied morphological adaptation that has been attributed to the Miocene spread of open habitats is the evolution of passive stay apparati (PSAs) (Hermanson and MacFadden 1992, 1996). PSAs are musculoskeletal adaptations involving specializations in bones, muscles, ligaments, and deep fascia that transfer the role of supporting the body from active muscles to non-fatiguing structures in both the forelimb and hindlimb, thus allowing allow an animal to resist fatigue during prolonged periods of standing (Dyce et al., 1987). More careful study of PSAs in other extant ungulates and quantification of diagnostic osteological markers for PSAs in fossil species are warranted to understand the phylogenetic, geographic, and temporal distributions of PSAs and make inferences about the adaptive processes that led to the evolution of PSAs. The phylogenetic distribution of a knee PSA in rhinocerotoids suggests that its appearance preceded the evolution of the knee PSA of horses by many millions of years, suggesting that the evolutionary proliferation of PSAs in ungulates is not directly attributable to a singular climate event such as the Miocene appearance of grasslands, but may be attributed to behavioral shifts among species brought about at different times in geologic history due to the complex interplay of global cooling, continued habitat evolution, and evolving behavior systems within various ungulate lineages. While it seems clear that hindlimb PSAs evolved in rhinos, horses, and many other ungulates, it has been suggested that forelimb PSAs only occur in horses (Hermanson and MacFadden, 1992). However, several ungulates, including extant giraffids (Fraipont, 1907), the extinct camelid, Camelops (Webb, 1965), and a variety of rhinocerotids (Ringstram, 1924; Mihlbachler 2002, Mihlbachler unpublished data), have a greatly enlarged intermediate tubercle on the proximal humerus. This osteological feature plays a prominent role in the shoulder PSA of horses. A cursory examination of the humeral morphology of living and extinct rhinos indicates that an enlarged intermediate tubercle is present in some, but not all rhinos, suggesting the presence of a shoulder PSA in some species, but that a shoulder PSA was less widely distributed than the knee PSA and may have evolved much later in time among numerous independent lineages. We propose to undertake a more comprehensive analysis of rhinoceros shoulder morphology to understand the phylogenetic, temporal, and geographic distribution of shoulder PSAs in this family.

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

- "Harnessing The Elderly"
  By: Brook Stevenson

- "Diffraction Enhanced Imaging of an Alzheimer's Disease Mouse Model"
  By: Peter Ghali

- "A Longitudinal Follow- up of the Balanced Approach Home Physical Therapy Program: Case Study"
  By: Chelsea Jean, Raymon Lukose, Brooke Nielsen, Ruhul Alam, and Priya Mathews

- "Comparing The Efficacy of Physical Activity Interventions on Pediatric Obesity: A Review of Literature"
  By: Robert Ziegelbaum, Jonathan Pekor, Jennifer Kolasinski, Jessica Raspen, and Justine Clifford

- "Effectiveness of Simulation in Preparation for Global Health Fieldwork: Linking Theoretical Knowledge to Practical Experience"
  By: Vanessa Parisi

Harnessing The Elderly

Student Name: Brook Stevenson
Faculty Mentor: Mike Nolan
Department: School of Architecture and Design

Harnessing The Elderly is the title of my Architectural thesis project. I draw upon my economics background to develop a way to prepare for an increasing elderly population. The issues addressed can be found in my video, which only shows my starting point: https://vimeo.com/33967325. While I am still working on a specific design, the concepts I am building around involve social, mental, and physical health. Specifically how they are synergized by financial opportunity. Incentivizing part-time work for the good of self and community. For example, we know fresh vegetables are good for everyone and so is moderate physical activity. I am proposing to have an onsite Aquaponics farm (think Gotham Greens plus fish) that residents will be paid to work in. A big issue I'm tackling, which is not in my video, is the increasing financial woes, specifically of retirees. My goal is to have a workable business plan in place by May.

Diffraction Enhanced Imaging of an Alzheimer's Disease Mouse Model

Student Name: Peter Ghali
Faculty Mentor: Niharika Nath
Department: Life Sciences, College of Arts and Sciences

The understanding of early stages of Alzheimer's disease (AD) is obscure due to the inability of clearly imaging a brain sample in vivo. What is understood is that amyloid beta (Aβ) plaques located in the brain are an indication of this disease. In exploring or trying to image these plaques neither radiography nor magnetic resonance imaging provides the clarity achieved through Diffraction Enhanced Imaging (DEI). DEI provides a greater soft tissue contrast image and generates higher resolution images. Furthermore, we used DEI on the brains of Alzheimer's disease model mice in order to determine if the plaques can be imaged. In a prior study, Formalin-fixed brains extracted from the skull were used and placed in a plastic tube with minimal external compression. Next the monochromator and analyzer crystals were calibrated and aligned to the 20 keV silicon [333] reflection. The height of the x-ray beam was 3 mm and width was adjusted to about 36 mm. Results showed that amyloid beta plaques could be imaged. This study sought to image the brain with the skull intact. We found that imaging through the skull caused refraction and extinction of the x-rays making it difficult to image the Aβ plaques. We began with the same imaging parameters as the previous study, and according to the results these parameters were slightly adjusted. Results revealed Aβ plaques were scattered throughout the brain in the transgenic mouse sample; whereas, in the wild type mouse sample the plaques were not. The majority of these isolated plaques were seen in the cerebral cortex of the brain. Furthermore, when radiograph and CT images were taken of the samples and compared with the DEI imagery, we found that DEI provided us with clearer and higher resolution images that showed greater detail of the brain and the Aβ plaques. Therefore, with DEI, we can see promising evidence that can help us understand the early stages of AD. We hope to further our studies and take the experiment to the next step by imaging the brain in vivo.

A Longitudinal Follow- up of the Balanced Approach Home Physical Therapy Program: Case Study

Student Name: Chelsea Jean, Raymon Lukose, Brooke Nielsen, Ruhul Alam, and Priya Mathews
Faculty Mentor: Veronica Southard
Department: Physical Therapy, School of Health Professions

Background and Purpose: According to the Center for Disease Control and Prevention, one out of three adults age 65 and older falls each year. The yearly direct and indirect cost of fall injuries is expected to reach $54.9 billion (in 2007 dollars) by 2020. Twenty to thirty percent of individuals who fall suffer moderate to severe injuries therefore, decreasing the ability to live independently and increasing the risk of an early death. The prediction and prevention of falls are two important issues that must be further studied. The purpose of this case study is to assess how the "Balanced Approach" Home Program, in addition to usual care affects the outcome of an 85 year old female status post a total knee replacement (TKR). Case Examination: A patient has a past medical history of hypertension and severe osteoarthritis underwent a total knee replacement. On initial examination, significant findings included a Tinetti score of 22/28, Activity Specific Balanced Confidence Scale score of 26.3%, positive one leg stance time (right lower extremity: 2 seconds versus left lower extremity: 4 seconds), the Borg scales rate of perceived exertion score of 13/20, 30 second Chair to Stand test resulted in a score of 7x and finally a Timed Up and Go test score of 35 seconds with a rolling walker. Scores on these exams improved substantially at discharge, with a final Tinetti score of 27/28 and an Activity Specific Balanced Confidence Scale score of 74.3%. Intervention: Secondary to the impairments noted above, this patient status post a TKR fell within a moderate to high risk for falls category in the physical assessments and an extreme risk for falls and fear of falling on the Activity Specified Balanced Confidence Scale (ABC). The patient was prescribed a plan of care consisting of hip flexion, abduction, extension, heel raises, and knee flexion exercises with emphasis on balance activities. This Balanced Approach Home Program was implemented to address all functional limitations /impairments noted in lower extremity ROM, strength, gait and transfers to improve balance, home safety, confidence in walking, and reduction in falls incidence. Results: The patient was discharged from home care physical therapy after seven visits. The patient was given monthly logs that assessed continued exercise, any falls or rehospitalizations. At 6 months post discharge (April 2012), via telephone conversation the patient's general status and Activity Specific Balanced Confidence Scale (ABC) will be re-administered. Thus far the patient has remained free of falls and has progressed to a cane for ambulation. Results displayed significant improvement upon implementing the balance program.

Comparing The Efficacy of Physical Activity Interventions on Pediatric Obesity: A Review of Literature

Student Name: Robert Ziegelbaum, Jonathan Pekor, Jennifer Kolasinski, Jessica Raspen, and Justine Clifford
Faculty Mentor: Cheryl Hall
Department: Physical Therapy, School of Health Professions

Background: Pediatric Obesity in the United States has been identified as a primary causative factor of the increases in heart disease, diabetes, and cancer. Objectives: The purpose of this paper is to summarize and assess the efficacy of current physical activity interventions in the management and treatment of pediatric obesity. Methods: A systematic literature review of the most commonly employed physical activity interventions used to manage and treat pediatric overweight and obesity was performed. Inclusion and exclusion criteria were used to select specific articles. Results: Twelve studies out of a total of 318 articles met inclusion and exclusion criteria. After evaluating study strength using the PEDro, 5 were included in this systematic review. The studies, comprised of Randomized Controlled Trials (RCT) of level I evidence, were evaluated for methodological quality using the PEDro Scale. A score of 7 or greater on the PEDro was deemed acceptable for this study. Conclusion: It was found that to ensure proper management and treatment of pediatric obesity, the most successful strategy of intervention was through a multidisciplinary approach utilizing physical activity, nutrition, and behavioral strategies. This systematic review of the literature, found no single best physical activity to combat pediatric obesity. However, based on effect size from the included articles, children participating in team sports after school showed the greatest results in reversing obesity.

Effectiveness of Simulation in Preparation for Global Health Fieldwork: Linking Theoretical Knowledge to Practical Experience

Student Name: Vanessa Parisi
Faculty Mentors: Zehra Ahmed, Deborah Lardner
Department: Physician Assistant Studies, School of Health Professions

As global health studies become incorporated into medical education, through didactics, lecture series, and discussion, fieldwork opportunities are becoming a critical part of this curriculum. There is little evidence that experiential global health training occurs within medical schools however. Since simulations have proven to be an effective tool for training medical professionals, we believed that a course integrating coursework and simulations would accomplish this. We hypothesized that a program consisting of international fieldwork scenarios would be instrumental in linking theoretical knowledge to practical experience. After completing the global health coursework involved in the NYIT Center for Global Health's Certificate Program, students underwent our simulation program, consisting of five scenarios. Simulations are both practical and challenging because of their interactive nature and resource utilization capabilities. They provide students with a safe and controlled environment to apply their knowledge; yielding a great sense of accomplishment at the end of each session. Although simulation does not replace actual experience, we believe that it has significant utility in preparing participants for global health fieldwork. In addition, the simulation program will likely train participants to be culturally competent providers who utilize resources effectively.

Session I Presentations
10th Floor
Room 1029
Moderator: Claude Gagna
10:30 am-11:45 am

- "Hookah Smoking, A New Rapidly Growing Trend in Social Culture"
  By: Mannu Shergill, Nabeel Arain, Rajavijay Lothugedda, and Gurus Abaishvili

- "The Effects of Two Fixatives on Blepharisma Stained with the Feulgen Reaction: DNA Content, Structure and Morphology"
  By: Anjali Thomas, Sonam Kapoor, Janki Patel, Elphas Kimutai, Upama Maskey, and Marie Delva

- " Investigation Of Protein Kinase C In Vitro And In Vivo Substrates (Part I)"
  By: Madiha Yasin, Bareia Chaudhry, and Anahita Ahuja

- "Investigation Of Protein Kinase C In Vitro and in Vivo Substrates (Part II)"
  By: Sarita Singh, Neetu Krishnan, and Darshi Patel

Hookah Smoking, A New Rapidly Growing Trend in Social Culture

Student Name: Mannu Shergill, Nabeel Arain, Rajavijay Lothugedda, and Gurus Abaishvili
Faculty Mentor: Claude Gagna
Department: Life Sciences, College of Arts and Sciences

Despite consistent warning labels and public health service messages against the effects of tobacco smoking a recent growing trend in social culture has caught on and is doing exactly what the Surgeon General's warnings have asked the population not to. This trend is the socially accepted norm of smoking a hookah pipe or a "water pipe". Approximately 60% of hookah smokers interviewed started at age 18 or under. There are many reasons for the growth in the social phenomenon. Smoking cigarettes is not as widely accepted as smoking hookah, the reasoning behind this is possibly the notion and widely spread belief that hookah is safer than cigarette smoking and that any carcinogens in hookah smoke are filtered by a water bowl and only steam is inhaled. Unfortunately, not much research can be found on the exact chemical makeup of hookah smoke unlike cigarette smoking that is known to contain over 250 carcinogenic chemicals. The common denominator in both types of smoking is tobacco which warrant enough reason to study the long term effects of this hookah culture. Although hookah smoking and cigarette smoking can be seen as two separate social activities with possibly different long term effects, the common piece connecting the two is the primarily heavy use of tobacco. Tobacco is used in both to create a thick heavy smoke that is inhaled into the lungs. As research has shown us smoking, chewing, or any other method of tobacco use greatly increases ones chances of developing Cancer. Research has shown that smoking of 15 cigarettes leads to a single genome mutation within cells of the lungs and other areas of the respiratory system. Whether or not this rate of mutation is consistent with hookah smoking should be explored. If tobacco is at fault for these mutations, our calculations show that an average hookah smoking session of 1 hour, up to 90 litres of hookah smoke may be pushed through the lungs. Results of our theoretical calculations show that hookah smoking sessions use much greater amount of tobacco for longer, meaning it is possible that a 1 hour session of hookah may actually cause greater mutations within the respiratory tract at a faster pace. If 15 exposures to cigarette tobacco cause 1 mutation, a 1-hour session may multiply this effect many times over. Overall this trend has spread quickly and although not being taken as seriously as it should, we may see a rapid increase in rates of lung as esophageal cancer within the next ten years if the trend continuous to grow. Currently there are very little legal guidelines to control the usage, sale and set up of hookah bars and other hookah social environments. Perhaps more should be done.

The Effects of Two Fixatives on Blepharisma Stained with the Feulgen Reaction: DNA Content, Structure and Morphology

Student Name: Anjali Thomas, Sonam Kapoor, Janki Patel, Elphas Kimutai, Upama Maskey, and Marie Delva
Faculty Mentor: Claude Gagna
Department: Life Sciences, College of Arts and Sciences

In order to better understand the molecular biology of the Blepharisma organism and its role in the ecosystem, we have performed an experiment that has never been done before. Blepharisma are protists that are microphagous filter feeders which range in size from 150Âµ to 300Âµ. Blepharisma are also ciliates and are thus classified in the phylum Ciliophora. Ciliates are known to be the most evolved and complex of the protozoans. Ciliates, such as Blepharisma are single celled organisms that have organelles, such as cilia, that help in movement and food gathering. Blepharisma generally eat bacteria from decomposing vegetation. The bacteria is taken into the buccal cavity and then passed to the food vacuoles at the posterior end of the cell. Our group used nine different tissue fixatives to preserve the Blepharisma organism, which was mounted on glass slides that were treated with poly-L-lysine. The reason for using nine different fixatives was to see which one best-preserved DNA structure and content as well as the morphology of the organism. In this initial study, we discuss the results of two of the nine different fixatives, namely, Davidson and Histochoice. All fixed organisms were originally stained for the presence of DNA using the Feulgen reaction (shows DNA content). After careful evaluations, we have determined that Davidson is a better fixative than Histochoice in reference to the overall morphology of the organism, and with preserving nuclear components of the DNA and cytoplasm. Additionally, we stained the Blepharisma with anti-ds-B-DNA antibodies. These results revealed that Davidson did a better job in preserving double-stranded (ds-) DNA than Histochoice. Concerning Histochoice, the organism seemed to swell, became much larger (about four times larger) and started to lose identifying morphological characteristics. The cytoplasmic background stained dark, which made it difficult to clearly view the nucleus and cytoplasmic components. Anti-single-stranded (ss-) DNA antibodies revealed more denatured DNA in the Blepharisma fixed with Histochoice than with Davidson. In conclusion, data from this ongoing experiment will allow researchers to choose among many different fixatives to find the best ones for their individual research of Blepharisma to learn the following: 1. molecular biology, genetics and reproduction of the organism, 2. infectious properties of the microorganism, (example: in humans) 3. the role this organism plays in maintaining the ecosystem, 4. evolution of DNA (why does this organism have a complex genome?), 5. better understand the molecular biology of other similar organisms, 6. the effect of alternative and multistranded nucleic acids in the genome of the Blepharisma. The importance of the research we have conducted will eventually allow researchers to choose the proper fixative for their specific experiment involving the Blepharisma and other more dangerous microorganisms.

Investigation Of Protein Kinase C In Vitro and in Vivo Substrates (Part I)

Student Name: Madiha Yasin, Bareia Chaudhry, and Anahita Ahuja
Faculty Mentor: Marianne Land
Department: Life Sciences, College of Arts and Sciences

Classical Protein Kinase C (PKC)s are a family of enzymes that phosphorylate specific serine/threonine amino acids in their substrates, thereby regulating many biological processes, such as growth, secretion, differentiation, and neuronal function. A number of diseases are associated with mutations within PKC genes or misexpression of PKC, for example ataxia in humans, heart failure in mice, and Parkinsonian syndrome in rats, Alzheimer's disease, and cancer. PKC-2 is the only classical isoform that is activated by both calcium and diacylglycerol in the nematode worm C.elegans. Most signal transduction pathways and genes that are found in humans are present in C. elegans and many, such as the aging and apoptosis (cell death) pathways, were discovered in this worm. Understanding of the regulation, substrates, and members of PKC pathway in nematodes may be extended to humans, and enable the development of therapeutic agents.

The consensus site of PKC, Arg/Lys-X-X-Ser/Thr-X-Arg/Lys, where X represents any amino acid, is fairly short, and if found within a protein may not necessarily become phosphorylated by PKC. In addition sites that do not conform to the PKC consensus site have been found to become phosphorylated by PKC. Therefore it is not easy to predict sites within a substrate that may become phosphorylated in vitro and in vivo by PKC. Since only one gene encodes cPKCs in C.elegans, a gene knockout of pkc-2 will specifically eliminate all cPKCs in this organism. Proteins that are differentially expressed in pkc-2 null worms and PKC-2 overexpressing worms have been identified. Proteins with shifted mobilities in pkc-2 null worms relative to PKC-2 overexpressing worms may be PKC-2 substrates. In addition, any genes that, when mutated, suppress the phenotype of PKC-2 over expression, may encode PKC-2 substrates. PRDX-2, a peroxyredoxin, was identified as a differentially expressed protein, expressed in E.coli as a Histidine tagged fusion protein, purified, and tested as a cPKC substrate in vitro. The His-PRDX-2 generated in and purified from E. coli was phosphorylated to high stoichiometry by cPKC relative to our negative control substrate red fluorescent protein which was not a cPKC substrate. Mutational analysis allowed us to identify a specific threonine amino acid within the PRDX amino acid sequence, Gly-Ser-Asp-Thr-Ile-Lys, to be the cPKC substrate site. The identified site in PRDX-2 only partially conforms to the PKC consensus site. The physiological relevance of phosphorylation of PRDX-2 by cPKC is now being tested.

Investigation Of Protein Kinase C In Vitro And In Vivo Substrates (Part II)

Student Name: Sarita Singh, Neetu Krishnan, and Darshi Patel
Faculty Mentor: Marianne Land
Department: Life Sciences, College of Arts and Sciences

Signals that generate diacylglycerol and calcium are disseminated by classical protein kinase Cs (cPKCs). A number of cPKC substrates have been identified in vitro and in cell culture but few have been studied for their physiological relevance in a whole living animal. We are investigating the physiological relevance of the specific sites that become phosphorylated in PRDX-2 by cPKC, in the free living nematode worm, C.elegans.

PRDX-2 is a thioredoxin that is involved in the detoxification of reactive oxygen species and elimination of peroxide generated by growth factors and metabolism. High levels of oxygen free radicals are very reactive and may generate gene mutations and cell death. prdx-2 null worms have a thermotaxis defect that is similar to pkc-2 null worms and in addition prdx-2 null worms suppress the thermotaxis phenotype of PKC-2 over expression (Land).

We have generated the promoter (gene regulatory) DNA sequence of prdx-2 using the polymerase chain reaction (PCR) of WT worms and are cloning it in to a worm expression vector, together with the cDNA sequence encoding PRDX-2. The resulting construct will be injected into prdx-2 null C.elegans to generate transgenic nematodes, and rescue of the null mutant phenotypes will be tested. In addition, mutant forms of PRDX-2 will be generated by manipulating the identified cPKC phosphorylation site, expressed in prdx-2 null worms, and tested for mutant phenotypes. We hypothesize that substitution of the threonine amino acid 180 in PRDX-2 to an alanine amino acid will prevent phosphorylation and mimic the unphosphorylated substrate. Substitution of a threonine for an aspartate amino acid will mimic the phosphorylated substrate. This will allow us to determine the physiological relevance of this cPKC phosphorylation site in PRDX-2, in C.elegans.

Session I Presentations
10th Floor
Room 1021
Moderator: Yuko Oda
10:30 am-11:45 am

- "Art as a Means to Adventure"
  By: Marine Mounier, Han Chen, Diana Papa, Jessica Doughty, Maria Fazio, and Yi Tang

- "Sport Anchor's Impact on Mass Media"
  By: Filip Van Eylen

- "Senior Thesis Paper"
  By: John Santamaria

- "Moving Targets"
  By: Keith Upton

- "Nomads on Motorcycles, Energy Conservation, Efficiency, and Renewable Energy on the Tibetan Plateau"
  By: Andrea Lynn Poniecki

Art as a Means to Adventure

Student Names: Marine Mounier, Han Chen, Diana Papa, Jessica Doughty, Maria Fazio, and Yi Tang
Faculty Mentor: Susan Landgraf
Department: Fine Arts, College of Arts and Sciences

Through our Art in Mass Communication class, we have started a journey through the NYC art scene. We are discovering museums, galleries, artists, art works and the ideas they engage with whether market-driven or aesthetic-driven. Beyond the cultural aspect of our work, we are studying our encounters with individual artworks. We are creating a video of our experiences as a group with some of the artworks. This project has allowed us, as an international group, to learn to work together and express our individual responses on our encounters on the video. From our first decision to embark on this project, we have added many aspects of working together yet maintaining our individuality. The group of students working on this project numbers 22, yet a selected group will make the presentation to SOURCE to meet the guidelines.

Sport Anchor's Impact on Mass Media

Student Name: Filip Van Eylen
Faculty Mentor: James Fauvell
Department: Communication Arts, College of Arts and Sciences

We all know how radio/news/talk show hosts such as Don Imus, Rush Limbaugh, Jay Leno, Ellen DeGeneres, Oprah Winfrey... have a big influence on the American population. But in my research paper, I will research how far the influence of sports reporters reaches, because I am convinced that we underestimate the impact that they can have on the people.

Senior Thesis Paper

Student Name: John Santamaria
Faculty Mentor: James Fauvell
Department: Communication Arts, College of Arts and Sciences

Mass media rely heavily on sports for viewership and thus profit across the globe. Over time, there have been many changes in sports media and its coverage with many more resources and features to see the games and get the news in different perspectives. This is creating Social Integration that is creating a "communal" focus that binds society. It is also promoting social change because of its multi-cultural appeal and racial diversity. This paper is going to: 1. Explain the history, changes, developments and look into what might come next 2. Explain how it impacts culture globally 3. Explain the challenges media outlets face through continuous global changes.

Moving Targets

Student Name: Keith Upton
Faculty Mentors: James Fauvell, Donald Fizzinoglia, and Jueman Zhang
Department: Communication Arts, College of Arts and Sciences

Moving Targets (URL: http://www.movingtargetsnow.com/) is a new form of journalism and entertainment, a program targeting a college-aged audience, a series that draws on the skills of students from the various specializations within the Communication Arts major. Teams of two students produce a series of videos and upload them to their video blogs. Then each team designs a poster for the Website of Moving Targets and links the poster to the team's video blog. I am presenting on behalf of the two video blogging classes that contribute to this project.

Nomads on Motorcycles, Energy Conservation, Efficiency, and Renewable Energy on the Tibetan Plateau

Student Name: Andrea Lynn Poniecki
Faculty Mentor: Robert Amundsen
Department: Energy Management, School of Management

I spent a good deal of the last year working on studies regarding the effects of cultural identity and cultural norms on renewable energy and energy efficiency adoption. This project would take a narrower view and incorporate information gained from my travel and studies in China and Tibet over the last 3 years - specifically using photos and stories I collected in my August 2011 trip to the Amdo nomadic region of Tibet, traveling the eastern end of the Tibetan Plateau, discussing how the cultural history and beliefs of the region influence the adoption of these technologies (in parallel with the economic and social gains from these).

Session I Presentations
10th Floor
Room 1026
Moderator: Nicholas Bloom
10:30 am-11:45 am

- "The Crossroad of Energy"
  By: Paul Garcia and Manish Taneja

- "Spatial Holes Under Conditions"
  By: David Chang, Nada Hassan, Neal Sanger, Renne Avalos, Marie Gallo and Eddy Liz

- "Influence People Have on Each Other"
  By: Jaishel Linch Bennett

- "A Real Connection: The Social Stigma Attached to Male Emotions"
  By: Katherine Fernandez

The Crossroad of Energy

Student Name: Paul Garcia and Manish Taneja
Faculty Mentor: Lenore Snyder
Department: Interdisciplinary Studies, College of Arts and Sciences

Our research focuses on the environment and the crossroads that we are at right now. We begin by discussing the history of energy and how we got to today in terms of carbon emissions. We then discuss a crossroad we are in. On one side we have a future where we keep oil as a main source of energy. In this scenario we see almost complete devastation to the planet by 2100, a place that has almost 200% more emissions than current levels. The words “breathe easy” will become a luxury for the rich and smoking a cigarette will be the closest you get to taking a deep breath. On the other path we see hope, prosperity, and a brighter future. We start by presenting the solar power energy technology. For the first time in history the price of solar is half of that of natural gas. We also take a look at amazing transportation vehicles that will help us reduce emissions by a factor of 100. In the next 100 years we see the eradication of a combustion engines, gas stations, and so many more common daily items. The power that these new technologies bring enables us to bring a world of abundance in the coming years according to Peter Diamandis. Technologies like cars from tesla that can go 0-60 MPH faster than a Porsche 911 and 280 miles on a single charge. Cutting down your cost of a fully charged car to 1 dollar is projected to be a reality in the next 20 years. What about technology that helps you charge your car without ever stopping? What about your home generating enough energy to make you money? We also talk about the economics of renewable energy technology. The word “possibilities” will be and is on the mind of every investor and entrepreneur. We also discuss the cost of a product and how it will be dramatically decreased even further. This is done by giving companies the ability to buy technology to capture energy from natural sources. What do you think the price of your products will be when energy is no longer a factor in production lines?

Spatial Holes Under Conditions

Student Name:	David Chang, Nada Hassan, Neal Sanger, Renne Avalos, Marie Gallo and Eddy Liz
Faculty Mentor:	Afife Tansel
Department:	Life Sciences, College of Arts and Sciences

Although Einstein was known as the father of physics for his scientific contributions with his theory of general relativity, some of his theories were left incomplete. One of these was the theory of the white hole. Using Einstein's "Field Equations" a white hole can best be described as an eternal black hole with no charge or rotation. As an eternal black hole, it was believed to have limitless capacity for nearby matter and particles within space. Having no capacity, the white hole is believed to be residing at the end of the black hole. Diagramed as a cylindrical shape, the white hole is pictured as a cone whose tip touches that of the black hole at end. Rather than having the same functions as the black hole, the white hole has many similar properties. Using mass, charge, and angular momentum, instead of absorbing light and dark particles, the white hole's normal nature is to repulse all content attracted by the black hole. Recent theories propose the white hole create new sectors of the galaxies by populating them with matter and particles attracted by the black hole. While proposing the white hole, Einstein also proposed the theory to wormholes. Considered as *shortcuts* in space, wormholes were defined as a manner to enter and escape from one sector of the galaxy to another faster than the speed of light. Most importantly these white holes are considered to be located within black holes using the similar approach. Using physics, and field equations derived from Einstein, Our Group has proposed a second set of functions to the Black & White Hole. While black holes can absorb content, it could be possible that under certain conditions black holes can revert to either function on the spot; the first function leading to the white hole, while the other leading to a wormhole. Our Group, will research the functions of the black and white hole and how it behaves (under certain conditions).

Influence People Have on Each Other

Student Name: Jaishel Linch Bennett
Faculty Mentor: Zennabelle Sewell
Department: Student Affairs, Campus Life

I will be talking about the advantages large groups have on individuals. During my presentation I will explain a few main points in psychology which is also the major I am pursuing. During my PowerPoint presentation I will be talking about an article I found in the New York Times, which explains how a pastor helped a big church fight obesity by working together. Also I will be talking about bullying and how it affects individuals differently. The last thing I will be explaining is how teenagers are influenced by their peers to do either good things or bad things. Overall I want to show that it is just part of human nature to be influenced by what we may see every day. People always try to find a comfort zone in someone and sometimes that may lead them to do extremely good or bad.

A Real Connection: The Social Stigma Attached to Male Emotions

Student Name: Katherine Fernandez
Faculty Mentor: Zennabelle Sewell
Department: Campus Life, Student Affairs

"If a man does not make new acquaintance as he advances through life, he will soon find himself left alone…", Samuel Johnson, 18th century writer.

Niobe Way, a professor at NYU and an expert in developmental psychology in adolescents, released a book in which she challenges the idea that males are incapable of holding intimate friendships with their male counterparts. "Deep Secrets: Boys' Friendships and the Crisis of Connection" is a collection of 20 years worth of interviews, following the lives of boys from all over the globe. As of September 2011, the book has begun to circulate at a few schools here in the New York City area.

The New York Times published an article by Jan Hoffman titled, "Allowing Teenage Boys to Love Their Friends" in which Dr. Way explains the purpose of her book and recounts moments in her life that strengthen her argument. Young boys are in fact in tune with their emotions, able to understand the power of friendship- I have seen it myself working with children pre-schoolers in the past. As boys grow up their attachment for their male friend fades be it because of competition, the traditional male stereotypes, or fear of homosexuality. With these mental blocks it is seen, by Dr. Way, her researchers and even I, that it becomes very difficult for men to forge new relationships that last with other men. Her work can hopefully end the stereotypes that gradually shut down sensitivity in boys creating emotionally disconnected men.

For this project I will discuss Dr. Way's thoughts on the matter with examples from her book, as well as insight from her published interviews. I plan to interview a few men from different age groups and social situations to reveal the connections seen right in front of us. From the preliminary interview process I have found that most men, outgoing or not, consider themselves loners of sorts and find that establishing friendships with women is much easier than bonding with new male friends. This is an unofficial movement for adults, parents and teachers to encourage young boys to embrace their need for intimate friendship.

Session II Presentations
8th Floor
Room 822
Moderator: Rosemary Gallagher
2:15 pm-3:30 pm

- "Deep Cervical Flexor Endurance and Associated Cervical Spine Impairments: A Literature Review"
  By: Pasquale Iannucci and Gary DeBarbieri

- "Retinal Images Classification Based on Eye Features and Lesions Detection"
  By: Shengwei Zhao

- "Effects of Martial Art Training on Arterial Stiffness in Middle Aged Practitioners"
  By: John Petrizzo, Caitlin Burke, Vincen Cherian, Meredith Herbst, Christopher McCutchan, George Stamatinos

- "Effects of Calf-sleeve versus Full-Length Lower Extremity Compression Garments on Running Performance"
  By: Rori Alter, Andrew Cerullo, Shawn Cheripuram, Christopher Mohammed, Janki Patel and Toral Patel

- "Cognitive Behavior Therapy (Change Your Thinking Change Your Actions)"
  By: Terrence Beach

Deep Cervical Flexor Endurance and Associated Cervical Spine Impairments: A Literature Review

Student Name: Pasquale Iannucci and Gary DeBarbieri
Faculty Mentor: Howard Makofsky
Department: Physical Therapy, School of Health Professions

Cervical dysfunction is often associated with neck pain and headaches, but the link between the two has not yet been fully understood. Various studies have tried to find an association between cervical dysfunction and pain, whether it be in the form of neck pain or headaches. With 54% of the adult population experiencing some type of neck pain in a 6-month period of which 5% have considerable limitations with daily activity, the issue is clearly one that needs to be taken seriously. The cervical vertebral column is very much dependent on muscular support to stabilize the head. Decreased deep cervical spine flexor (DCF) endurance is associated with increased cervical spine lordosis, delayed feed forward activation of DNF, and altered input to joint receptors of the cervical spine leading to dysfunction and impairment. Changes in cervical musculature, primarily in the deep cervical flexors, may be a result of injury, pain, disease, nerve pathology, or inflammation. The Craniocervical Flexion Test (CCFT) is a widely used, reliable evaluative tool for DCF endurance and can be used as an effective retraining method giving objective feedback. The purpose of this study is to review and discuss the current literature on deep cervical muscle endurance, associated impairment, possible implications, testing methods, and retraining. The literature review will serve as a basis for a pilot study that will test the effect of a mechanical stretch to the cervical extensors on deep cervical flexor endurance.

Retinal Images Classification Based on Eye Features and Lesions Detection

Student Name: Shengwei Zhao
Faculty Mentor: Vesna Zeljkovic
Department: School of Engineering and Computing Sciences

Diabetes is very often causing blindness. Diabetic retinopathy represents the progressive pathological changes in the retinal microvasculature manifested as damaged tiny blood vessels inside the retina which is the light-sensitive tissue at the back of the eye. Regular cost-effective eye screening for diabetic patients enabled by developing algorithms for retinal image analysis and monitoring will be very helpful and beneficial. This paper presents algorithms for automated eye features and lesions detection for classification of retinal images of diabetic patients. Three salient features have been extracted: optic disc, exudates and blood vessels. We classified fundus images into normal and the ones affected by diabetes, based on the detected optic disc and exudates. In the study, 262 fundus images were analyzed. Five groups of pictures were identified: normal retinal images and mild, moderate, severe and proliferative diabetic retinopathy images. We propose two novel algorithms for optical disc detection and apply exudates and blood vessels methods found in the literature. The detection of the optic disc is a very important because it has similar attributes as exudates, which are diabetic retinopathy indicator, in terms of brightness, color and contrast. We propose two methods for optic disc detection. 1) We apply contrast enhancement and morphological closing on the green channel of the retinal image and binarize the obtained image using its maximum intensity as the threshold value. We find the gravity centre of the detected brightest and largest region and perform morphological dilatation on it with structuring element of similar size to the size of optic disc. We morphologically reconstruct the detected region of the original green channel of the image and subtract it from the original green channel. The obtained difference image is binarized to identify the optic disc. The results show 87.79% accuracy. 2) We improve the contrast of the green channel of the retina image, binarize it and calculate the number of white pixels.

Effects of Martial Art Training on Arterial Stiffness in Middle Aged Practitioners

Student Name:	John Petrizzo, Caitlin Burke, Vincen Cherian, Meredith Herbst, Christopher McCutchan, George Stamatinos
Faculty Mentors:	Peter Douris, Teresa Ingenito, Barbara Piccirill
Department:	Physical Therapy, Physician Assistant Studies, School of Health Professions

A majority of evidence supports the hypothesis that lower arterial elasticity or increased stiffness is directly associated with aging and an increased risk of cardiovascular disease manifestations. Arterial stiffness is also associated with an increased risk of coronary artery disease in younger and middle aged patients. There are a number of strategies to reduce arterial stiffness such as lifestyle changes such as reducing body weight, lowering salt and alcohol intake, pharmacologic, and aerobic exercise. A recent study has demonstrated a positive correlation was shown between increased flexibility of the trunk and lower extremities and decreased arterial stiffness in middle and older aged subjects. Flexibility exercises are the cornerstone of martial art training. The purpose of our research study is to measure and compare arterial stiffness and flexibility in middle aged martial artist in comparison to sex and aged matched sedentary controls. Middle-aged adults who regularly participate in martial art training will have decreased arterial stiffness and greater flexibility when compared to their sedentary controls. We will be conducting a match design study. There will be two groups of subjects between the ages of 40 and 65 years old. One group will be made up of sedentary individuals while the other group will be made up of individuals who primarily practice martial arts on a regular basis. Arterial compliance will be measured by high-resolution ultrasound imaging of the common carotid artery. The pulse wave velocity (PWV) is the speed at which the forward pressure is transmitted from the aorta to the vascular tree and that speed increases with increased arterial stiffness. A standard sit and reach box will be used to measure the flexibility of the trunk. The subjects will then be also assessed for passive hamstring length with a standard gonoimeter. The independent variables are the matched martial artist and sedentary individuals. The dependent variables are arterial stiffness and flexibility. To test the hypothesis that marital artist will possess decreased arterial stiffness because of greater flexibility we will perform paired test between the matched groups on PWV and flexibility. Flexibility exercises as a result of this study maybe considered as an intervention to reduce the effects of aging on arterial stiffness.

The obtained accuracy is 87.40%. Exudates represent visible lesions resulting from diabetic retinopathy. They are major cause of vision loss, and are manifested as yellow patches on the retina with variable size, shape, and position. We applied the exudates detection method from the literature and obtained 99.04% results accuracy for the diabetes affected retinal images. The algorithm shows to be very sensitive when tested on healthy patients' retinal images. Finally we applied the algorithm from the literature for blood vessels detection, which gave good results.

Effects of Calf-sleeve versus Full-Length Lower Extremity Compression Garments on Running Performance

Student Name: Rori Alter, Andrew Cerullo, Shawn Cheripuram, Christopher Mohammed, Janki Patel and Toral Patel
Faculty Mentor: John Handrakis
Department: Physical Therapy, School of Health Professions

Compression garments (CG) have traditionally been utilized by the medical field for the prevention of deep vein thrombosis, post-operative edema, and treatment of venous insufficiency. During the past 4 decades, CG have made their way into athletics secondary to anecdotal evidence of benefits on muscle performance and recovery. More recently, CG have been marketed as having performance and recovery benefits in endurance sports such as running, cycling, and triathlons. Objectives: Primary: to determine if CG provide performance or recovery benefits among trained male and female runners. Secondary: to determine if effects on performance or recovery differ between full-length or calf-sleeve garments. Tertiary: to determine if gender influences the effects of CG. Background: Available research has suggested that the use of CG during running may increase venous return, decrease muscle oscillation, and reduce muscle impact. Therefore, potential performance benefits would include increased clearance of metabolites and delivery of oxygen due to increased circulation while muscle fatigue may be decreased secondary to energy conservation and muscle stabilization. Recovery would also be enhanced due to decreased muscle damage and delayed onset muscle soreness. However, consistent data supporting the effects of CG are limited and no studies have been conducted that compare the effect of full-leg versus calf-sleeve CG on running performance or physiological indices. Most published studies on CG are conducted on untrained or moderately trained male athletes and gender effects of CG have not been addressed. The majority of the research available has inconclusive results and prediction of real-world performance is limited due to study design. Study Design: A prospective observational study. The design was a 2 group (male, female) by 3 condition (full-length, calf-sleeve, control) repeated measures experimental design. Methods: Twelve trained runners (8 males, 4 females, age 36Â±4.4 years) were consented for this study. Each runner performed a 2 mile timed track run under three conditions, with full-length CG, calf-sleeve CG, and standard running tights (control). The order of assigned garments was randomized. Each runner served as his or her own control. Elapsed times, heart rates, and rates of perceived exertion were collected for each lap during all 3 running sessions. McGill pain questionnaires were collected for 24, 48 and 72 hours post-run time points for each testing session. All runs were performed on separate occasions with at least 1 week separating each session.

Cognitive Behavior Therapy (Change Your Thinking Change Your Actions)

Student Name: Terrence Beach
Faculty Mentor: Leonard Tester
Department: Behavioral Sciences, College of Arts and Sciences

This project is a documentary film developed from a research project for Psychology 101, entitled “Change Your Thinking Change Your Actions”. Many of us have the opportunity to make changes in our life but do not know how much the way we think can effect those changes. I want to show the film as well as give a presentation from my point of view to discuss how important this subject is in our everyday lives.

Session II Presentations
8th Floor
Room 821
Moderator: Youjeong Kim
2:15 pm-3:30 pm

- "Control Systems and Lego"
  By: Rahul Jain

- "Autonomous-Collision Avoidance Robot"
  By: Mohamed Shaaban, Sukhdip Singh, Samir Tamang, and Xiaodi Hu

- "Applying SIEM in Telecom Industries"
  By: Layth Abu-Halimeh

- "The Role of Reverse Engineering in Malware Detection"
  By: Haitham Nomans

- "Security Guidelines in ASP.NET Applications"
  By: Jaffar Nizar Shubber

Control Systems and Lego

Student Name: Rahul Jain
Faculty Mentor: Sabiha Wadoo
Department: School of Engineering and Computing Sciences

The cost of establishing a traditional control systems laboratory usually runs into many thousands of dollars. This project introduces an alternative method of teaching a control systems laboratory for undergraduate engineering students using Lego NXT kits and ROBOTC software. The total cost of the kit and software is under $350 which makes this combination a very cheap alternative for establishing a control systems laboratory. The set of experiments described here are ideal for colleges and universities that wish to introduce a control system laboratory curriculum at a minimal cost. In the first experiment the students observe and explore the working of a PID controller for the Lego NXT motor. In the second experiment, tuning of the PID controller assuming the system equations of the Lego NXT motor system are unknown and studied. Ziegler-Nichols (Z-N) method and its Tyreus-Luyben (T-L) modification are studied. In the third experiment, the transfer function of the Lego NXT motor is derived using system identification by the experimental data modeling approach. PID control design using the new model is then finally studied in the fourth experiment using the experimentally obtained transfer function.

Autonomous-Collision Avoidance Robot

Student Name: Mohamed Shaaban, Sukhdip Singh, Samir Tamang, and Xiaodi Hu
Faculty Mentor: Ziqian Dong
Department: School of Engineering and Computing Sciences

Team Electron of the School of Engineering and Computing Sciences is working on a senior design project by building a small-scale vehicle with an ultrasonic sensor to avoid collisions. This project is a design to implement safer driving for consumers. With advance technology already implemented in many luxury cars today, such as blind spot assist and lane detection warning, this technology will revolutionize driving in an innovative way. In the next five to ten years, many of our cars will be driving autonomously and the automobile market is already leading towards that today. Team Electron wants to participate in this event to show how NYIT is moving forward towards advanced technology on a small scale.

Applying SIEM in Telecom Industries

Student Name: Layth Abu-Halimeh
Faculty Mentor: Raed Abu Zitar
Department: School of Engineering and Computing Sciences

Currently, the security analysis process has been made harder due to the large number of insider threats, external threats, and the huge time and number of resources needed for log management when there is no central point of managing security systems and operational inefficiency. Enterprise companies in general and telecom industries in specific, need to protect and obtain a consolidated view of their wide assets, threats and vulnerabilities. Managing and monitoring security operations in real time must be the optimum and most efficient trend in huge business industries. This security trend requires centralizing and automating the process of collecting and managing logs and interpreting for risks. It is also essential to effectively monitor privileged and trusted users who access internal systems to ensure that they are only accessing the proper information. Security Information and Event Management (SIEM) technology provides two major functions for security events from networks, systems and applications. The first, Security information management (SIM), allows log management and compliance reporting. The second, Security event management, (SEM) provides real time monitoring and incident management. This research covers the meaning of SIM, SEM and SIEM combined together. It also deliberately discusses the differences between SIM and SEM. It provides us with the motivation why we need SIEM in general and in the telecom industry in specific. Ways to deploy SIEM are also discussed. Within this research paper we will evaluate various vendors available for SIEM implementations. This research also will suggest what would be best SIEM implementations for the telecom market. In summary, within this research, we will: 1) Compare various SIEM vendors and make clear recommendations for the system's architecture. It is expected that centralized SIEM will be most suitable for telecommunication environments by using agentless architecture. 2) Provide reasons for having SIEM as the main solution introduced to our client's customers. We expect that the proper solution is to have a full SIEM that integrates with other MSS (Managed Security Services) through SOC (Security Operation Center). 3) Investigate SIEM implementation scope. We contemplate that the scope of implementing SIEM will be divided in three main areas; backend and IT systems, GSM elements, and customer faced assets. Keywords: Security Information Management, Security Event Management, SIM, SEM, SIEM, SOC, MSS, Security threat, Vulnerability.

The Role of Reverse Engineering in Malware Detection

Student Name: Haitham Nomans
Faculty Mentor: Raed Abu Zitar
Department: School of Engineering and Computing Sciences

In computers security terms, vulnerability is a flaw in the computer system due to a bug or weakness in the software, security policy and/or overall system configuration. Vulnerabilities are recognized if they are exploited by attackers using a tool to allow system violation. Unfortunately, there is no one standard for vulnerability reporting to date, and the debate continues between the supporter of full discloser, non-discloser. We follow the responsible disclosure definition outlined by Shepherd by reporting the issue to the vendor first and wait for a month for a vendor to establish a meaningful connection or provide a suitable fix. Otherwise go public with full disclosure. In this project we discuss some techniques to exploit a weakness point in Yahoo Messenger client. We successfully build a Trojan, called Caruso, which basically allows the attacker to gain access into the victim's Yahoo account without the need to know the password. The project emphasizes mainly on a technique used to detect these kinds of suspicious malicious programs like "Caruso" which is a Trojan that exploits a weakness in Yahoo messenger and allows the attacker to gain access to the victim's account. This technique called Reverse Engineering in order to clarify that the antivirus and the firewall are sometimes not enough to eliminate the dangers of the Trojans. Applying the reverse engineering technique practically by using Ollydbg assembler tool on "Caruso" to analyze its behavior and to identify the attacker who is using it by extracting the attacker data from the Trojan also to explain the methodologies that used by the attacker to protect his Trojan from being analyzed by using a technique called obfuscation. The methodology sheds the light on uncommon Trojans defensive techniques to teach the people not to rely only on antivirus and firewalls also to explain how to identify the attacker identity. The project also bring the attention to the new vulnerability that the author found in Yahoo Messenger and to explain how Yahoo messenger users can protect themselves from this vulnerability. Sometimes malicious software could be undetectable from antivirus software; therefore people need another protection to rely on. Moreover it's helpful to identify the Trojan behavior and the attacker identity to trace the attacker and to report the Trojan to the antivirus security center.

Security Guidelines in ASP.NET Applications

Student Name: Jaffar Nizar Shubber
Faculty Mentor: Raed Abu Zitar
Department: School of Engineering and Computing Sciences

The World Wide Web has grown rapidly and plays a large part in most people's life. However, this development is accompanied by ignorance or lack of knowledge in critical security aspects. This makes it prone to attack and can harm the entire web. Many researchers and open forums bring good solutions and help to develop, deploy and maintain web applications. What gives the importance to the web applications is that these applications are always available and accessible to the users at anytime. Furthermore, the world internet usage and population grew in 2000-2011 by 480.4%. The internet lacks national controls and this has led to concerns about the security of online business. Vulnerabilities in web applications give the attacker a good chance to abuse the functionality of the website or harm the data that belongs to it. My project will bring benefits to web developers by giving them more awareness in web application security, through clarifying four major parts: 1- Clarifying the top 10 risks in web applications and how to resolve or delegate these risks using ASP.NET framework 2- Security risks of web application programming languages, by mentioning a statistical information about 1700 critical websites built on deferent frameworks. 3- Apply security measures for web servers. In this part I would like to enlighten the deployer about the risks in the web-hosting. 4- Scan your web application for possible vulnerabilities using a penetration tool. I try in this paper to give more awareness to those developers about how to resolve or mitigate most common security vulnerabilities in web applications.

Session II Presentations
10th Floor
Room 1029
Moderator: Niharika Nath
2:15 pm-3:30 pm

- "The Role Of Antibiotics In Intravitreal Injections: Characterizing the Rate of Infection"
  By: Peter Alex Stanciu

- "VCD based Chirality Determination of Fungal Metabolite Oxysporone"
  By: Susan Kunjachan

- "DNA Sequence Analysis Of Plasmids of Corynebacterium"
  By: Afnan Al Ganawi

- "Comparison of Two Different DNA Isolation Procedures"
  By: Ritaum Biswas, Jain Joseph, Elizabeth Thomas, Deena Zacharia and Christina Yohannan, Manpreet Parhar, and Sagar Patel

The Role of Antibiotics in Intravitreal Injections: Characterizing the Rate of Infection

Student Name: Peter Alex Stanciu
Faculty Mentor: Claude Gagna
Department: Life Sciences, College of Arts and Sciences

The Role of Antibiotics in Intravitreal Injections in the Human eye: Characterizing the Rate of Infection BPEI NYIT Abstract The drug delivery method known as intravitreal injections has rapidly emerged as the preferred procedure of administering pharmaceutical agents among ophthalmologists in the treatment of many retinal dieseases including neovascular Age Related Macular Degeneration (AMD), proliferative Diabetic Retinopathy (PDR) and macular edema from a variety of disorders. With the advent of Anti VEGF Drugs injected into the vitreous of the human eye and the soaring rate of injections in the last 5 years, a growing concern among Ophthalmologists is the rate and risk of endophthalmitis infection. Overview of injection applications and protocols will shed light on antibiotic role in treatment administration. The research will focus solely on how antibiotics should be administered if at all, in intravitreal injections given the rate of endophthalmitis per injections. I conducted this study in Summer 2011 at Bascom Palmer Eye Institute, Miami, FL. Shadowing several physicians performing injections over several months and pooling data revealed that the rate of infection is low approx. 0.001 percent based on 34000 injections over 5 years. The low rate is not indicative of the general agreement that a certain risk is present and the controversy that post injection antibiotics could be beneficial in higher risk patients. I am continuing this study with Dr. Gagna at NYIT, since I discovered that he performs molecular biological research involving the normal and cataractous ocular lens (1997). Together we are performing database searches and recent literature searches (Pub Med, Ovid) to update the study and shed more data to light.

VCD based Chirality Determination of Fungal Metabolite Oxysporone

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

Fungal species produce a wide range of natural compounds that differ in chemical structure, biological activity, mechanism of action, and environmental impact1. Among them, oxysporone, is a metabolite isolated from fungi and is considered as an interesting potential source of novel natural herbicides. Oxysporone is a chiral molecule and, hence, the nature of its activity and extent of applicability are highly dependent on its Absolute Configuration (conformation and chirality). Although the relative configuration has been inferred via NMR spectroscopy, the Absolute Configuration associated with the three stereogenic centers remained inconclusive. The application of Vibrational Circular Dichroism (VCD) spectroscopy will be presented as means of reliably assigning the Absolute Stereochemistry of oxysporone. Specifically, a synergy of quantum mechanical simulations and VCD experimental spectroscopic measurements allows for reliable identification of all of the stable conformers and determination of the Absolute Configuration. These studies are of importance in a view of a potential practical large-scale application of oxysporone and its analogues as a natural, safe herbicide agent.

DNA Sequence Analysis of Plasmids of Corynebacterium

Student Name: Afnan Al Ganawi
Faculty Mentor: Niharika Nath
Department: Life Sciences, College of Arts and Sciences

DNA holds the genetic information required for an organism to develop and function. Therefore, analysis of the DNA sequence is essential in most biological research, and is important for genetic engineering with plasmid vectors. Plasmid vectors are circular, double-stranded DNA molecules that are not part of the chromosome and that are naturally found in bacteria. They are often manipulated and then used to clone and express genes in the laboratory. I am doing a project on DNA sequence analysis of plasmids of Corynebacterium. Corynebacterium are rod shaped gram-positive bacteria, frequently found in nature. In the project I will be analyzing the plasmid DNA sequence of some of C. renale for origin of replication, ORFs and the sites of restriction enzymes and comparing them with other plasmids of Corynebacterium. The potential of these plasmids to be used as vectors for gram-positive bacteria will be assessed.

Comparison of Two Different DNA Isolation Procedures

Student Name:	Ritaum Biswas, Jain Joseph, Elizabeth Thomas, Deena Zacharia, Manpreet Parhar, Sagar Patel, and Christina Yohannan
Faculty Mentors:	Claude Gagna
Department:	Life Sciences, College of Arts and Sciences

As part of the Biomedical Research II class (BIOL-455) we have undertaken a project that will compare two different DNA isolation procedures [Wheat Germ Kit (Carolina Biological Inc., 2700 York Road, Burlington, NC 27215), and the Promega DNA Isolation Kit (Promega Corporation, 2800 Woods Hollow Road, Madison, WI 53711)]. The first procedure we performed was using a kit from Carolina Biological, which will allow us to isolate DNA. This nucleic acid is mainly in the form of double-stranded (ds-) DNA/protein complexes. This isolation kit allows for the removal of cellular debris (example: cell membrane). The second procedure is a more advanced DNA isolation kit from Promega Corporation that allows for the isolation of highly purified high-molecular weight, undenatured ds-DNA. This DNA has no DNA/protein complexes, since the DNA binding proteins have been denatured and removed from solution. The reason for our wanting to obtain DNA from two different nucleic acid isolation procedures is that we will use these nucleic acids as: 1. controls for other ongoing experiments isolating DNA from the normal bovine ocular lens, 2. controls for other ongoing experiments isolating DNA from cataract bovine ocular lens, 3. experiments involving in vivo DNA-protein complexes (novel DNA microarray), 4. to see which isolation procedure results in undamaged, intact ds-DNA. The project we undertook is part of several other ongoing experiments in order to obtain different types of DNA (e.g., single-stranded DNA, ds-DNA, DNA/protein complexes). The DNA obtained from our group's isolation of DNA will also be used for cell death studies. As a group, we learned how to isolate DNA using two different methods. We also learned how to use a micro-plate reader to quantitate anti-B-DNA and anti-single-stranded DNA antibodies. Finally, our group also learned how to use a refrigerated ultracentrifuge for the isolation of DNA.

Session II Presentations
10th Floor
Room 1021
Moderator: Elizabeth Donaldson
2:15 pm-3:30 pm

- "Recycling Awareness"
  By: Victoria Torres Arroyo

- "The Background, Benefits and Risks of Popular Alternative Medicines"
  By: Pallavi Khanna

- "Space Based Solar Power (SBSP)"
  By: Gunpreet Singh

- "Agriculture Renaissance: A New Dimension in Between City, People and Food"
  By: Chien-Hao Lin

Recycling Awareness

Student Name: Victoria Torres Arroyo
Faculty Mentor: David Hogsette
Department: English, College of Arts and Sciences

If you are interested in understanding recycling on a deeper level, why it is so important, simple, and beneficial, this report will be very useful and valuable. This report underlines how waste is distressing our earth and it promotes recycling awareness. Once the necessity to take action is understood, this report generates recycling awareness by explaining the simple ways to recycle, the different classifications of recyclable materials, and how all of these things tie back to prevent the harmful accumulation of waste. This report will also analyze why people recycle by conducting a small survey, and how easy would be to recycle without changing our life style as well as how it would actually improve our life and save us money.

The Background, Benefits and Risks of Popular Alternative Medicines

Student Name: Pallavi Khanna
Faculty Mentor: James Duffy
Department: English, College of Arts and Sciences

Alternative medicine, defined as any medical technique or healthcare system not conventionally accepted by modern American and European medicine, has recently started to gain popularity in North America. Though most alternative medicines are very specific and detail oriented, there are only a few that treat the patient as a whole and take into consideration the connection between the mind, body, and nature. Two examples of these healthcare systems include Ayurvedic medicine (also known as Ayurveda) and traditional Chinese medicine (TCM). Both alternative medicine systems originated thousands of years ago in Ancient India and China, respectively, and obtained their ideology through the Hindu and Taoist religions. Each system emphasizes the impact natural forces (such as yin and yang, and the vatta, pitta, and kapha doshas) and the five elements of nature have on your mental and physical health and how any imbalance of these forces will create disharmony and disease in the body. They also encourage lifestyle changes and treatments that will complement your own personal energy/consciousness. Treatments common to Ayurveda and TCM include massage, meditation, yoga, and herbal medicine. Herbal medicine is especially significant in today's world, due to the fact that modern technology has allowed researchers to study and test the claims made by Ayurvedic and TCM practitioners about certain herbal treatments. For example, turmeric and ginger are two very common herbal medicines used in Ayurveda and TCM for a variety of different maladies such as indigestion and inflammation. The active ingredients of both plants have been proven in laboratory settings to function as claimed. However, there are always risks to taking any type of medicine without consulting a healthcare professional. Because alternative medicines are unregulated by the FDA and are labeled as dietary supplements, it is even more difficult to understand the active ingredients and how they will interact with each other and with your body.

Space Based Solar Power (SBSP)

Student Name: Gunpreet Singh
Faculty Mentor: Herbert Fox
Department: School of Engineering and Computing Sciences

The concept of Space Based Solar Power (SBSP) is a new approach to global energy in which a space station transmits energy from space to Earth. This concept was invented by Dr. Peter Glaser of Arthur Dlittle in 1967.

In SBSP the solar radiation from the sun will be converted into electricity by using photovoltaic cells which will be placed in a form of large platform called space satellite, and helps to generate the DC electricity. Some of this power will be used to drive the wireless power transmission (WPT) system which will convert the remaining power into electromagnetic waves, either- laser, radio or microwaves. The space satellite will be placed in geosynchronous orbit of space so as to keep it aliened with the receiver called rectina, back on earth ground surface. The electromagnetic waves received by the rectina will be converted back to DC power and further distributed to the utilities.

This system does not depend upon nighttime, weather, or the changing seasons. Even in terms of utilization of fixed capacity, the SPS concept has the potential to achieve much greater energy efficiency then ground based solar power systems. In the past twenty years many aspects of the technology came into existence, and there has been incredible progress in reducing the cost of access to space. Recent studies indicate that much more credible projection of economic feasibility. Also in recent years, it has been identified that current human practices for energy acquisition and utilization leads to some serious environmental risks, including global climate change, that has increased the sense of urgency for the development of sustainable and clean energy sources, like that of space-based solar power plants.

Agriculture Renaissance: A New Dimension in Between City, People and Food

Student Name: Chien-Hao Lin
Faculty Mentor: Giovanni Santamaria
Department: School of Architecture and Design

Urban or Rural? Back to the time when city and farmland were clearly defined, the edge in between those two areas remained in balance. However, after industrialization, the city started to expand without control, the farmland was taken over eaten by the city next to it -- they started to involve each other. Therefore, since the boundary between the city and farmland is never clearly defined, why not mix them? By this way, we find a new dimension, a new possibility, a new quality to not only the city land but also the farmland. In 2050, the growth of total population will be 9.4 billion, and 20 percent of the world's population in developed countries consumes most resources of the world. By using agriculture patterns to urbanize, to manipulate the system of land, in 2050, it will be possible to plan a capable to balancing its own consumption.

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

- "Xalkori: Non-Small Cell Lung Cancer (NSCLC) Treatment"
  By: Irshad Ally

- "Levi's Ad Campaign"
  By: Robert Wimmer

- "Ethiopian Refugee Camp Design"
  By: Jamena Grant

- "Manufacturing Infographic"
  By: Tanisha Isaacs

- "Structural Composition of Myocardial Infarction Scar Does Not Differ Between Male and Female Middle-Aged Rats"
  By: Eugene Bogatyryov, Molly Kelly, Lance Christensen and Robert Tomanek

- "Effects Of Banning Alcohol Advertising Versus Counter-Alcohol PSAs on Alcohol Consumption"
  By: Roshni Ashar

- "Photo Portfolio Demo Reel"
  By: Andrew Lai

- "Point of Care Learning Preferences of Physician Assistants"
  By: Matthew Graupman, Amanda Russell, Kristen Cofer and Stephanie Burkhardt

- "Optimal Control System of a Wind Turbine"
  By: Hassan Mughal and Omer Zia

- "A Palimpsest of Ideas"
  By: Julianne Cantelmi

- "All They Have is a Pomegranate"
  By: Nina Mirhabibi

- "Art and the African American Experience"
  By: Briana Strong

- “Jupiter Sadge”
  By: Earl Holder

- “Life Expectancy in the U.S. Infographics”
  By: Shannon Ifill

- “Planetary Boundary Infographic”
  By: Nina Roman

- “Sentience”
  By: Mercedeh Mirshamsi

- “Smoking Among Women and Men in the USA”
  By: Savvas Pitzio

- “The Zombie and You”
  By: Ashley Foster and Victoria Reyes

- “Trouble Sleeping?”
  By: Alexandra Correale

- “Absolute Configuration Determination of Organophosphorus Pesticides”
  By: Qurratul Jameel and Mosadoluwa Obatusin

- “Ammonia-Ammonium Chloride Buffer Capacity Titration & Activity Coefficient”
  By: Fateha Ahmed, Aisha Ashfaq, Fauzia Bagum, and Larab Giniyani

- “Characterization of Glutamate Neurotransmission in the RAIC”
  By: Heather Magnuson and Mohammad Zohaib

- “Circulating Osteogenic Cells in Type 2 Diabetes Mellitus”
  By: Ligy Thadathil

- “Helical Molecular Programming via Supramolecular Complexation Of Bis-Porphyrins”
  By: Dolu Obatusin

- “Modification of Non-Steroidal Anti-Inflammatory Drug (NSAID) Structure for Enhanced Anti-Cancer Activity”
  By: Kerin Munawar, Afnan Haq and Mitali Chattopadhyay

- “Control Cell Counts: Normal and Cancerous Tissue Sections”
  By: Nisha Rowzani, Roshan Chhatlani and Binju Bose

- “Does Territorial Aggression In Wild Blue Monkeys (Cercopithecus Mitis) Escalate With Limited Food Supply?”
  By: Aisha Ashfaq and Fauzia Bagum

- “Epidemiology and Diagnosis of Y. pestis”
  By: Saila Mukta, Crystal Haroon, Amanda Eng, and Charlotte Chen

- “Exploring the Expression of Y. Pestis Virulence Factors”
  By: Julie Tang, Neetu Shaji, Andrew Shehata, Alvin Babu, and Irshad Ally

- “FCSC M02 Methods of Storage for Renewable Energies”
  By: Frank Annunziata, Brian Matthews, Donald Hebel, William Chen, and Gerald Park

- “FCSC-101: The Future of Organ Transplantation”
  By: Ilona Aleksandrovich, Joy Otibu, Monay Clancy, and Erik Singletary

- “Fragile X Syndrome: the FMR1 Gene Inactivation Affects Production of FMRP”
  By: Jennifer Ardila

- “ Hydrogen Sulfide-Releasing Aspirin Inhibits The Growth of Colon Cancer Cells And Induces the Phase II Enzyme NQO1”
  By: Thuy Tien Le Cao

- “Tangent Line Method for Determining Titration Equivalence Point”
  By: Ronika Sethi

- “The United Nations as a Forum for Undergraduate Nursing Global Education”
  By: Jeannette Cruz, Christian Velez, Jenna Callahan and Shanie Kowlessar

- “Bill #A1977-B/S2553-A: Education: Registered Nurses to Earn a Bachelors Degree within 10 Years of Licensure”
  Team Leader: Jenna Callahan
  Vicky Adelson, Hanna Dawidowicz, Viktoria Fodor, Radhaisi Gomez, Sherly George, Hyun Joo Kim and Angie Theronier

- “Bill # A921/S4553: Practice: Establish Minimum Nurse to Patient Staffing Ratios in Acute Care Facilities”
  By: Team Leader: Katie Oswald
  Christine Gasser, Kristin Schmidt, Mary Carson, Shanie Kowlessar and Ruth Bonilla

- “Bill # A1370-B/S2470-B: Policy: Safe Patient Handling Policies to Reduce Lifting Injuries Among Nurses”
  By: Team Leader: Kiranjit Sahota
  Christian Velez, Jeanette Cruz, Fatima Agunaga, Sherry John and Neenu Puthusseril

- “Education and Experience: What Affects Physician Assistants' Reporting of Child Abuse?”
  By: Ashley Uhuad, Laura Wagner, Ashley Hill, Jessica Remstein and Matthew Conte

- “An Assessment of New York State Physician Assistants’ Utilization of Interpreting Services”
  By: Allison Mead, Danielle Camenzuli, Laura Michel and Jessica Pollak

- “Is Community Acquired Methicillin-Resistant Staphylococcus auerus Colonizing Primary Care Facilities?”
  By: Jessica Stein, Heather Strahl, Ryan Black and Kerby Pierre-Louis

- “Eve of Construction”
  By: Colton Sheehan

- “Arts, Science and Technology”
  By: Amina Tayyub

- “Musical Art History”
  By: Jeed Ahmed Alam-El-Deen

- “Clockwork Workclock”
  By: William Labourier

- “The Opportunities and Challenges Brought by Growing China”
  By: Sitan Jin

Xalkori: Non-Small Cell Lung Cancer (NSCLC) Treatment

Student Name: Irshad Ally
Faculty Mentor: Kevin LaGrandeur
Department: English, College of Arts and Sciences

Lung cancer is a pathology of the lungs marked by deregulated cell growth, the most common of which is non-small cell lung cancer (NSCLC) (Chen & Zieve, 2011). Current treatment options include surgery, chemotherapy, and radiation therapy. While these treatments work, they are not very effective, and come with numerous severe side-effects. As a result, new treatment options are needed. Xalkori is a new drug that is effective in treating ALK-mutation related adenocarcinomas (Anonymous, 2011). In this technical report, the effectiveness of Xalkori is examined in terms of cost, and response rate. The data suggests that while Xalkori is costly, it is an effective, and necessary, alternative to traditional cancer treatments.

Levi's Ad Campaign

Student Name: Robert Wimmer
Faculty Mentor: James Wyckoff
Department: Communication Arts, College of Arts and Sciences

I presented this ad campaign in Professor Wyckoff's Advertising Copywriting course. The object of the assignment was to tell a story while provoking the emotions. I chose to speak about people that triumphed through adversity and homelessness. The campaign consists of a creative brief, two print ads, a video commercial storyboard and a radio commercial script.

Ethiopian Refugee Camp Design

Student Name: Jamena Grant
Faculty Mentor: John Dameron
Department: School of Architecture and Design

There is a humanitarian crisis in Ethiopia. Somali, Eritrean and Sudanese people are fleeing to this country to escape drought and civil unrest in their own nations. The influx of people has resulted in a crisis. Unfortunately drought, famine and violence against women are not always left behind but exist in the camps as well. Drought is a natural disaster like no other. It does not come suddenly and bring havoc. It persist for years slowly unraveling the societies affected. To combat drought I added a rainwater collection plate on the perimeter of the roof. There is significant rainfall in areas not bordering but closer to the Red Sea which would have higher benefit than some other drier areas. Unfortunately there is no way to make rain appear but another way to combat drought is to provide nomadic people with a safe place to return when the search for water is over. Due to the civil unrest traditionally nomadic people are unsafe traveling as they always have. The need for stable homes has never been greater. Violence against women is also a major concern in the camps and I planned a route of travel based on the traditional Eritrean home to assist with this horrific problem. The doors are pocket doors that allow an open community feel while open but when closed provide safety with a lock. Nearly all traditional structures which are the majority of the shelters used in the refugee camps do not have locks adding to the insecurity of vulnerable residents like women and children. The exterior of the home uses earth bricks which are comprised of 5%-10% concrete resulting in a low carbon footprint. The roof is inspired by a thatched roof made of dried plants but is instead made of shredded recycled plastic to resemble braided leaves. The majority of the food and water are imported in from humanitarian organizations introducing plastic waste into the environment. This is an opportunity to begin a recycling initiative and utilize the plastic waste. A sewage disposal solution was not required for this competition but for this particular site it is worth exploring. Most residents travel to use the bathroom, which again leaves women and children vulnerable. A separate toilet area for women and men would assist with maintaining a safe environment for women. Instead of traveling alone to use the bathroom, in areas that are secluded unisex areas, women can begin to use women only facilities creating structure and order for this essential function. There are also many options for toilet facilities including a space like toilet system, which can convert waste to liquid fertilizer, or an ecological type toilet system made for poverty stricken areas. This design combines traditional elements of Sudanese aqal homes, Eritrean hidmos and Somali tukuls with regional cultural practices to create a home that reflects the African cultures residing at the camps. With all the conflicts the residents have fled, the goal of this design was to harmoniously but also distinctly reflect each culture and provide a safe place of refuge.

Manufacturing Infographic

Student Name: Tanisha Isaacs
Faculty Mentor: Patty Wongpakdee
Department: Fine Arts, College of Arts and Sciences

Manufacturing in the United States has shown a decline in the past ten years. This Infographic is based on a survey sponsored by General Electric and was conducted in August 2011 by the Economist Intelligence Unit. In this survey 360 senior executives of manufacturing firms across a range of industries were asked about their attitudes toward the future of manufacturing in the U.S. I chose this topic because I am extremely interested in American manufacturing and how it affects job creation and the U.S. economy. A lot of the products commonly used by Americans are made in other countries and I was interested in how that foreign production and lower cost competition takes a toll on the state of manufacturing in the U.S. The information gathered from visualizing.org was presented in a spreadsheet format. Transforming the data into a visual graph helps the viewer to understand the topic in a clear and concise way.

Structural Composition of Myocardial Infarction Scar Does Not Differ Between Male and Female Middle-Aged Rats

Student Name: Eugene Bogatyryov, Molly Kelly, Lance Christensen, and Robert Tomanek
Faculty Mentor: Eduard Dedkov
Department: Biomedical Sciences, NYCOM

In recent years, the accumulating body of knowledge derived from experimental animal studies and clinical research has established a key role of the sex-based differences in the severity, progression and outcome of cardiovascular diseases, including an MI. A number of studies indicate that females have a better reparative response in earlier stages of MI compared to the male counterparts. Nevertheless, little is known concerning the sex-related differences in a later stage of MI healing such as LV scar formation and maturation. Accordingly, we designed our study to determine whether the composition of the LV scar is affected by the biological sex of post-MI animals. A large MI was induced in middle-age (12-month-old) male (M-MI) and female (F-MI) Sprague-Dawley rats by ligation of the left descending coronary artery. Four weeks after an MI, 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 and cardiac myocytes) and immunohistochemical staining with an antibody against smooth muscle Î±-actin (to visualize myofibroblasts and vascular smooth muscle cells). Regular light images from the stained scar region of each heart were captured on a computer. Morphometric and stereological analyses were conducted on assembled figures by using Image-Pro Analyzer 7.0 software. The fractional volume of fibrillar collagen (FC), cardiac myocytes (CM), myofibroblasts (MF) and vascular smooth muscle cells (VSMC) were determined in each scar. We found that that the LV chamber of F-MI and M-MI rats underwent a similar degree of transversal enlargement though the compensatory increase in LV mass was less prominent in female hearts. At the same time, the mean scar size and thickness were comparable between F-MI and M-MI rats (61.3Â±3.9% vs. 63.8Â±2.5% and 0.66Â±0.04mm vs. 0.73Â±0.05mm, respectively). Although, there was a great degree of heterogeneity in spatial distribution of the analyzed structural components within an individual scar, their mean content showed no significant differences between F-MI and M-MI rats (FC: 53.3Â±6.6% vs. 61.6Â±4.5%; CM: 3.1Â±0.4% vs. 3.3Â±0.4%; MF: 9.6Â±1.2% vs. 9.6Â±1.7%; VSMC: 3.4Â±0.5 vs. 2.3Â±0.5%). Our data are the first to demonstrate that biological sex does not influence the structural composition of the MI scar in middle-aged rats.

Effects Of Banning Alcohol Advertising Versus Counter-Alcohol PSAs on Alcohol Consumption

Student Name: Roshni Ashar
Faculty Mentor: Jueman Zhang
Department: Communication Arts, College of Arts and Sciences

Many studies have revealed that increasing exposure to alcohol messages leads to the youth being inclined towards alcohol consumption (e.g., Collins, Ellickson, McCaffery, & Hambarsoomians, 2007; Russell, Russell, & Grube, 2009; Snyder, Milici, Slater, Sun, & Strizhakova, 2006; Stacy, Zogg, Unger, & Dent, 2004). Other influential factors include identification with characters portrayed as drinking in the program (Russell, et al., 2009), and advertisement likeability (Chen, Grube, Bersamin, Waiters, & Keefe, 2005). However, in these studies, not much has been established about how to decrease alcohol consumption. According to some researchers, banning alcohol advertisements may have little or no effect on alcohol consumption (Motta, 1997). Moreover, several studies have found that alcohol consumption level even increases with bans of alcohol advertisements (Nelson, 2000; Smart & Culter, 1976). One plausible explanation is that banning alcohol advertisements means less advertising cost for alcohol companies, which in turn gives them the leverage to decrease their prices and decreased price can lead to more sales (Motta, 1977). Another reason could be that advertisers take on to subliminal advertising. For instance, they advertise their brand as "sparkling water" instead of vodka or beer. Former Surgeon General Koop's Drunk Driving Panel postulated that the problem of underage drinking and other problems associated with alcohol consumption can be substantially reduced by "matching the level of alcohol advertising with equivalent exposure for effective pro-health and safety messages to provide more complete and accurate information," according to the U.S. Department of Health and Human Services (1989). This can be achieved by making such public service announcements (PSAs) federally mandatory and juxtaposing them in the same programming that is loaded heavily with alcohol advertising so as to influence the most affected target audience (Primack, Kraemer, Fine, & Dalton, 2009). Along this line of research, this study intends to investigate how alcohol advertisements combined with counter-alcohol PSAs may affect alcohol consumption amongst the youth. Furthermore, this study will compare it with the impact of bans of alcohol advertisements on alcohol consumption. The study will use a 2 (a combination of advertisements and PSAs v. bans) by 2 (pre- and post-tests) mixed factorial design. Half of the participants will be shown 12 advertisements and 8 PSAs as inserts between recorded TV programs whereas the other half will be shown just the recorded TV programs. Before and after the exposure to the stimuli, participants will be asked to complete questionnaires regarding their alcohol consumption.

Photo Portfolio Demo Reel

Student Name: Andrew Lai
Faculty Mentor: Paul Demonte
Department: Communication Arts, College of Arts and Sciences

My project is a compiled portfolio of my photography work during my past two years at NYIT. Most of my photos were taken at events that the School of Management held throughout the past two years such as business meetings, leadership conferences, honor galas, and dinner cruises. Instead of taking the usual slideshow transition and music approach, I have decided to create this portfolio through the use of Adobe After Effects and give the images the ability to stand out through my abilities.

Point of Care Learning Preferences of Physician Assistants

Student Name: Matthew Graupman, Amanda Russell, Kristen Cofer, and Stephanie Burkhardt
Faculty Mentor: Lawrence Herman
Department: Physician Assistant Studies, School of Health Professions

Objective: Point of care learning for medical professionals is increasingly utilized. The Association of American Medical Colleges (AAMC) defines point of care learning as "learning that occurs at the time and place of a health professional-patient encounter" (Ebell, Cervero, Joaquin, 2011). While identifying specific resources and methodologies utilized is desirable, no data are currently available identifying physician assistant practices. Especially in this electronic age where tradition changes rapidly, it is important to determine which point of care resources physician assistants utilize when the need for timely clinical information arises during a patient encounter. Methods and Participants: A study of practicing physician assistants was conducted through the use of an online survey instrument which was distributed utilizing a database of practicing physician assistants representative of the profession. Physician assistants surveyed were all members of the American Academy of Physician Assistants (AAPA) and the database was facilitated by AAPA. Respondent demographic information collected included age, sex, years of practice, area of practice, and primary zip code of practice. The remaining questions determined specific point of care learning preferences of the sampled physician assistants. The data was analyzed using multivariate analysis. Results: A total of 6,109 physician assistants were selected from the entire AAPA membership database and this sample was specifically designed to be a representative sampling of PAs by age, gender, practice specialty, time in practice, and geography. These individuals were contacted via an email and asked to respond to the survey. Of those sent emails, 81.6% (N=4,986) had email addresses that allowed delivery, and 18.2% (N=875) of the emails were opened by individual PAs, and precisely 400 PAs responded, a 45.7% response rate for emails opened by recipients, and a 8.0% response rate for all emails apparently received. All data collected were self-reported. The mean age of respondents participants was 44 years of age, ranging from 24 to 75 years of age with nearly two-thirds of the respondents being female (64.5%). Average time in clinical practice was 13 years with a range of 1 to 38 years. Of those that responded, 74% (N=293) chose an electronic resource over a textbook or journal for the primary method of accessing medical information. Internet access regardless of the type of device utilized was chosen by 84% (N=331) of the respondents. Conclusions: The internet and especially readily available smartphone applications are the overwhelming point of care resources preferred by physician assistants. This has implications for not only practicing PAs, but PA educational programs and continuing medication education providers.

Optimal Control System of a Wind Turbine

Student Name: Hassan Mughal and Omer Zia
Faculty Mentor: Felix Fischman
Department: School of Engineering and Computing Sciences

In today's world wind turbines are manufactured in terms of vertical axis and horizontal axis. Various types of wind turbines are used in tasks as small as charging battery to the tasks as vast as large grid-connected arrays of turbines producing commercial electric power. Our area of research focuses on the horizontal axis wind turbines. Our research objective is to maximize the electrical power yield by using key parameters that greatly influence the operation and the output of the system. The research team concentrated on four different procedures to achieve the optimal control system of the wind turbine. We used hydraulic cylinders between the nacelle and the base tower to change the wind turbine's orientation toward the wind. The advantage of using hydraulic cylinders is that they will optimize the life span of the system, by decreasing the drag force on it in extreme weather conditions. In order to maximize the total power output during low wind speeds, we considered pitch-control as the best option. In pitch-control each blade is rotated along its own axis, using stepper motors, to encounter maximum possible wind. The undesired change in the direction of the wind flow significantly decreases the desired output. In order to overcome this obstacle, the team brought in the implementation of the yawing-effect. In yawing-effect, the whole nacelle is rotated in a desired direction so that the blades can experience the maximum lift force, resulting in higher rpm. A major reason in blade failure includes the shear stress produced at the center of a blade because the difference between the velocities of the blade's tip and its base. These shear stresses can be minimized, by adding two more tips equilaterally spaced and oriented form the existing tip. The additional tips will not only increase the aerodynamic efficiency of the system, but also provide more strength to the blade because the junction of these three tips will be a replica of the blade's base, which is the strongest part of a blade. Our research team suggests that using these above mentioned advancements, we can minimize the chances of failure the system against drastic weather conditions, increase the life span of the system, maximize the possible power output in low wind speed, increase the aerodynamic efficiency, and decrease the risk of blade failure by modifying the blades' dynamics. We will further our research by introducing sensors that will help the wind turbine system to be operated from a central controlling unit, which will be responsible for feeding essential data to each wind turbine active on the wind turbine farm. These sensors will also help us to observe and study the changes in the parameters of each component of the system, making it more robust and controllable.

A Palimpsest of Ideas

Student Name: Julianne Cantelmi
Faculty Mentor: Daniel Quigley
Department: English, College of Arts and Sciences

The most prominent element that I noticed within the site was the idea that the site itself is a palimpsest: just walking along the street, it becomes a timeline in itself as shown through (this) diagram. Throughout the site, you can see these layers of history unfolding throughout the 1800s, 1900s, and 2000s to the present. Different elements from different time periods are revealed in elevations of these various building facades, each reflecting their history. Paralleling this palimpsest within the site, the shoe I chose was Nat-2, a shoe created with this same idea that along a timeline, layers can be added or subtracted in order to accommodate for the current situation. Nat-2's shoes are layered shoes, which come in 2in1 and 4in1 collections where a zipper functions to either unzip a sneaker to become a sandal, or by adding layers onto a sneaker to become boots. In working through this program, I used the idea of a palimpsest to layer program spaces on top of one another at various levels and push and pull the walls, actually bringing the specific program criteria to the exterior boundaries and creating edges that define areas from the outside for specific program purposes.

All They Have Is A Pomegranate

Student Name: Nina Mirhabibi
Faculty Mentor: Lynn Pocock
Department: Fine Arts, College of Arts and Sciences

The intricate environment of Iran has been leading Iranians to abandon the country in a large scale. The reason of this massive desertion is “Oil”, their enemy and their wealth (friend), while it is being used towards a better life in foreign countries, it has always been a motive for powerful people/countries to manipulate Iranian's political and social life in different ways. I did and am looking forward to demonstrate the experience that I’m having currently in the USA.

I moved to the United States to continue my higher education at the age of thirty. I have my Iranian taste and attached strings to my country but I’m not sure, except my family, where they are coming from. I need to find my lost identification as well as my roots and the reason behind my taste of art. Although my transitional life, from Iran to United States, helped me out to have a better understanding of my repressed voice and desires inside, it’s undeniable that I’ve been taken apart from my roots. This self-portrait series is expressing my high contrast, bothered feelings, a conceptual visualization of the shared experience among most Iranian immigrants/non-immigrants who were forced to leave their homeland, physically or mentally. Maybe it does not sound hurtful or savagery but to me, it’s been a crime. This project and the one that I am working on currently, supposedly will lead me towards the final thesis project.

Art and the African American Experience

Student Name: Briana Strong
Faculty Mentor: Vera Manzi-Schacht
Department: Fine Arts, College of Arts and Sciences

My project will display, through painting by African American artists, the lives and the experience of living within the Black culture. I have incorporated an art history class as well as a history course I'm taking on the African American Experience to create this project.

Jupiter Sadge

Student Name: Earl Holder
Faculty Mentor: Terry Nauheim Goodman
Department: Fine Arts, College of Arts and Sciences

"Jupiter Sadge" is a [hand drawn] print comic about an extra-terrestrialite with a psychokinetic talent called "Micro-PK" ability, which allows him to control the odds of any situation and psychically alter them in his favor. I made this comic using pencil and pen and will be presenting at least 6 images and an accompanying narrative for my presentation.

Life Expectancy in the U.S. Infographics

Student Name: Shannon Ifill
Faculty Mentor: Patty Wongpakdee
Department: Fine Arts, College of Arts and Sciences

"Life expectancy" refers to the average number of years that a person is expected to live [at a given age]. It is often times used in relation to calculating human populations within a given area, country, etc. In the United States between 1970 and 2006, the average life expectancy of males and females overall increased. I chose this topic because it appealed to my interest in studies regarding the changes in human lifestyle over a period of time; a determining factor that is involved in the study of life expectancy. Using infographics helped to present this information in a way that is easy to understand and engaging to read. A topic such as this one contains a significant amount of data. Therefore, it is essential that the information is presented in a clear, simplified way in order for it to be easily read and understood. It could be overwhelming to view this particular data on a basic spreadsheet, having few words and seeing numbers all over. The infographics combine four sets of data into two groups in a way that allows the viewer to visualize the contrasts that the numbers are explaining, as well as incorporate other visual elements to complement the data.

Planetary Boundary Infographic

Student Name: Nina Roman
Faculty Mentor: Patty Wongpakdee
Department: Fine Arts, College of Arts and Sciences

This infographic describes the Earth's biophysical thresholds; each has its own limit that once passed that limit could lead to disastrous consequences. The information was gathered from http://visualizing.org and was deciphered by Professor Wongpakdee and myself. I wanted to show the urgency of each boundary element and its value. Elements such as Global Freshwater and the increase of the Phosphorus cycle are putting the world at risk. The world cannot naturally replenish through natural process if we continue at this alarming rate. Unfortunately for some boundaries, such as Biodiversity, we have passed the point of no return. Some studies suggest we are in the midst of a mass extinction. The selected elements are represented by using a bar graph in combination with color to show how far man has pushed each element to its point of no return. This infographic helps illustrate to the viewer that we are part of the problem but fortunately, we also have the power to keep some at a safe value if we choose not to ignore the signs.

Sentience

Student Name: Mercedeh Mirshamsi
Faculty Mentor: Terry Nauheim Goodman
Department: Fine Arts, College of Arts and Sciences

The project is called "Sentience". It is a photographic body of work featuring portraits from my recent world travels depicting underprivileged women and children from several diverse cultures in Asia and Africa.

Smoking Among Women and Men in the USA

Student Name: Savvas Pitzio
Faculty Mentor: Patty Wongpakdee
Department: Fine Arts, College of Arts and Sciences

My subject for this infographics is smoking among men and women who were born between 1965 and 2007. I have chosen this particular subject for two main reasons: I am personally a smoker and would like to see this information being presented in a more clear and fun way, and secondly because infographics are very important. That is because they make info more appealing and they have the power to easily grab people's attention given the colors and graphics, and provide a clear and easy understanding of the information provided.

The Zombie and You

Student Name: Ashley Foster and Victoria Reyes
Faculty Mentor: Yuko Oda
Department: Fine Arts, College of Arts and Sciences

We are artists and while sketching and designing for class projects some of our designs were only just drawings never developed beyond that. We asked what made some clothing so special? Their designs were simple and some hardly were funny and most people just brought shirts because they were brand name. We wanted to create shirts that were different, that went beyond the 8.5 x 11 inch square designs we were restricted to. Why couldn't shirts be simple and funny or just plain amusing? Well we decided they could. After creating designs we started to spread the word. Our target audience are people from the ages of 14 to 30 but we are not only for that age group. We continue to strive to get our simple idea out there by using our skills in film, animation to make stories that will show our personality and talents as well as attract possible buyers. We don't expect to be like Mark Zuckerberg (Facebook founder) or Kira Plastinina (fashion designer, who started her own line before the age of 16) nor do we want to. What we want is to create simple fun shirts. With each shirt there is a story behind the character or the design. It is easy to sell a product but what we have is personality. We want to bring that personality and attention to detail to everyone. What we want to show at SOURCE is our artistic skills and the technique used to create our animated film as well as our personalities, and if you get a good laugh out of it then that's a plus.

Trouble Sleeping?

Student Name: Alexandra Isabella Correale
Faculty Mentor: Patty Wongpakdee
Department: Fine Arts, College of Arts and Sciences

As an adult living in the 21st Century it is difficult to escape the fast pace of our world. You would think with technology aiding us, our lives would become simpler, but that is not the case. Today, we are so overburdened and pressured to perform, we don't understand the negative impact it has on our health. Our generation expects instant results, but our bodies have not evolved as quickly as technology has. As a remedy, society turns to quick fixes like sleeping pills and stimulants in order to function throughout the day. A logical solution to alleviate stress would be to slow down and limit the use of external devices in hopes of getting a better night sleep. However, according to the CDC/NCHS, National Health and Nutrition Examination Survey, the sleep deprivation and pill dependency problem is getting worse. This infographic illustrates the significant number of adults with the ever-increasing problem of sleep deprivation and pill dependency.

Absolute Configuration Determination of Organophosphorus Pesticides

Student Name: Qurratul A. Jameel and Mosadoluwa Obatusin
Faculty Mentor: Ana Petrovic
Department: Life Sciences, College of Arts and Sciences

The environmental significance of chirality in organophosphorus pesticides (OPs) is currently of great interest. All OPs used in agriculture are applied in their racemic forms, but the enantiomers usually differ in their biological activities and degradation processes. Therefore, it is of importance to isolate them and define their chirality. Knowledge of the Absolute Configuration (AC) is essential in furthering their utility as pesticides with minimal adverse consequences on health and overall ecosystem wellbeing. Our goals are to isolate the enantiomers of selected OPs and employ sinergy of three chiroptical methods to reliably estalish the AC. Chiroptical elucidations will involve complementary experimental and quantum mechanical studies, as this combined approach serves as reliable means for establishing the AC. In addition, the studies will provide an assessment of: a) which chiroptical method gives the most dependable and cost-effective AC assignment; b) which cases favor the use of more than one method.

Ammonia-Ammonium Chloride Buffer Capacity Titration & Activity Coefficient

Student Name: Fateha Ahmed, Aisha Ashfaq, Fauzia Bagum, and Larab Giniyani
Faculty Mentor: Grady Carney
Department: Life Sciences, College of Arts and Sciences

Buffers are important in environment, biology, food industry, and chemical research. The purpose of this study was to determine the buffer capacity of NH3/NH4Cl buffers of various molarities. The buffer solution is composed of a weak acid and its salt or a weak base and its salt. In addition of a strong acid or a base, the hydrogen ions or hydroxide ions get removed respectively by one of the components of the mixture. Activity constants are needed when solutions that contain ionic solutes do not behave ideally. The activity is proportional to the concentration by activity coefficient Æ”=10-0.509âˆšÎ¼Â-. In the course of this experiment, we have obtained the data needed to determine the activity coefficients for the buffer salt NH4Cl. As such, this research provides a new route to activity coefficients.

Characterization of Glutamate Neurotransmission in the RAIC

Student Name: Heather Magnuson and Mohammad Zohaib
Faculty Mentor: Niharika Nath
Department: Life Sciences, College of Arts and Sciences

Naqvi et al. [2007] recently made the eye-opening discovery that patients with a lesion in the insular cortex suddenly abandoned their smoking habit, suggesting its obligatory role in nicotine craving. The RAIC is a lesser-known part of the brain reward circuit in the lateral part of the cortex. We found that the evoked response in the RAIC (i.e. response by populations of RAIC neurons to an electrical-pulse stimulation of the white matter) is mediated by the neurotransmitter glutamate. We therefore want to characterize the various components of the evoked response so as to facilitate our understanding of the interaction between glutamate and dopamine in the RAIC. In rat brain slices, we tested for the glutamate ionotropic receptors, Î±-amino-3-hydroxyl-5-methyl-4-isoxazole-propionate receptor (AMPAr) and N-Methyl-D-Aspartate receptor (NMDAr) and its subtypes. With the bath-application of APV, a specific blocker of the NR2A and NR2B subtypes of NMDA receptor, the second negative wave in the evoked response (N2) was strongly inhibited, indicating that N2 is predominantly mediated by activation of the NR2A and NR2B subtypes of the NMDAr. To study these 2 subtypes individually, we bath-applied a specific NR2A blocker, TCN-201, while electrically evoking the response. We observe a moderate reduction of the N2 response. When we applied R025-6981, a specific blocker of the NR2B-containing NMDAr, N2 was mildly inhibited in most slices. Since not all parts of the response were affected, we conclude that the NR2B receptors are postsynaptically situated. Curiously, R025-6891 enhanced the N2 responses in some slices, possibly due to disinhibition through the drug's inhibition of cortical internuerons normally inhibiting pyramidal cells. Neither APV nor the TCN/ R025-6891combination completely blocked the evoked response, indicating the presence of response components mediated by yet other receptor subtypes. We therefore tested for the activity of NR2C and NR2D subtypes of the NMDAr. A saturating APV dose (100 microM) was first applied to a slice to block the NR2A and B subunit-containing receptors. Then, we applied this concentration of APV mixed with PPDA, a blocker of NR2C and D subunit-containing NMDAr. Since this drug has significant affinity for the NR2A and B receptor, co-application with APV was necessary to improve its specificity. With the application of the PPDA/APV mixture, the evoked response was further reduced, revealing the normal contribution of NR2C-and NR2D- containing NMDAr subtypes in the RAIC's evoked response. Finally, we tested an earlier-occurring negative component of the evoked response (N1) with NBQX, a specific AMPAr blocker. NBQX almost completely blocked the N1 wave, showing that N1 is mediated by the glutamate AMPAr activation. Our results characterized the response of ionotropic glutamate receptors in the RAIC. We will further test for metabotropic receptors in the RAIC.

Circulating Osteogenic Cells in Type 2 Diabetes Mellitus

Student Name: Ligy Thadathil
Faculty Mentor: John Manavalan
Department: Life Sciences, College of Arts and Sciences

Circulating osteogenic cells provide an understanding of the pathogenesis of bone diseases in diabetic patients. Osteogenic cells play an important role in the maintenance and formation of bone and knowing the effects of these cells in patients with Type 2 diabetes (T2D) can lead to better treatment for the condition of diabetes. Osteogenic cells can be detected in the blood through the use of markers such as osteocalcin (OCN) and early stem cell markers CD34 and CD146. Aim: To evaluate the effects of T2D on osteogenic cells 28 T2D subjects and 28 non-diabetic controls were studied. Results: The percentage of OCN+ cells expressed by peripheral blood cells were lower in T2D versus the control (0.7 Â± 0.4 vs. 1.3 Â± 0.6%; p<0.0001). T2D patients co-expressed the early markers CD34 and CD146. OCN+ cells that co-expressed CD34 and CD146 was increased in T2D (53.7 Â± 40 vs, 6.5 Â± 6%; p<0.0001) in T2D and in CD146 . The OCN+ cells that co-expressed CD146 (5.8 Â± 7 vs. 2.9 Â± 3%; p=0.06) in T2D. Levels of OCN+ cells were found to be inversely related to HgbA1c levels. Conclusion: T2D patients have a significant decrease in circulating osteogenic cells and an increase in the expression of early cell markers.

Helical Molecular Programming via Supramolecular Complexation Of Bis-Porphyrins

Student Name: Dolu Obatusin
Faculty Mentor: Ana Petrovic
Department: Life Sciences, College of Arts and Sciences

The transfer of chirality from a guest molecule to an achiral host is the subject of noteworthy interest. The ability to induce supramolecular chirality by controlling the twist-sense and degree of helicity of double-stranded helices plays a vital role in the frontier of biomolecular recognition, material science and information storage. Although helical-induction of single-stranded helices has been performed in the past, for example, by covalently adhering enantiopure chiral additives to foldable polymers1,2, the induction of double-stranded helices is rare. The double-stranded helical structures are frequently found in nature and are closely related to the physiological functions of biomolecules, such as nucleic acids (DNA, RNA, even PNA) and proteins. This work presents molecular modeling investigations that aim to develop a novel tool for helical-sense programming of double-stranded architectures. These investigations are based on Monte Carlo and Stochastic Dynamics searches: Torsional, Mixed Torsional / Low-mode, and Systematic Torsion Sampling In order to impart a uniform double-stranded helical chirality, we came to understanding that the ladder has to exhibit a dynamic balance of two factors: a) sufficient flexibility for chirality to propagate from down the backbone of the ladder, b) sufficient hydrogen bond reinforcement that keeps the two ladders from collapsing into random-coil conformations. 1. Yashima, E.; Katsuhiro, M. Macromolecules (Review). 2008 , 41, 3â€“12. 2. Sanji, T.; Takase, K.; Sakuria, H. J. Am. Chem. Soc. 2001, 123, 12690â€“12691.

Modification of Non-Steroidal Anti-Inflammatory Drug (NSAID) Structure for Enhanced Anti-Cancer Activity

Student Name: Kerin Munawar, Afnan Haq and Mitali Chattopadhyay
Faculty Mentor: Niharika Nath
Department: Life Sciences, College of Arts and Sciences

Introduction: Chronic inflammatory diseases lead to increased risk of cancer. Among the molecular mediators, NFKappaB is a transcription factor and a key mediator of inflammation-induced carcinogenesis. Currently, there is enough evidence to support the use of non-steroidal anti-inflammatory drugs (NSAIDs) as cancer chemopreventive agents. However, their wide use is precluded due to significant toxicity. Recently, a new class of hydrogen sulfide-releasing NSAIDs have been described in which the parent NSAID is covalently linked to a dithiolethione moiety which release hydrogen sulfide. We compared naproxen and its hydrogen sulfide-releasing analog (HS-naproxen) using a human colon cancer cell line and evaluated its effect on NF-kappaB whose induction is strongly implicated in some cancers. Methods: HS-naproxen was synthesized and purified at our lab and provided to us. The colorectal cancer cell line HT-29 human adenocarcimoma was grown in culture medium. Cell growth was measured by MTT assay. NFkappaB protein levels were examined by resolution by SDS-PAGE, western blotting, followed by immunodetection. Results: HS-naproxen inhibited the growth of HT-29 cells with an IC50 of 72 Â± 5 ÂµM whereas for naproxen the IC50 was 2800 Â± 120 ÂµM at 24h. NfkappaB (p65) protein amounts in these cells were reduced in a concentration dependent manner with increasing doses of HS-naproxen. Therefore, by decreasing this key inflammatory mediator and inhibiting the growth of HT-29 cells, these data suggest that HS-naproxen has potential as a chemopreventive agent against colon cancer and should be evaluated further.

Control Cell Counts: Normal and Cancerous Tissue Sections

Student Name: Nisha Rowzani, Roshan Chhatlani and Binju Bose
Faculty Mentor: Claude Gagna
Department: Life Sciences, College of Arts and Sciences

Melanoma is the most dangerous type of human skin cancer. It is the number one cause of death out of all the skin ailments. Melanocytes contain melanin which is responsible for skin color. These melanocytes are the cells within the human epidermis that are affected when a patient suffers from melanoma. Melanoma is a growing concern for physicians because of the rising rate of the disease. As part of a research project with Dr. Claude E. Gagna, Department of Life Sciences, students in his Biomedical Research I course (BIOL-425) helped him with a research project involving cell counts in normal control tissues (non-cancer), as part of the melanoma project. Melanoma tissues and control slides were fixed in ten percent neutral buffered formalin and processed histotechnologically to produce microscope slides with tissue sections (2.5 Âµm thick) on them. These human tissues were obtained commercially from US Biomax, Inc (unstained tissue sections: paraffin-embedded). The role of the students was to help Dr. Gagna perform cell counts of the biopsied tissue (US Biomax, Inc.) surrounding the melanoma sites (normal noncancerous tissue). We are helping Dr. Gagna with an experiment in which he was immunostaining tissue samples of melanoma with different antibody probes, namely, anti- B-DNA, anti-Z-DNA, and anti-single-stranded DNA antibodies. Like any other experiment, you need controls. With a lot of NYIT students counting cells from different samples, we were able to help him speed up the process. In conclusion, the control studies performed by NYIT students of normal cell counts revealed no cancer cells.

Does Territorial Aggression In Wild Blue Monkeys (Cercopithecus Mitis) Escalate With Limited Food Supply?

Student Name: Aisha Ashfaq and Fauzia Bagum
Faculty Mentor: Eleni Nikitopoulos
Department: Life Sciences, College of Arts and Sciences

In our study, we focused on social behavior, specifically aggressive territorial intergroup encounters (IGEs) in blue monkeys (Ceropithecus mitis) living in Kakamega Forest, Kenya. Blue monkeys typically live in multi-female groups with one non-natal, resident adult male. Blue monkeys are arboreal and female are territorial. Females adhere to social dominance hierarchies and appear to be the driving forces of IGEs. We hypothesize that limiting resources shape the pattern of IGEs. We predict that duration and intensity of IGEs will be greater when food is less available. We also predict that the duration of an IGE positively correlates with its intensity. Phenological evidence supports that food is readily available at the end of the dry season. We will examine the seasons of the IGE as a proxy for food availability. Our analysis covers data from four social groups of C. mitis over a time period of five years.

Epidemiology and Diagnosis of Y. pestis

Student Name: Saila Mukta, Crystal Haroon, Amanda Eng, and Charlotte Chen
Faculty Mentor: Lisa Runco
Department: Life Sciences, College of Arts and Sciences

Yersinia pestis is a Gram-negative bacterium that causes the plague, a highly infectious disease transmitted to humans by the bite of infected fleas. Although globally plague infections are currently controlled, dangerous epidemics and sporadic outbreaks remain an ever-looming possibility. Y. pestis research is especially important given the ever-present threat of bioterrorism because the pneumonic form of the plague is easily transmissible between humans via respiratory droplets. Left untreated, a Y. pestis infection has a mortality rate greater than 50%. Studying the methods of transmission during major plague pandemics throughout history has allowed scientists to determine the contributing factors of Y. pestis pathogenesis. Specifically, how the bacterium inflicts harm on its host and is able to transmit rapidly. Using this knowledge, the medical community realizes the importance of rapid diagnosis and treatment of a plague infection. Rapid identification of the disease-causing pathogen allows scientists and physicians to quickly treat a patient, increasing the chance of survival. This study addresses methods to improve diagnostic tests to ultimately increase survival and prevent the spread of plague outbreaks.

Exploring the Expression of Y. Pestis Virulence Factors

Student Name: Julie Tang, Neetu Shaji, Andrew Shehata, Alvin Babu, and Irshad Ally
Faculty Mentor: Lisa Runco
Department: Life Sciences, College of Arts and Sciences

There are three known species of Yersinia: Y. pestis, Y. enterocolitica, and Y. pseudotuberculosis. Y. pestis is the bacterial agent responsible for causing the bubonic plague, the infamous “Black Death” that killed a quarter of Europe's population in the 1300s. During the infectious cycle in the human host, Y. pestis utilizes several evasive mechanisms that offer it protection from phagocytic host immune cells. Because phagocytosis is a rapid process activated by interactions between the bacterium and the phagocytes, evasion of this process by Y. pestis must also be rapid and precise. To avoid and inhibit phagocytosis, Y. pestis expresses a Type III Secretion System (T3SS) and a Fraction 1 (F1) capsule-like antigen. The T3SS protects the bacterium by injecting Yop proteins into a host cell through the use of an injectisome and prevents phagocytosis of the bacteria. The F1 antigen forms a capsule that covers the entire surface of the bacterium, cloaking bacterial antigens that are recognized by the immune system. Together, these two systems help inhibit the binding of Y. pestis to surface receptors on phagocytes and prevent phagocytosis, allowing the bacteria to survive and proliferate in the host. Live vector vaccines using attenuated Salmonella strains to deliver plague antigens have been recently studied. Based on the expression of virulence factors by Y. pestis, we created a model illustrating Y. pestis gene expression during the human infection pathway and provide insight into possible targets for vaccine development.

FCSC M02 Methods of Storage for Renewable Energies

Student Name: Frank Annunziata, Brian Matthews, Donald Hebel, William Chen, and Gerald Park
Faculty Mentor: Eleni Nikitopoulos
Department: Life Sciences, College of Arts and Sciences

Today's world relies on fossil fuels for its energy. Taking into consideration the threat of global warming and other catastrophic events due to our carbon footprint and the fact that fossil fuels will run out eventually, studies are being conducted around the world to replace fossil fuels with renewable energy sources. The objective of the studies being conducted today is, to make renewable energy available during our peak usage. The problem lies in the storage of renewable energy due to the fact that the methods for storage are either too costly and/or rely on fossil fuels to transfer them from storage to electrical power. We will discuss the current methods for renewable energy storage and the plans for the future. For example, testing the use of boilers for homes controlled like a network in order to store and distribute energy. If you find that interesting wait until you hear how it all works.

FCSC-101: The Future of Organ Transplantation

Student Name: Ilona Aleksandrovich, Joy Otibu, Monay Clancy, and Erik Singletary
Faculty Mentor: Ana Petrovic
Department: Life Sciences, College of Arts and Sciences

An organ transplant is a medical procedure in which a failing or damaged organ in the human body is removed and replaced with a healthy organ. The donated organ may be taken from a deceased donor, a living donor, or even an animal. However, sometimes an artificial organ is used. Our presentation will focus on the method known as Xenotransplantation, which involves transfer of organs from one species to another. This method can serve as the solution of filling a huge gap between the number of available human donors and the number of needy recipients. It is well known that regardless of the origin of the transplanted organ, there is a risk for organ rejection. Interestingly, recent studies shows and that molecule referred to as programmed death ligan-1 (PD-L1) molecule in the endothelial cells of pig arteries could be used a therapeutic agent to enhance tolerance of Xenotransplant. These biomedical engineering studies demonstrate a promising potential to overcome current challenges related to successful pig-human organ transplantations.

Fragile X Syndrome: the FMR1 Gene Inactivation Affects Production of FMRP

Student Name: Jennifer Ardila
Faculty Mentor: Marianne Land
Department: Life Sciences, College of Arts and Sciences

Fragile X Syndrome (FXMR) is known to be an inherited form of mental retardation. Those affected with this disease possess behavioral and psychological characteristics. An individual person diagnosed with Fragile X Syndrome has physical characteristics such as large ears and flat feet and behavioral characteristics such as hyperactivity and tantrums. It is caused by the missing FMRP due to transcriptional silencing of FMR1 (Fragile Mental Retardation) gene on the X chromosome. The FMR1 gene is not able to produce FMRP (Fragile Mental Retardation Protein) leading to this type of disease. The severity of an individual with Fragile X Syndrome depends on the amount of FMRP in the individual's body. The disease has been found to be associated with trinucleotide repeat expansion. The expansion of more than two hundred repeats due to abnormal methylation on the active X chromosome. The FMR1 gene inactivation affects the production of FMRP either not enough or none was produced. The promoter region of the FMR 1 gene contains repeats of a specific CGG (cytosine-guanine-guanine) sequence that controls the level of activity of the gene in order to produce FMRP. Therefore, Fragile X Syndrome deals with a mutated FMR 1 gene on the promoter to have hundreds of repeated sequences inactivating the gene. This mutation affects the gene to produce FMRP. The hypermethylation in FXMR prevents binding of specific transcription factors which regulate FMR1 expression. The FMRP is an important RNA binding protein that is ubiquitously expressed that regulates protein synthesis involved in the transport of mRNAs to the synapses and repression of mRNA translation. It binds RNA through three RNA binding domains which are two K homology (KH1 and KH2) domains and one RGG (arginine-glycine-glycine) box. FMRP can be phosphorylated but if dephosphorylation occurs then it will trigger the translation of FMRP-associated mRNAs. There are certain test methods that detect FXMR include the Southern Blotting technique in which genomic DNA is digested with specific restriction enzymes to determine size and methylation status of FMR 1 mutations while using PCR (Polymerase Chain Reaction) method is difficult to amplify using a loaded high resolution gel electrophoresis platform since FMR 1 mutations involve long CGG repeat sequences. The current effective treatment available for Fragile X syndrome as of today includes selective serotonin reuptake inhibitors (SSRIs).

Hydrogen Sulfide-Releasing Aspirin Inhibits The Growth of Colon Cancer Cells And Induces the Phase II Enzyme NQO1

Student Name: Thuy Tien Le Cao
Faculty Mentor: Niharika Nath
Department: Life Sciences, College of Arts and Sciences

Introduction: Aspirin is the prototypical chemopreventive agent against colorectal cancer. However, significant side effects (gastrointestinal, renal, others) preclude its widespread use. Hence there is a search for a "better aspirin". Hydrogen sulfide-releasing aspirin (HS-ASA) is a new compound with significant anti-inflammatory properties. Rational for its development is that H2S has similar properties as prostaglandins within the gastric mucosa and may lead to increased mucosal blood flow and repair. HS-ASA consists of aspirin covalently attached to 5-(4-hydroxyphenyl)-3H-1,2-dithiole-3-thione, which releases hydrogen sulfide. Our initial studies indicate that HS-ASA has chemopreventive properties. Xenobiotic metabolizing enzymes are classified as phase-I (oxidation/reduction) and phase-II (conjugation) enzymes. The Phase I detoxification system is composed mainly of the cytochrome P450 supergene family of enzymes. The phase II enzyme NAD(P)H quinone oxidoreductase 1 (NQO1) catalyzes quinone detoxification and protects cells from oxidative stress. In this study, we evaluated the effect of HS-ASA on cell growth and on P450 1A1 (CYP 1A1) and NQO1.

Methods: HS-ASA was synthesized and purified by our senior lab members. Cell lines used were HT-29 human colon adenocarcinoma and Hepa 1c1c7 mouse liver adenocarcinoma. Cell growth inhibition was performed by MTT assay. Levels of cytochrome P450 1A1 (CYP 1A1) and NAD(P)H:quinone oxireductase (NQO) enzymeswere examined by SDS-PAGE, western blot, followed by immunodetection.

Results: HS-ASA strongly inhibited the growth of HT-29 and Hepa 1c1c7 cells compared to aspirin. The IC50 of HS-ASA was 2.5 ± 0.3 μM in HT-29 cells and 2.9 ± 0.4 μM in Hepa 1c1c7 cells whereas the IC50 for aspirin in both cell lines was very high, approximately >5000 μM at 24h. The fold potency of HS-ASA compared to traditional aspirin was at least 1000-fold higher. In these two cell lines, levels of NQO1 enzyme were increased when the protein levels were examined. However, there was no change in CYP1A1 protein levels. The protein level of the housekeeping gene actin was constant. Other Phase I and II enzymes are being examined for study.

Conclusions: HS-ASA is more potent than aspirin in inhibiting the growth of colon and liver cancer cells. HS-ASA induces certain metabolizing enzymes such as NQO1. This represents one mechanism by which HS-ASA exhibits chemopreventive properties.

Tangent Line Method for Determining Titration Equivalence Point

Student Name: Ronika Sethi
Faculty Mentor: Grady Carney
Department: Life Sciences, College of Arts and Sciences

Two methods were used to determine the equivalence points of various titrations. The methods that were compared was the least square method and the parallel line method. The least square method is a method which uses a straight line and a given set of data to determine the equivalence point of a titration. The purpose of this research was to determine which method, least square method or parallel line method, is more accurate when trying to determine the equivalence point of a titration. My concluding statement for this research is that the parallel line method is the best method to use when calculating the equivalence point. This paper investigates variations of the tangent line method for determining titration equivalence point from experimental potentiometric data for the following titrations: potassium hydrogen phthalate/NaOH, dilute vinegar/NaOH, HCl/NaOH, NaCl/AgNO3 and also a theoretical titration curve calculated by means of the systematic method for dilute acetic acid/NaOH titration. For these titrations end-points were noted and equivalence points calculated using Tangent Line (TL), Gran Plot (GP) and Direct-search non-linear least-squares (DSNLLS) methods. The GP and DSNLLS methods are introduced in undergraduate quantitative analysis and physical chemistry courses. Benchmarking accuracy in determination of equivalence point to values obtained by the DSNLLS method reveals the parallel-line Tangent Line Analysis to be superior to the other Tangent Line methods and also to the FS and BS Gran Plot methods. Computer programs were created to assist in the data processing necessary for this research.

The United Nations as a Forum for Undergraduate Nursing Global Education

Student Name: Jeannette Cruz, Christian Velez, Jenna Callahan and Shanie Kowlessar
Faculty Mentor: Maureen Cardoza
Department: Nursing, School of Health Professions

The purpose of this educational program is to incorporate global nursing into an undergraduate Community Health nursing curriculum utilizing an on-site visit to the United Nations (UN) in New York City. This experiential visit acquainted undergraduate nursing students with the missions and global health initiatives undertaken by the United Nations that are congruent with the practice of nursing locally, nationally and internationally. A description of the United Nations humanitarian, peacekeeping initiatives and the 8 Millennium Developmental Goals that guide nursing practice and are supported by nursing organizations such as: Sigma Theta Tau International Honor Society of Nursing and the International Council of Nursing will be identified. Topics presented include the curriculum design and program objectives; a review of the purpose and main bodies of the UN and an exploration of the Millennial Developmental Goals and Non-communicable Disease initiatives pertinent to nursing practice and the UN humanitarian efforts. A summary of delegate briefings at both the United Nations and the United States Mission to the United Nations and a collection of student nurse reflective statements will be included.

Bill #A1977-B/S2553-A: Education: Registered Nurses to Earn a Bachelors Degree within 10 Years of Licensure

Team Leader: Jenna Callahan
Student Name: Vicky Adelson, Hanna Dawidowicz, Viktoria Fodor, Radhaisi Gomez, Sherly George, Hyun Joo Kim and Angie Theronier
Faculty Mentors: Cheryl Zauderer, Susan Neville, Elaine Della Vecchia and Lisa Sparacino
Department: Nursing, School of Health Professions

The Manhattan group will be lobbying in Albany for Bill #A1977-B/S2553-A: Education: Registered Nurses to Earn a Bachelor's Degree within 10 Years of Licensure. As student nurses graduating with a bachelor's degree we value the necessity of education and the opportunities education affords us. Lobbying this bill will allow nurses to have more autonomy seeing that knowledge is power. As graduating nurses embarking on our careers we must acknowledge the need for higher education and the ability to apply it to everyday evidence based practice.

Bill # A921/S4553: Practice: Establish Minimum Nurse to Patient Staffing Ratios in Acute Care Facilities

Team Leader:	Katie Oswald
Student Name:	Christine Gasser, Kristin Schmidt, Mary Carson, Shanie Kowlessar and Ruth Bonilla
Faculty Mentors:	Cheryl Zauderer, Susan Neville, Elaine Della Vecchia and Lisa Sparacino
Department:	Nursing, School of Health Professions

Our group is lobbying for Bill # A921/S4553: Practice: Establish Minimum Nurse to Patient Staffing Ratios in Acute Care Facilities. Our team chose this bill because we think passage of the bill would promote the value of the nursing profession and facilitate evidenced based practice. By establishing minimum nurse to patient ratios this will provide the potential to improve quality care of all patients and decrease adverse patient events. We intend to lobby for this bill by providing evidenced based nursing statistics to back up our reasoning as to why this bill should be passed.

Bill # A1370-B/S2470-B: Policy: Safe Patient Handling Policies to Reduce Lifting Injuries Among Nurses

Team Leader:	Kiranjit Sahota
Student Name:	Christian Velez, Jeanette Cruz, Kiranjit Sahota, Fatima Agunaga, Sherry John and Neenu Puthusseril
Faculty Mentors:	Cheryl Zauderer, Susan Neville, Elaine Della Vecchia and Lisa Sparacino
Department:	Nursing, School of Health Professions

We chose Bill # A1370-B/S2470-B: **"**Safe Patient Handling Policies to Reduce Lifting Injuries Among Nurses" because we cannot afford to lose nurses due to work related injuries, specifically musculoskeletal injuries.

To lobby our viewpoints we intend to discuss with Senator Carl L. Marcellino and Assemblywoman Michelle Schimel, the benefits of supporting this bill through the provision of statistical data. Our aim is to garner more support and attention to this matter.

Education and Experience: What Affects Physician Assistants' Reporting of Child Abuse?

Student Name: Ashley Uhuad, Laura Wagner, Ashley Hill, Jessica Remstein and Matthew Conte
Faculty Mentor: Zehra Ahmed
Department: Physician Assistant Studies, School of Health Professions

Background and Purpose. In the United States, health care professionals underreport child abuse. This can be detrimental to the child and can ultimately lead to numerous consequences for the victim. The purpose of this study is to assess the education, training and experience Physician Assistants (PAs) have and how confident they feel in their ability to recognize child abuse and report it to the appropriate authorities. The study also examines whether or not there is a positive correlation between education and experience and an increase in the number of cases reported by PAs. Problem. The problem is child abuse is underreported in the United States by health care professionals. Methods. A survey was administered to clinically practicing members of the New York State Society of Physicians Assistants (NYSSPA) via the organization's email list. Permission has been conditionally granted by the NYSSPA board pending IRB approval. The survey asked general questions on how often the PAs have seen and reported child abuse. The survey asked the PAs to rank their level of agreement on varying statements that focused on competency, training, education, and reporting to proper authorities. Results. A total of 99 currently practicing PAs took the survey. Of the total, 59% were female, and the majority has been practicing for 6-10 years. The majority of respondents either worked in Emergency Medicine or Family Practice, each category receiving 40%. 98% of respondents practice in NY State. Of the 99 PAs surveyed, 23 suspected between one and five cases of child abuse in the last year. When asked if PAs felt that they should be trained to evaluate the medical aspects of child abuse, 82% of respondents strongly agreed. 60% answered that they agreed that PAs are currently educated to a level where they can recognize child abuse. As a profession, PAs are confident in their diagnostic skills, with 97% of responding PAs agreeing that they could recognize child abuse based on their education and experiences. Conclusion. This study proves that physician assistants are frontline mid-level practitioners that are able to recognize and report suspected child abuse. While a majority of PAs report that that they have the adequate education and training in the area of child abuse, many still desire to receive continuing education on the topic. This can be attributed to the fact that medicine is a continually evolving practice, which requires PAs to continuously expand their knowledge. If this study has an effect on the medical society as a whole, the results may help implement further avenues to train and educate PAs on child abuse throughout the nation.

An Assessment of New York State Physician Assistants' Utilization of Interpreting Services

Student Name: Allison Mead, Danielle Camenzuli, Laura Michel and Jessica Pollak
Faculty Mentor: Zehra Ahmed
Department: Physician Assistant Studies, School of Health Professions

Inspired by the 39% expected increase of the physician assistant profession and the projected growth of the limited English proficiency (LEP) population, the objective of this research was to: (1) evaluate physician assistants' communication practices with LEP patients and (2) if physician assistants were trained by their institutions on how to utilize high-quality language interpreting services. Based on this evaluation, conclusions were drawn as to whether physician assistants utilize low- or high-quality language interpreting services and if their lack of training contributed to greater use of low-quality services. This helped determine if there was a lack of high-quality language interpreting training and over-utilization of low-quality interpreting services. A descriptive survey was distributed electronically to approximately 1,000 PAs in New York State via email through NYSSPA's (New York State Society of Physician Assistants) membership database. One hundred seventy four responses were collected and 165 responses met the inclusion criteria for the study of being clinically practicing physician assistants. Participants were asked questions about (1) basic demographics (2) interactions with LEP patients (3) available interpretive services at their place of practice (4) utilization of interpreting services and (5) training and use of interpreting services. Across all practice settings, 81% of participants encountered LEP patients on a regular basis and only 22% of participants were bilingual. At least 60% of LEP patients interact with physician assistants that are not bilingual. Participants most frequently utilized low-quality interpretive services relying on "ad hoc interpreters" as opposed to professional high-quality interpreting services. Approximately 50% of participants had not received training regarding the use of professional interpretive services and 55% of participants responded that they were willing to receive further training. Physician assistants are underutilizing high-quality interpretive services and are consistently using low-quality services for a variety of reasons that can be addressed with additional resources. Physician assistants lack training with the professional interpretive services available at their institutions and it can be concluded that with proper training and implementation of these professional language services PAs have greater opportunity to effectively communicate with LEP patients.

Is Community Acquired Methicillin-Resistant Staphylococcus auerus Colonizing Primary Care Facilities?

Student Name: Jessica Stein, Heather Strahl, Ryan Black and Kerby Pierre-Louis
Faculty Mentor: Lawrence Herman
Department: Physician Assistant Studies, School of Health Professions

Community Acquired Methicillin-Resistant Staphylococcus aureus (ca-MRSA) has become one of the most prevalent bacteria causing skin infections in patients since its emergence in the early to mid 1990s. Inspired by growing prevalence of ca-MRSA and limited research in the colonization of ca-MRSA in various medical settings, the objective of this study is to test the most frequently touched surfaces in primary care clinics, and determine if they are colonized with ca-MRSA. Seven primary care offices were swabbed for MRSA in Suffolk County, NY. Seven of the most commonly touched items were swabbed within each office including the pen that patient's sign-in with, the arm of a chair in the waiting room, the seat of a chair in waiting room, an exam table, the receptionist's keyboard, the pulse oximetry sensor, and a magazine located in the waiting room. It is important to note that one office did not have a pulse oximetry, and therefore there was no swab for that item at that location. The swabs were sent to Sunrise Medical Laboratories. Samples were cultured utilizing standardized laboratory methods for MRSA. Our laboratory methods only allowed us to differentiate between MRSA and MSSA. All 48 samples collected tested negative for Methicillin Resistant Staphylococcus aureus. As such, we were unable to do molecular testing on the strains to distinguish if colonization was from ha-MRSA or from ca-MRSA. There has been significant concern that ca-MRSA has colonized medical facilities including outpatient clinics. The results of this project can lead one to assume that although there is potential for primary outpatient care clinics to harvest ca-MRSA on different inanimate surfaces, the risk of transmission is decreased with proper sterilization techniques. While there are few absolutes in medicine, a larger study may be necessary to come to a more definitive conclusion.

Eve of Construction

Student Name: Colton Sheehan
Faculty Mentor: Assia Lakhlif
Department: Communication Arts, College of Arts and Sciences

Civil unrest at the global level is at an all time high. Occupy Wall Street and the Occupy Movement at large is playing a huge part in support of global equality. While the media is selling the Mayan's 2012 prediction as an apocalypse their actual prediction is closer to a global awakening and shift in consciousness. As the Occupy Movement acts as the catalyst for the Mayan's 2012 prediction, an average man is chosen as the leader for the movement and must leave his significant other to fulfil his destiny to lead the human race towards a more perfect future.

Arts, Science and Technology

Student Name: Amina Tayyub
Faculty Mentor: Pierre Pepin
Department: Fine Arts, College of Arts and Sciences

Arts and Science are seen as two completely separate fields but we can produce something artistic from creative scientific experiments. My project is about combining arts and science. In the experiments I used food colors/ink and using a dropper I poured drops of the colors into a glass tank filled with water. The liquid colors made patterns, which I photographed. I then manipulated these photographs using Adobe Photoshop to make artistic prints. Even though every time I poured the drops of colors into the water tank, different patterns were made, the ink flowed through water in a specific manner, which can be explained scientifically. The experiment was set up using a large glass bowl, food colors (blue, green, yellow), ink (black), tripod and a camera. Using a dropper, I dripped different colors into the water bowl and photographed the patterns of ink and food colors. I then researched why and how the water and ink particles moved the way they did. The photographs were then transferred to the computer and I used Adobe Photoshop to color correct them and create two-dimensional posters. Finally, using Adobe Photoshop I created posters that gave depth to the images and provided a three-dimensional feel to them by using layers, blending modes, and filters. This project intends to demonstrate "complimentary function" between art and science. This concept, described by NYIT Assistant Professor of Management, Stephen Wright in his book "Change the Environment: Change the Behavior" states: "the concept of complimentary function was created to define situations where two or more seemingly unlike ideas or situations found in human interactions can be shown to work together and create a specific benefit instead of conflict." By working with two seemingly divergent aspects of our world a more beautiful expression of form and function takes shape.

Musical Art History

Student Name: Jeed Ahmed Alam-El-Deen
Faculty Mentor: Jacqueline Taylor Basker
Department: Fine Arts, College of Arts and Sciences

History is a word, when it's heard, people think that the subject is going to be boring. When I first entered NYIT to study Computer Graphics/Fine Arts, I was so excited to be studying what I love. I realized that I would finally be taking courses that I would be interested in. But then I heard I would have to take art history classes! I thought these would be really difficult and very boring. But, I was mistaken. I was blessed with a professor who showed me the beauty of art history. I realized that I could not hate the origins of art, my passion. I'm a person who loves all kinds of art, from fine arts to digital arts to musical arts. I very much enjoyed art history so when I had to do a timeline for the periods of art for an art history class, I decided to share my experience and changed opinion. I now believed art history is fun. I decided to turn art history into something entertaining and enjoyable by using new media to produce a film featuring the old styles and periods. I first researched art history styles, then arranged the images according to their dates and listed them in their historic period, with brief descriptions. I concluded that watching a video could be more fun than looking through a book for many. That's why I made a movie out of those slides. But also as artists do, I began to think outside of the box, and mixed medias together, adding interesting transitions, visual effects, and also music to my video. But I realized the trick to producing a successful video was to provide a variety of music. Just hearing one type throughout a movie could be boring, but matching the music with the period would be more interesting. It takes us back in time to specific different periods. So I researched music history and tried to match the art with the music. We can imagine the different artists' life styles and personalities and that perhaps they were listening to this type of music while producing their amazing art works. I believe my film is a successful combination of art history and technology, and a way to help people who would not normally be interested in art history to enjoy watching beautiful images from the past and not be bored!

Clockwork Workclock

Student Name: William Labourier
Faculty Mentor: Assia Lakhlif
Department: Communication Arts, College of Arts and Sciences

"Clockwork Workclock" is a short film that depicts an individual, as we all are in New York City, and his journey to work. It shows the boundaries that time sets for us and questions the purpose of a dull routine taking us from point A to point B trapped in the fangs of boredom.

The Opportunities and Challenges Brought by Growing China

Student Name: Sitan Jin
Faculty Mentor: Petra Dilling
Department: School of Management

1. Opportunities

   1) An increasingly large middle class bring the opportunities for branded consumption.
   e.g. the expansion of Apple, Starbucks and General Motors in China.

   2) An increasing demand for high-tech products.
   e.g. Boeing and General Electric.

   3) The U.S. companies which set up the production bases in China have made tremendous advantage in the global business competition.
   e.g. Apple and Nike

2. Challenges

   1) The challenge to the traditional industries and emerging industries in the United States.
   e.g. automobile industry, IPO financing market and solar industry.

   2) For the purpose of developing economic, to some extent, Chinese government despises the intellectual property rights.
   e.g. automobile industry and mobile phone industry.
   Pursue the development trajectory of Korea and Japan.

In today's multipolar world, the imperialists will cease to exist, the large-scale war between the countries will be virtually impossible. Therefore, along with the process of globalization, China and the United States share a common lot, so we can become allies rather than competitors.