19th Annual
Faculty Research Forum

Sponsored by
Office of the Provost
Center for Teaching and Learning

Thursday, April 3, 2014
Noon to 3 p.m.
The D’Angelo Center Room 416 B&C
Supporting Sustainable Development through Global Service-Learning and Community-Based Research: Building Long-Term Partnerships with the Indigenous Shuar Peoples of the Ecuadorian Amazon

Barrett P. Brenton, St. John’s College of Liberal Arts and Sciences, Department of Sociology and Anthropology, Center for Global Development and the Anthropology Program; Paolo Rico Sarthou Tagatac, Ozanam Scholars Program

This presentation reviews results of ongoing community-based research and service-learning with indigenous Shuar communities in the Ecuadoran Amazon. A primary focus is the integration of Cultural Heritage as an avenue for supporting sustainable community development. Action-research areas to date include access to healthcare; water and sanitation; indigenous knowledge of food and medicinal plants; traditional arts and performance; youth and gender empowerment, and trilingual education (Shuar-Spanish-English). The project incorporates work conducted by undergraduate students in their Junior year of the St. John’s University Ozanam Scholars Program. In addition to an intensive service-learning component they are responsible for research that leads to applied community-based project proposals for use as strategies strengthening capacity building within and between Shuar communities. They are ideally planned to draw upon traditional Shuar values of cooperation (Yeimiu) and solidarity. The projects are suggested strategies for initiating more long-term sustainable development. Their design and implementation begins with the priorities that the Shuar have established. They are refined through dialogue within and between Shuar communities and future groups of Ozanam Scholars. The overall goal of the program is to promote social justice through an integral human development framework that can best serve the needs of the Shuar both effectively and with dignity.

On the Synthesis and Evaluation of Natural Product Hybrids as New Microtubule-binding Drug Candidates

David P. Brown, St. John’s College of Liberal Arts and Sciences, Department of Chemistry

This project contributes to the ongoing efforts directed toward the development of alternate treatment options in cancer chemotherapy. More specifically, new anti-cancer compounds are being generated that are designed to be more target specific, of increased bioavailability, while simultaneously exhibiting reduced side effects. Additionally, these novel compounds will serve as new leads in addressing the multidrug resistance (MDR) barrier that limits current treatment protocols and programs.

A compound library of about 20 new anti-cancer molecules is being developed. These compounds are being generated by chemically linking various naturally occurring fatty acids with known anti-cancer molecules to form conjugates. In addition to enhancing the therapeutic profile of the anti-tumor compound, the incorporated fatty acid will render the conjugate more likely to be taken up and retained by tumor cells. Considering the possibility for premature enzymatic cleavage of some conjugates, different chemical links of varying strengths and chemical properties are being employed in connecting the fatty acids to the anti-tumor molecules. Two sequences of conjugates will be generated; one based on the ketone Phenstatin, and the other based on the alkene Combretastatin-A4 which is currently in phase II clinical trials. Each new conjugate will subsequently be evaluated in vitro against various human tumor cell lines to determine their relative anti-proliferative properties. Based on the unique structure of the incorporated
fatty acid, a range of biological activities is anticipated. Thus, the most active compounds will be targeted for further pre-clinical investigations, while the less active derivatives will serve as leads in the development of new MDR reversal agents.

Service Satisfaction and Positive Psychological Outcomes Among Clients Receiving Supportive Community Service

William F. Chaplin, Scyatta Wallace, St. John’s College of Liberal and Sciences, Department of Psychology; Students: Michael Russell, Claire Dunphy, Kathleen Holmes, Niketa Kumar, Amy Walker, Tahnesia Gayle

Based on a longitudinal design with a diverse sample of 639 individuals receiving a variety of services at a large community outreach center, this study found that Gratitude increased over time. This increase was magnified for clients who reported greater Service Satisfaction. These findings indicate that the receipt of supportive community service may produce positive psychological benefits.

Introduction: The collateral psychological benefits that may result from receiving both basic and life development services at a community center have not been studied. The perspective of those offering services is that providing food, assistance obtaining identification, immigration and tax counseling and other support will ultimately lead to an increase in positive psychological outlooks and an overall improved life. However, there is also an opposing, conservative position that suggests that providing assistance to marginalized and underserved individuals creates dependency and reduces positive outlooks. The purpose of this research is to provide an empirical evaluation of these propositions; a focus here is on the role that service satisfaction may play in this process. These results provide initial encouraging support for the positive psychological effects of receiving service and suggest that increases in Gratitude are influenced by Service Satisfaction.

Method: Using a naturalistic, community-based longitudinal design, data were collected from 639 clients (41.5 percent men, 49.5 percent women, 8.9 percent unspecified) with an average age of 48 years (sd = 13, range: 15-83 years). The majority of participants identified themselves as either Black or Hispanic and reported an education level of partial high school education or high school completion. All were clients at St. John’s Bread and Life, a large community outreach program that provides an extensive number of services, including soup kitchen, medical and legal services, food stamps and Medicaid, tax assistance, spirituality, and many others, to a diverse and underserved population in Brooklyn, NY. Clients were asked to complete a six item measure of Gratitude (McCullough et al., 2002), report on services received, and rate their satisfaction with services each time they visited Bread and Life. As an incentive to participate, clients received credit for the Bread and Life Food Pantry, a program that provides groceries on a monthly basis, for every five surveys completed.

Results: We used linear mixed effects regression models with an unstructured covariance matrix with time as a random factor to model the change in gratitude over time. Time was coded as months and the mean of each clients weekly Satisfaction rating was centered and treated as a fixed factor. The number observations per client ranged from 1 to 15 with a mean of 1.4. (sd = 1.0). Gratitude showed a significant increase of about .045 points per month, which amounts to an increase of approximately half a point after one year. For clients whose satisfaction was 1 point above the mean there was an additional average.
Functional Composite Polymer Nanostructures and their Applications
Guofang Chen, St John’s College of Liberal Arts and Sciences, Department of Chemistry

One-dimensional (1D) composite organic nanostructure materials, such as hybrid nanotubes, nanoparticles, nanorods, and nanograss, have attracted increasing interest in the thriving field of nanoscience and nanotechnology, because of their unique photonic, electronic, magnetic and biological properties. Integration of the advantages of low cost fabrication and ease in functionalization for organic nanomaterials and high efficiency of electron transportation, fluorescence and catalysis for inorganic nanomaterials, is able to generate composite materials with new structures, properties and functions with a lot of potential applications in biomedicine, new energy resources, sensors, and so on.

Creative Possibilities: Social Media and Ethnographic Research Design
Randall F. Clemens, The School of Education, Department of Administrative and Instructional Leadership

Social media are increasingly changing the ways in which people experience their daily lives. Implications for qualitative research, in general, and ethnography, in particular, are vast. For example, as few as ten years ago, gathering ethnographic data was relatively straightforward. A researcher identified a fieldsite—e.g. a park, business, or classroom—and then conducted participant observation. Consider each of the settings today: At a park, parents check Facebook while their children play on the swing set. Nearby, at the skate park, teenagers film complicated tricks and upload them to YouTube where friends comment. At a boutique start-up, Twitter is the core marketing strategy and the primary way representatives communicate with customers. Employees spend considerable time checking and replying to user reviews of their business on Yelp. And, in a classroom, a ninth-grade teacher incorporates Tumblr into assignments about Shakespeare’s Romeo and Juliet. A student in the corner looks engaged; however, he is really using his iPhone to chat with his girlfriend. Each of these examples highlights the assorted ways in which social media augment how individuals understand and interact in hybrid spaces. Each example also unsettles traditional approaches to ethnographic inquiry and requires researchers to reassess their relationship to the field as well as physical and digital data. Drawing from research for an upcoming book (Clemens, 2015), the paper proposes three emerging roles for social media—social media as sites, documents, and methods. The author highlights affordances and constraints of social media during the planning stage, including topics such as identifying a research topic, selecting a sample, and locating and gaining access to the field. He concludes with a discussion of emerging ethical issues. Along with providing a basic framework, the paper attempts to foster an evolving dialogue about the creative possibilities of social media for qualitative research.

A Question of Identity: Russian Jews in New York City, 1880s and 1980s
Phyllis Conn, St John’s College of Liberal Arts and Sciences, Institute for Core Studies

Since the time of Peter Stuyvesant, new groups of immigrants in New York have lived with the tension between acculturation and cultural difference. This tension has played out in those aspects of identity that immigrant groups have chosen to preserve and celebrate as well as those aspects that have been used to separate and discriminate against them. In addition, immigrant groups’ cultural identities in their new home are often at odds with their cultural identities in their country of origin.
For the great wave of Russian immigration to New York City of the 1880s to 1920s and the second great wave that began from the Soviet Union around 1970, changing perceptions of their religion and nationality echo the tensions that other immigrant groups experienced as their cultural identities emerged in New York City. These changing perceptions of nationality and religion echo the fluidity of perceptions of whiteness in U.S. society in the 1800s and 1900s as “Russian” Jews in the United States have been among the groups whose degree of whiteness has fluctuated in the last century. Like other groups including the Irish and Italians, Russian Jews lived in the margins of whiteness until sometime after World War II, when U.S. perceptions of whiteness began to approach current understandings and these groups entered from the margins to the circle of whiteness. In the meantime, Italians, Slavs, and other immigrant groups had been perceived as both white and non-white, depending on the context. I argue that a similar process occurred with perceptions of Russianness and Jewishness for the large waves of immigration that began in the 1880s and 1980s. Just as the Russian Jews were both white and non-white, they were Russian and non-Russian in the 1880s, and Jewish and non-Jewish in the 1980s. This probationary status in multiple social categories suggests that the mutability of definitions of whiteness may be linked with the fluidity of other social groupings, including nationality, religion, and ethnicity, particularly as definitions of terms like ethnicity changed over time.

Recent Steps Forward in Comprehensive Income Reporting
Timothy Coville, Patrick A. Casabona, The Peter J. Tobin College of Business, Department of Accounting and Taxation

An entity’s comprehensive income (CI) for a period, which includes its current period net income plus or minus changes in the components of other comprehensive income (OCI), provides extremely important financial information that assists investors and creditors to more fully understand the changes in owners’ equity and the future cash-flow generating ability of the entity. The changes in the components of OCI, are not reported directly in the income statement, until such amounts are realized even though they can have a profound effect on and entity’s equity, and hence, the wealth of its stockholders. However, because of the way entity’s previously reported this information, it was often overlooked and not sufficiently understood. Therefore, during 2011, both the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) revised their guidance to enhance the transparency in the way entities should report and disclose CI and changes in OCI.

The objectives of this article are to describe and illustrate the FASB’s new presentation and disclosure requirements for the statement of CI and its components, and to highlight, on a timely basis some important implementation considerations.

Reducing Heel Lance Induced Pain in the Neonatal Intensive Care Unit
Gladys El-Chaar, College of Pharmacy and Health Sciences, Department of Clinical Pharmacy Practice; Mark Shen, Winthrop-University Hospital, Mineola, NY

Objective: In the past, pain from skin-breaking procedures was doubtful to occur in neonates, perhaps due to an immature nervous system. Subsequently, pain was demonstrated to occur in these patients and to be associated with adverse consequences. A preliminary observation of heel lances in our hospital's neonatal intensive care unit (NICU) showed that pain management practices may be
suboptimal. Our NICU uses the Neonatal Pain, Agitation & Sedation Scale (N-PASS) to assess pain. The objective of the study is to improve pain management from heel lances in neonates.

**Method/Summary:** This quality improvement project consisted of three phases:
- Phase 1- Retrospective chart review of 25 subjects to document pain scores during heel lancing and treatments used to manage pain, prior to educational sessions.
- Phase 2- Presentations to physicians and nurses on current guidelines and recommendations for the management of heel lance-induced pain in neonates.
- Phase 3- Retrospective chart review of 25 different subjects (to assess the impact of Phase 2).

Sample size analysis: 25 patients per group to show significant differences, based on 90% power at a 5% level of significance, to detect an intervention effect of 20% decrease in pain. A student's t-test was used to compare pain scores between the pre- and post- intervention phases.

**Results/Discussion:** 50 neonates who had heel lances were enrolled. Pre-intervention, the average pain score was 3.68 out of 10. Nurses used some non-pharmacological methods to manage heel lance-induced pain. Post-intervention, average pain score was 2.56 out of 10, with an 84% increase in the use of sucrose. Overall, average pain scores decreased by 11.2% (p =0.05).

**Conclusion:** Education of health care providers raised awareness of pain in their patients and increased the use of sucrose for heel lancing, which was effective in reducing pain.

**Should We Routinely Weight-Adjust Caffeine Dose in Premature Infants Having Apnea Episodes?**

Gladys El-Chaar, College of Pharmacy and Allied Health Sciences, Department of Clinical Pharmacy Practice; Jennifer K Kurtz, NYP Weill Cornell Medical College, Susanna Castro-Alcaraz, Cohen Children's Medical Center of New York, and Hofstra North Shore-LIJ School of Medicine

**Background:** Caffeine is used for treatment of apnea of prematurity (AOP) in premature infants. The maintenance dose is adjusted for weight gain, reduced effectiveness, toxicity and/or serum levels. We observed that dose adjustments according to weight gain are not performed consistently by clinicians.

**Objective:** To determine if AOP episodes occur less frequently in infants whose caffeine doses are adjusted for weight gain and whether the relationship between AOP and dose adjustment is affected by gestational (GA) or postnatal age (PNA).

**Design/Methods:** We conducted a retrospective chart review of infants <33 weeks gestation who were treated with caffeine for AOP. Poisson regression was used to examine the association between the number of apnea events and caffeine dose (recorded as <5 mg/kg {not adjusted} or ≥ 5 mg/kg {adjusted}), gestational, and postnatal age.

**Results:** We enrolled 69 infants with gestational ages (mean±sd) 27 ± 2 weeks. Dose adjustments were made according to weight changes 53% of the time. The rate of AOP events decreased as the caffeine dose declined to <5 mg/kg (p<0.02). This relationship was not observed when GA and PNA were added to the model. GA and
PNA were both significantly associated with mean number of AOP events, at all dosages. For each week increase in GA, the mean number of AOP events was reduced by 11.5% (95% CI 0.1% to 24.2%, \( p < 0.048 \)). For each week increase in PNA, the mean number of AOP events decreased by 15.6% (95% CI -21.6% to -9.3%, \( p < 0.0001 \)). Caffeine therapy was discontinued at a mean PNA and postmenstrual age of 45 days and 34 weeks, respectively.

**Conclusions:** Adjusting caffeine doses according to weight gain did not further control AOP compared to the effects of GA and PNA. Perhaps maturational parameters are more important in explaining AOP events than the caffeine dose alone.

**The Immune System as Ontological Puzzle: Pradeu's Solution**  
**Francis Fallon,** St. John’s College of Liberal Arts and Sciences, Department of Philosophy

A Critical Notice of Thomas Pradeu, *The Limits of the Self: Immunology and Biological Identity,* translated by Elizabeth Vitanza

Pradeu argues in *The Limits of Self* that the ontological status of the organism has privilege, not based on its role as a unit of selection, but based on the properties that attach to it in virtue of its immunology.

The *Limits of Self* furthers this project by attempting to remove a major obstacle in its path. If the immune system genuinely describes organismal boundaries, then Pradeu’s ontological position depends fully upon the articulation of the immune system in robust, non-metaphorical terms. The history of immunology, however, reads in part as the history of the failure to provide such terms. Indeed, Pradeu devotes much of *The Limits of Self* to exposing this, in particular to critiquing the notion of self that is central to past theories. Rather than conceding the metaphorical status of the immune system, Pradeu supplies an alternative to the various failed theories of immunology past. His Continuity Theory, developed in earlier papers, and elaborated fully here, claims that we can understand the immune system as a set of responses to molecular differences that, taken together, pick out the boundaries of the organism.

This paper describes and endorse Pradeu’s criticism of past immunological theories, find sympathy with his motivation to establish the immune system as something more than a metaphor (however useful), but nonetheless argue that the Continuity Theory he offers, unless augmented in some substantial way, falls short of this ambition, and in a way similar to the theories to which it is intended as a replacement. The further ontological claim that immunology better individuates organisms than evolutionary theories, while of obvious interest, must be suspended until we have such a substantial definition of the immune system.

**Good News from Neurology, but Don’t Get the Wrong Idea**  
**Francis Fallon,** St. John’s College of Liberal Arts and Sciences, Department of Philosophy

Recently, news broke concerning an exciting development in neurology. A vegetative patient communicated to doctors, via fMRI, that he is not in pain. Casual followers of the Routley story can be forgiven for a number of misapprehensions. Popular mainstream media have run headlines announcing that Routley has *said* “I’m not in pain.” Only in the loosest sense is this true. Routley’s side of the communication involved no vocabulary or syntax at all.
The distinction is relevant for understanding the nature of how the brain relates to thought and language. Some philosophers and cognitive scientists believe that all thought comes in the form of mentalese, consisting in explicit structures that bear meaning. These arguments have serious flaws, however. This paper examines these flaws, describing brain states as only contingently related to thought content. In addition to contradicting sloppy media reports about brain science (not just limited to the Routley case), this rules out strict ‘brain reading’ in principle, no matter what future technology holds.

The Herbarium: Where Science and the Humanities Meet
Maura C. Flannery, College of Professional Studies, Division of Computer Science, Mathematics and Science

A herbarium is a collection of preserved plant specimens; it provides crucial reference material for the plant sciences. I will argue here that these specimens can also be important historical records, and even works of art. By presenting a variety of projects, many in the digital humanities, I will demonstrate that herbarium records, some dating back to the 16th century, are cultural artifacts that reveal a great deal about the values and interests of past societies. In addition, herbarium sheets have aesthetic appeal not only because the specimens can be attractive and can be artistically arranged, but also because sheets sometimes include drawings documenting structures that are difficult to see in the dried plant itself.

The central focus here will be on a project called Botanica Caroliniana which includes a website created by Amy and Christopher Blackwell. It presents an alignment of the images and text in Mark Catesby’s Natural History of Carolina, Florida and the Bahama Islands (1731-1743) with the plant specimens Catesby collected. This is an excellent example of specimens, art, and history presented in a form where each enhances the value of the others. The Catesby specimens are in the Sir Hans Sloane Herbarium at the Natural History Museum, London which is participating in a broad project called Reconstructing Sloane that is funded by the British Arts and Humanities Research Council.

Other projects highlighted here include the Linnaeus Link program to make Carl Linnaeus’s manuscripts more accessible digitally as an accompaniment to the digitization of all of his specimens at the Linnaean Society which has already been completed. The specimens of Nathaniel Wallich, along with the drawings made from them, as well as his correspondence and manuscripts are all being put online by the Royal Botanic Gardens at Kew. A similar project is being carried out for George Englemann, the advisor for the creation of the Missouri Botanical Garden in St. Louis.

Sacred Botany: Seed, Leaf, Flower in the Healing Arts
Botanical Specimens from the Mary Garden at St. John’s
Andrea Oliva Florendo, St. John’s College of Liberal Arts and Sciences, Department of Theology and Religious Studies

Hidden within the pages of Illuminated Manuscripts, Books of Hours, and Breviaries are intricately illustrated botanical specimens that have formed an integral part of Medieval manuscripts and later, the Renaissance aesthetics. They illustrate botanical symbolism with its Christian orientation and enhance the visual beauty of a work on paper. For Mariology students (THEO 3215) as cross curricular gardeners, these
constitute intriguing footnotes to the larger but related subjects of art, history, botany and theology. Their participation in the Mary Garden Academic Service Learning generates artistic documentations, record-keeping of botanical specimens and preservation in a herbarium at St. Albert’s Hall. While drawing from a medieval tradition, this research can be seen as a modern day conservation tool, instrumental in recording its content for posterity.

The Mary Garden at St. John’s which the students cultivate and maintain serves as an inspiration to the study of the “enclosed garden” theme of the Song of Songs found in Marian iconography and devotional commentary of the twelfth century. The production of a florilegium—floral, leaf and herbal motifs—were not incidental nor did they render a Virgin’s Book of Hours an oversimplified picture book. They were part of a beautiful windfall of art, literature and preaching in Western Europe, including the cities along the Rhine River and the Low Countries. A survey of rare books and manuscripts, artwork and limited editions articulating this Marian theme is made available to students through the courtesy of the University Archives and Special Collections at St. Augustine Hall.

Leadership from a Global Perspective
Almerinda Forte, College of Professional Studies, Division of Administration and Economics

Leaders are promoters of change and challengers of the norm. They do and must encourage creativity and risk taking. Leaders concentrate on goals, objectives, mission, and vision. They concern themselves with doing the ethical or right thing.

Corporations have grown into multinational firms due to trust, loyalty and support of the components they serve. Businesses are more global today. These firms are challenged with the task of maintaining trust and balancing the numerous, often competing needs of their stakeholders. Needs include greater profits, lower price for consumers, higher wages for employees, less waste and pollution, and growing demands for ethical and moral behavior. Technology has made many actions crystal clear as to what standards should be followed. However, today managers need to know how to be global managers. This is a must in order for large corporations to effectively function and succeed in the global market. What does a global manager need to know to lead responsibly?

This paper addresses corporate sustainability leadership within the global compact.

Corporate Social Responsibility in the U.S. and Europe: How Important is it? The Future of Corporate Social Responsibility
Almerinda Forte, College of Professional Studies, Division of Administration and Economics

Corporate Social Responsibility plays an important part of a firm’s corporate life in the U.S. today. It is not enough for companies to generate a profit. They are expected by U.S. citizens to generate a profit and conduct themselves in an ethical and socially responsible manner. The U.S. Sentencing Commission Guidelines for organizations help facilitate this expectation. This is vital for corporate growth and for maintaining their competitive edge. Managers in practice when dealing with ethical and social responsibility problems aren’t dealing with optimal solutions. Managers often must be satisfied with a solution that just makes do or does the least harm. Managers charged with doing the ethical thing or the socially responsible thing are usually faced with problems of rights and wrongs which are not crystal clear.
Since the European Union corporate social responsibility as been given more attention in Europe. The Communities in 2001 held an interesting debate among different European Union (EU) members on the development of sustainability strategies. The Sustainable Development Strategy for Europe was approved in June 2001. It stated that long term economic growth, social cohesion and environmental protection must go hand and hand.

This paper examines corporate social responsibility in European companies as compared to those in the United States. It also examines today’s three Corporate Social Responsibility models: shareholder value model, the stakeholder model, and the business ethics model. This paper also addresses Wayne Visser’s (2010) five principles which according to him are the future of corporate social responsibility. Aras and Crowther’s (2011) theory that an organization should be held accountable to the external environment. And the rationale for new paradigms for the future corporate social responsibility in companies worldwide.

Office of Institutional Research: Finding the Data Needed
Clover Hall, Christine Goodwin, Yuxiang Liu, Piyaporn Nawarat, Steven Glogocheski, Kathy Beier, and Mary Siconolfi; Office of Institutional Research; Students: Rachel Dolce, Annie Jiang, Pablo Sanchez, Susan Sun, Shantaur Williams, Muzna Hasan, Jolen Lum, Alison Schwartz, and William Wong.

The Office of Institutional Research (OIR) is a centralized resource to develop and provide timely, accurate, and consistent quantitative and qualitative information and analyses to internal and external constituents. We collect and disseminate data concerning the students, the University, as well as the faculty, administrators, and staff. This data is used to support St. John’s planning efforts, program reviews, outcome assessments, and proposals for external funding. We provide expertise and support to administrative and academic units in areas such as retention analysis, enrollment projects, and special studies; and initiate and support the development, administration, and analysis of outcomes related surveys. In addition, OIR publishes annual Enrollment Reports and University Fact Books, which serve as reference guides to facilitate planning and decision making efforts and satisfy the many ad hoc internal data requests as well as external data requests from governmental agencies and publications. This presentation will showcase the various reports and projects of OIR accessible through the newly designed St. John’s Website. Come and find out where you can find the data that will be most useful to you in your teaching; interacting with your students; and your research in order to better serve the St. John’s Community.

Pharmacy Residency Program Directors’ Preferences for Residency Candidates
Gregory J. Hughes, Priti N. Patel, College of Pharmacy and Health Sciences, Clinical Pharmacy Practice; Student: Zera Obol

In recent years, interest in pursuing pharmacy residency positions has increased dramatically while the increase in number of available positions has not kept pace. Results from the 2012 and 2013 pharmacy resident match show that there has been a 13% and 9% increase, respectively, in candidates seeking post graduate residencies. The objective of this study is to determine what characteristics are valued by program directors throughout the country in the resident selection process.
A survey was distributed to pharmacy residency program directors throughout the country (n = 2,336) using Survey-Monkey, an online survey site. A Likert scale was used to gauge importance of various candidate characteristics such as: type of pharmacy school, academic achievements, professional involvement, work experience, research experience, publications, etc. The survey also polled respondents' processes in creating a rank list for the ASHP match. The survey also collected estimates of the number of applications received, interviews performed, and residents ranked per position available. Residency program demographic information was also sought. The survey was reviewed by a biostatistician prior to distribution to ensure that all items are amenable to statistical analyses. Survey results were analyzed to determine the most and least-valued characteristics listed above by the biostatistician. The information collected in this study will be used to advise pharmacy students seeking residency positions.

Vincentian Center for Church and Society
Sr. Margaret John Kelly, D.C., Vincentian Center for Church and Society

The Vincentian Center for Church and Society and the Vincentian Chair of Social Justice encourage University/Church relations and interdisciplinary research on poverty and social justice. In collaboration with the Deans and with a team of faculty, the Center has adopted the following focus for its Vincentian research.

“In keeping with the Vincentian tradition of concern for the poor and marginalized in society, the Vincentian Center for Church and Society conducts interdisciplinary research aimed at identifying and responding to the causes of poverty and social injustice, especially in urban areas. The Center encourages solutions which are adaptable, effective and concrete, and which embody the spirit of compassion and service exemplified by the life of St. Vincent de Paul. The Center supports research which can contribute to effective public policy initiatives and which can enlighten public discourse.”

The Center and Chair sponsor research, colloquia, lectures, film study series, conversations and conferences which focus on the Vincentian vision and which live out the Catholic University's responsibility to continue the Catholic intellectual tradition through rigorous research and respectful dialogue and collaboration in services. The Center also focuses on those areas where the University and the Church have mutual interests and seeks to respond to them through various types of programming such as clerical formation and church management.

ASL, GIS and the ongoing SJU Tree Inventory Project
Paula Kay Lazrus, St. John's College Liberal Arts and Sciences, Institute for Core Studies

Since Fall 2012 my DNY classes have been engaged in an ASL project for our Sustainability Group. In a bid for our campus to receive the Arbor Day Foundations Tree Campus USA designation, the campus needed an inventory and maintenance plan for its trees. I took on this project, building the data base and working out the ways to engage students in the data collection and mapping process. After 3 semesters (and ongoing), we have begun to take that data and look for ways to share it with the campus community. One way to do that is through Story Maps, a GIS (geographic information system) answer to map atlases. Here is our first attempt at creating a story map for this project.
Verification of a Measurement and Test of Its Measurement Invariance: The Case of Active Coping
Ming-hui Li, The School of Education, Department of Human Services and Counseling

The three most basic strategies people use to cope with stress are problem-solving, social support-seeking, and avoidance. Amirkhan’s Coping Strategies Indicator (CSI) has been used to measure these three basic coping strategies. It has been proposed that these three strategies can be combined to measure active coping, with items on the avoidance subscale of the CSI reversely coded. However, no study has yet tested the proposal. Active coping refers to one’s tendency to actively cope with stress in difficult situations. Using Confirmatory Factor Analysis (CFA), this study verified that the three strategies can be combined to measure active coping. In addition, results of testing measurement invariance showed that this scale can be appropriately used to measure active coping in three culturally different samples from U.S., China, and Taiwan.

An Efficient Soft Graph Clustering Method for Protein-Protein Interaction Network Mining and Analysis
Ying Liu, College of Professional Studies, Division of Computer Science, Mathematics and Science

One of the most pressing problems of the post-genomic era is identifying protein functions. Clustering Protein-Protein-Interaction networks is a systems biological approach to this problem. Traditional Graph Clustering Methods are crisp, and allow only membership of each node in at most one cluster. However, most real world networks contain overlapping clusters. Recently the need for scalable, accurate and efficient overlapping graph clustering methods has been recognized and various soft (overlapping) graph clustering methods have been proposed. In this paper, an efficient, novel, and fast overlapping clustering method is proposed based on purifying and filtering the coupling matrix (PFC). PFC is tested on PPI networks. The experimental results show that the PFC method outperforms many existing methods by a few orders of magnitude in terms of average statistical (hypergeometrical) confidence regarding biological enrichment of the identified clusters.

Synthesis and Characterization of Ruthenium Alkyl and Imidazole Complexes
Elise G. Megehee, St. John’s College of Liberal Arts and Sciences, Department of Chemistry

Ruthenium(II) polypyridyl complexes have been used as light harvesting complexes, DNA probes and excited state electron transfer agents. We have synthesized a new series of cis-bis-2,2’-bipyridine carbonyl ruthenium(II) complexes containing alkyl and imidazole ligands. We will discuss the synthesis and electronic characterization of these compounds.

Synthesis and Characterization of Osmium Pyridine and N-Heterocyclic Carbene Complexes
Elise G. Megehee, St. John’s College of Liberal Arts and Sciences, Department of Chemistry

The osmium(II) and ruthenium(II) bipyridine compounds are of interest because they have long excited state lifetimes and intense absorptions in the visible region of the electromagnetic spectrum. We have investigated both osmium pyridine and N-heterocyclic carbene containing complexes. We have also made a series of pyridine complexes that have the potential to bridge two metal centers. We have also prepared a series of N-heterocyclic carbene ligands that we are binding to the
osmium(II) metal. We will discuss the synthesis and electronic characterization of these compounds.

**How to be a Realist about Microscopic Observation**

**Moti Mizrahi**, St. John's College of Liberal Arts and Sciences, Department of Philosophy

Scientific anti-realists, particularly constructive empiricists, argue that what we see through a microscope is more likely an artifact of the instrument itself than a real thing. They claim that such microscopic images are "public hallucinations" and recommend agnosticism with respect to microscopic observation. I argue that what Kitcher calls "the Galilean Strategy" can be applied to microscopes as well. More explicitly, using the Galilean Strategy, the reliability of microscopes as instruments of observation can be established in much the same way that the reliability of telescopes as instruments of observation can be established. If this is correct, then, there is a good reason to resist the constructive empiricist's agnosticism about microscopic observation.

**Growing Pains: The Effect of Common Core State Standards on Perceived Teacher Effectiveness**

**Audrey Figueroa Murphy**, The School of Education, Department of Human Services and Counseling

The Common Core State Standards (CCSS) have caused much consternation among teachers, making it reasonable to inquire as to how the new standards are affecting teachers’ perception of their capacity to teach effectively. Survey research carried out to explore this issue revealed that (a) CCSS are indeed reducing teachers’ perception of their capacity to teach effectively, (b) the effect is stronger for teachers’ perceived capacity to teach general-education populations than for special-education students and English language learners, who did not differ, and (c) more experienced teachers had larger reductions in perceived capacity, but only for teaching general-education populations. These results are consistent with U-shaped learning curves documented in other domains. Since accountability policies are also being implemented in most states, the results demonstrate how simultaneous implementation of standards-based reform and accountability-based reform is producing unfair circumstances for the nation’s teachers. This conclusion is consistent with claims that educational reform would be more equitable and effective if implemented more deliberately.

**The Legal Apprentice**

**Mary Noe**, College of Professional Studies, Division of Criminal Justice and Legal Studies

Justice Scalia, receiving a lifetime achievement award from the America Society of Legal Writers, surprised his audience by telling them “I do not believe that legal writing exists. . . .” He continued, “Someone who is a good legal writer would, but for the need to master a different substantive subject, be an equivalently good writer of history, economics or, indeed, theology.” Put another way, good legal writing is simply good writing.

The College of Professional Studies proposes to create an academic journal for student publications principally focused upon law-related topics. The aim is to raise student proficiency in writing by creating a competitive opportunity for publication. The publication will be open to all students of the University. A faculty advisory board has been created consisting of four faculty members who screen student
works for publication. The inaugural edition was promoted by the undergraduate organization, the Legal Society, and received the enthusiastic support of its board. There were approximately fifty student papers written, including four from non-CPS students. From the fifty, ten were submitted to the faculty advisory board and in a blind review, four were selected for publication. The student authors of the four selected articles have received substantial faculty feedback. As the editor, I will author an article in the inaugural edition. In the future, other professionals will author an article.

Caldecotts and Oral Language Development: An Award Winning Combination for Emergent Readers
Melissa A. Parenti, The School of Education, Human Services and Counseling

This qualitative study builds upon seminal research related to the critical importance of oral language development, especially during the early/emergent stages of literacy. The work capitalizes on the use of various illustrations found within children’s Caldecott picture books as tools for promoting use of and exposure to rich discourse present within the storytelling process. The research details how this storytelling, that results when children are prompted to discuss the award winning images, creates promising opportunities to encourage oral language development and the readiness skills necessary for future reading success.

Fun Phonemics – Raising Phonemic Awareness Achievement in an After School Program for Homeless Youth
Melissa A. Parenti, The School of Education, Human Services and Counseling; Melissa Lanctot, Associate Director of Vincentian Institute for Social Action (VISA)

This study reveals the effectiveness of a series of innovative and interactive routes for teaching Phonemic Awareness in an after school setting for homeless youth. The Brownstone After-School Program at Homes for the Homeless, Saratoga Family Inn is a community partner of the Vincentian Institute for Social Action at St. John’s University (SJU), and is a host site for the Ozanam Scholar student volunteers. The Out-of-School Time (OST) grant requires that the Brownstone After-School Program integrates two hours of literacy activities, per week. Brownstone After-School Program has implemented a literacy program called “Fun Phonemics.” “Fun Phonemics” is a 10-week program which engages kindergarten and first grade students in building phonemic awareness. The goal is that throughout their participation in “Fun Phonemics,” children come to understand that spoken words are made up of small sounds and, in turn, become phonemically aware. This phonemic awareness will ultimately assist these young readers in their continued and future reading success.

Inhibition of Sphingosine Kinase Prevents Inflammation-Associated Preterm Birth in a Murine Model by Suppressing Pro-inflammatory Responses
Sandra E. Reznik, College of Pharmacy and Health Sciences, Department of Pharmaceutical Sciences; Students: Vibhuti Vyas, Charles R. Ashby Jr., Nicole S. Olgun, Sruthi Sundaram, Oluwabukola Salami, Swapna Munnangi, Ryan Pekson

Premature delivery, defined as delivery occurring before 37 weeks of gestation, occurs in 12% of all births, and accounts for nearly half of long-term neurological morbidity, and 60 to 80% of perinatal mortality. Despite the advances that have
been made in obstetrics and neonatology, the rate of premature delivery has increased approximately 12% since 1990. The single most common cause of spontaneous preterm birth (PTB) is infection. Several lines of evidence have demonstrated the role of endothelin-1 (ET-1) as both a constrictor of uterine myometrial smooth muscle and a pro-inflammatory mediator. The phospholipase C (PLC) pathway activated by ET-1 mediated uterine contraction leads to activation of protein kinase C (PKC), which in turn activates sphingosine kinase (SphK). Inhibition of SphK has been recently shown to control the proinflammatory response associated with sepsis. We show here for the first time that SphK inhibition prevents inflammation-associated PTB in a murine model. Rescue of pups from premature abortion with an SphK inhibitor is accomplished by suppression of the pro-inflammatory cytokines tumor necrosis factor α (TNFα), Interleukin-1β (IL-1β) and Interleukin-6 (IL-6) and attenuation of polymorphonuclear inflammatory cells into the placental labyrinth. Moreover, we postulate that inhibition of SphK leads to suppression of endothelin-converting enzyme-1 (ECE-1) expression, indicating the presence of an ECE-1/ET-1--SphK positive feedback loop. This work introduces a novel approach for the control of infection-triggered preterm labor, a devastating clinical condition for which there is no effective treatment.

An Earned Student Loan Repayment Deduction as a Federal Non-taxable Employee Fringe Benefit: A Tax Policy Proposal
Benjamin Rue Silliman, The Peter J. Tobin College of Business, Department of Accounting and Taxation

Student loan indebtedness is the only kind of household debt in the United States that has continued to rise through the Great Recession and now is the second largest balance after mortgage indebtedness (http://www.newyorkfed.org/studentloandebt/). The number of student loan borrowers has increased by 70 percent between 2004 and 2012. Moreover, the average amount borrowed increased nearly 8 percent between 2001 and 2012. A 2013 study by the New York Federal Reserve Bank revealed that the average indebtedness of borrowers under age 30 is $21,402. Several years ago, in 1995, then College Board president Donald Stewart cited that Congress’s solution to student aid was in the form of loans, which caused the nation to face, “a deeply mortgaged future . . . we as a society are co-signing the mortgage—and paying a high social cost as well” (College Board, 1995, p. 11). The purpose of this paper is to examine the challenges of student loan debt by crafting a possible solution to be considered by Congressional lawmakers that would benefit both employers and employees known as the Earned Student Loan Repayment Program. This tax proposal would induce employers to pay off a portion of an employee’s student loans based on positive job performance (in lieu of a bonus or a portion of earnings). Structured as an inducement policy, and based on positive employment outcomes, this proposal would also amend Internal Revenue Code §108, which taxes individuals for discharge of indebtedness. This proposal would allow employers to reward employees for their hard work by repaying up to $5,000 of their outstanding student loans per year, causing potential FICA tax savings by the employer and employee.
Middle Pathology and Non-Invasive Tests of Hearing Function
Suzanne Thompson, St. John’s College of Liberal Arts and Sciences, Communication Sciences and Disorders

To learn spoken language, one must first be able to hear the sounds of speech. If a newborn has an undetected hearing loss, important months without auditory stimulation may pass. This will put a child at a great disadvantage because difficulties with language lead to problems reading and writing, which ultimately lead to academic struggles.

Newborns with hearing loss are now identified within the first days of life because of distortion product otoacoustic emission (DPOAE) testing and mandatory newborn hearing screening programs. DPOAE is an objective and non-invasive test of auditory function in which two stimuli are sent to the cochlea by way of a small probe inserted in the ear canal. In the cochlea, where the sound is processed, some additional energy arises and travels in the reverse direction out through the middle ear to the ear canal where it is measured by a very sensitive microphone.

DPOAEs are present in all persons with healthy cochleae and are reduced or absent in those with hearing loss. DPOAEs are very important for early identification and treatment of hearing loss because we no longer have to wait until a child is 2 or 3 years old and not speaking to pursue full diagnostic and treatment options.

DPOAEs depend on the health of the middle ear. An increase in middle-ear impedance caused negative middle ear pressure (NMEP) will affect both the forward travel of stimuli used to evoke the emission and reverse travel of the emission itself.

DPOAEs were collected with high-frequency resolution across a wide range of frequencies from adults with NMEP. Comparisons were made between measures taken at normal pressure and those collected at NMEP. Even small degrees of NMEP, still considered clinically normal, had significant effects on DPOAE level. Middle ear pathology should be more closely monitored in newborns.

The Work and Works of Mercy: The Life and Legacy of Ade Bethune
Julia Upton, St. John’s College of Liberal Arts and Sciences, Department of Theology and Religious Studies

Ade Bethune, often heralded as “the Catholic Worker artist,” was so much more than that in her life. Although she was surely best known for her illustrations for The Catholic Worker throughout her career as an artist, she was also a leader in the American Liturgical Movement, an architect and liturgical designer, a leader and editor for the Catholic Art Association, a writer with wide-ranging interests, a faithful and demanding mentor for many students, including Dorothy Day’s daughter, Tamar, and a community activist. I am working on a full-length biography of Ade Bethune with the working title, The Work and Works of Mercy: The Life and Legacy of Ade Bethune.
Fabrication of ZnO Nanowaveguides and Their Optical Properties
Huizhong Xu, St. John’s College of Liberal Arts and Sciences, Department of Physics; Undergraduate Students: John Colanduoni, Orlando Lopez, Hassan Shadab, Ashley Tucker

Zinc oxide nanowires are synthesized on gold-coated glass substrates using a hydrothermal process and the effects of substrate annealing and seeding on the morphology, dimension, and distribution of resultant nanowires are investigated. We have found that pre-growth annealing of the gold-coated glass substrates at temperatures above 350 °C is required to obtain vertically aligned nanowires. The diameters of synthesized nanowires can be tuned from ~50 nm to several hundred nanometers. The subsequent fabrication of ZnO nanowire waveguides are also demonstrated using a simple electroplating process. These nanowaveguides exhibit extraordinary optical transmission and may have potential applications in nanoscopic imaging and spectroscopy.

We have also studied the use of ZnO nanowires in a hybrid waveguide configuration for achieving better confinement and longer propagation length at the same time. In this configuration, a horizontal ZnO wire is placed several nanometers above a water-silver interface. By exciting this geometry with an aperture in the silver metal, it is possible to strongly couple to multiple modes of the hybrid waveguide. As the confinement of the second mode is comparable to that of the fundamental mode but has a much longer propagation length, this geometry can enable enhanced confinement and propagation in light guiding applications.

Extracellular Loops are Essential for the Assembly and Function of TRPP/PKD Complexes
Yong Yu, St. John’s College Liberal Arts and Sciences, Department of Biological Sciences

Transient receptor potential channel polycystin subfamily (TRPP) proteins assemble with polycystic kidney disease (PKD) proteins to form functionally important complexes. For example, the TRPP2/PKD1 receptor-ion channel complex plays a critical role in renal physiology. Mutations in either protein cause autosomal dominant polycystic kidney disease (ADPKD), one of the most common genetic diseases in humans. A similar complex, assembled by TRPP3 and PKD1L3, is a candidate for the sour taste receptor. The TRPP2/PKD1 complex contains three TRPP2 subunits and one PKD1 subunit and the interaction between their C-termini is crucial for the complex assembly. The TRPP3/PKD1L3 complex has the same subunit stoichiometry but its assembly involves interactions between the transmembrane segments of both proteins. These interactions have been shown to be essential for the assembly, surface expression and function of the complexes. Here we find another novel binding site between these proteins. When co-expressed in HEK293T cells, the extracellular loops between the first and second transmembrane segments (I-II loop) of TRPP2 and TRPP3 associate with the extracellular loops between the sixth and seventh transmembrane segments (VI-VII loop) of PKD1 and PKD1L3 respectively. These loops can also associate with their binding partners when the latter is expressed as full-length proteins. The loop-loop associations are functionally crucial since expression of either the TRPP3 I-II loop or the PKD1L3 VI-VII loop shows dominate negative effect on the acid-induced current of TRPP3/PKD1L3 complex. These results demonstrate, for the first time, the previously unknown essential role that these extracellular loops play in the assembly of TRPP/PKD complexes.
Dispute Resolution in Contemporary China
Yue (Angela) Zhuo, St. John’s College of Liberal Arts and Sciences, Department of Sociology and Anthropology

Prior research indicates that Chinese people in dispute rarely turn to lawyers and courts for help. Instead, they exhibit an extraordinary tendency toward negotiation and mediation. When they do seek help from formal institutions, they are far more likely to approach local government agencies than lawyers and courts. After three decades of reform, the law-making and institution-building in China have reached impressive levels. How do people deal with disputes in contemporary China? How much do they rely on law now? Using data from a national survey, this study examines dispute resolution actions and intentions among Chinese citizens. In particular, it explores the factors that are associated with people’s choice among legal action, mediation through acquaintances, mediation through government, or toleration. The results demonstrate the variety of ways in which Chinese have responded or would respond to disputes. At the same time, there is a significant gap between intention and action. The influential factors of dispute resolution include socioeconomic status, social trust, social bond, neighborhood cohesion, etc.