Fourth Annual

Temple University
Graduate Fellows Research Symposium

September 15, 2012

CELEBRATING 25 SUCCESSFUL YEARS OF THE
Future Faculty Fellows Program
Est. 1987

SPONSORS:

Office of the Provost

Graduate School

Temple University NSF Alliance for Graduate Education and the Professoriate in the Social, Behavioral, and Economic Sciences (AGEP–SBES)

TEMPLE UNIVERSITY®

Fourth Annual

Temple University
Graduate Fellows Research Symposium

September 15, 2012

Table of Contents

Abstracts

Fourth Annual

Temple University
Graduate Fellows Research Symposium

September 15, 2012

Order of Events

Morning events take place in Rock Hall.

8:15 - 9:00 **Registration**

9:00 - 9:10 **Welcoming Remarks**
Richard M. Englert, Acting President
Kenneth J. Blank, Senior Vice Provost for Research and Graduate Education

9:10 - 9:45 **My First Academic/Research Position: Transitioning from Doctoral Studies**
Panel Chair: *Zebulon V. Kendrick, Vice Provost, Graduate School*
Panelists: *Casey Breslin, Assistant Professor, Kinesiology, College of Health Professions and Social Work and former FFF at Auburn University*
Keith Diaz, Postdoctoral Research Scientist, Columbia University Medical Center and former FFF at Temple University
Vinod Venkatraman, Assistant Professor, Marketing and Supply Chain Management, Fox School of Business and Management

9:45 - 9:50 **Welcoming Remarks**
Hai-Lung Dai, Interim Provost

9:50 - 10:50 **Schmieder Scholars**
Introductions: *Eduard Schmieder, Laura H. Carnell Professor of Violin, Boyer College of Music and Dance*
Accompanist: *Yoni Levyatov, Piano*

Violinist	Music Selection	Composer
Yeseul Ann	*Scherzo* (from the *FAE Sonata*)	Brahms
Azer Damirov	*Mugham: Poem for Violin and Piano*	Amirov
Set Rodriguez	*Three Pieces from Romeo and Juliet*	Prokofiev Arr. Gruness
Nobuko Kawamura	*Sonata No.3 Ballade* Opus 27	Ysaye
Nina Vieru	*Polonaise Brillante* No. 1	Wieniawski
Yevgeniy Dyo	*Tzigane: Rhapsodie De Concert for Violin and Piano*	Ravel
Aisha Dossumova	*Introduction et Rondo Capriccioso* Opus 28	Saint-Saens
Aisha Dossumova & Nobuko Kawamura	*Navarra:* Opus 33 for Two Violins and Piano	Sarasate

10:50 - 11:10 **BREAK**

11:10 - 11:50 **Achieving Tenure**
Panel Chair: *Zebulon V. Kendrick, Vice Provost, Graduate School*
Panelists: *Rodrigo Andrade, Assistant Professor, Chemistry, College of Science and Technology*
Kurosh Darvish, Associate Professor, Mechanical Engineering, College of Engineering
Angelika Dimoka, Associate Professor, Marketing and Supply Chain Management, Fox School of Business and Management
Swati Nagar, Associate Professor, Pharmaceutical Sciences, School of Pharmacy

11:50 - 12:50 **The Future Faculty Fellows Program at Temple University**
Panel Chair: *Kimmika Williams-Witherspoon, Associate Professor, Theater, Center for the Arts/Division of Theater, Film and Media Arts*
Panelists: *Karen Addison-Williams, Parent Advocate and former FFF administrator*
Sandra Andino, Non-profit Advocate, Educator, and Artist and former FFF
Jenny Magnes, Assistant Professor, Physics, Vassar College and former FFF
Sheila A. Ward, Professor, Health, Physical Education and Exercise Science, Norfolk State University and former FFF

Afternoon events take place in Tuttleman Learning Center.

12:50 - 1:50 **LUNCH and**
Poster Review

1:50 - 2:50 **Graduate Student Poster Presentations**
3rd Floor Hallway
Gordon Burtch, Management Information Systems
Azeb Gebre, Psychology
Ashley Goerke, Marketing and Supply Chain Management
Jaileene Hernandez, Biology and TU-MARC Program
Colleen Hooper, Dance
Giuseppina Lamberti, Mechanical Engineering
*Melissa Lester, Spanish and Portuguese and TU-MARC U*STAR Program*
Mehret Mandefro, Anthropology
Garvin Peters, Biochemistry and TU-MARC Program
Amber Riendeau, Chemistry
Eric Strachura, Mathematics

2:50 - 3:00 **BREAK**

3:00 - 4:30 **Graduate Student Oral Presentations**
Room 101 –
Faculty Discussant: *Zebulon V. Kendrick, Vice Provost, Graduate School*
Manuela Martelli Salamovich, Film and Media Arts – Apnea (8:54 min.)
David Miranda Hardy, Film and Media Arts, 2011 – Topo Gigio is Dead (23:33 min.)
Alessandro Zangirolami, Film and Media Arts, 2012 – Deer (37:00 min.)

Room 302 –
Faculty Discussants: *Dustin Kidd, Associate Professor, Sociology*
Hamil Pearsall, Assistant Professor, Geography and Urban Studies
Esther Hio-Tong Castillo, Sociology
Alec Foster, Geography and Urban Studies
Sendy Guerrier, Geography and Urban Studies
Jennifer Midberry, Mass Media and Communication
Elizaveta Provorova, Mass Media and Communication
Autumn Zellers, Anthropology

Room 304 –
Faculty Discussants: *Marc Ilies, Assistant Professor, Pharmaceutical Sciences*
Paul Pavlou, Professor, Management Information Systems
Kartik Ganju, Management Information Systems
Kyle Gilroy, Mechanical Engineering
Devon Middleton, Electrical and Computer Engineering
Kim Reuter, Biology
Vishnu Dutt Sharma, Pharmaceutical Sciences

Room 305A –
Faculty Discussants: *Kurosh Darvish, Associate Professor, Mechanical Engineering*
Svetlana Neretina, Assistant Professor, Mechanical Engineering
Tiffiny Butler, Kinesiology
Rabee Cheheltani, Mechanical Engineering
Kaveh Laksari, Mechanical Engineering
Giuseppina Lamberti, Mechanical Engineering
Amrita Sahu, Electrical and Computer Engineering

Room 305B –
Faculty Discussant: *Kimmika Williams-Witherspoon, Associate Professor, Theater*
Jared Abbott, Political Science
Jeffrey Carroll, Political Science
Rachel Gooze, Public Health
Danielle Johnson, Sociology
Joshua Pongan, Spanish and Portuguese
Jamie Weathers, Finance

Tyler School of Arts hosts the end-of-day event.

4:30 - 4:45 BREAK

4:45 - 5:45 Jazz and Refreshments in Tyler Café

Graduate Fellows
at Temple University
have a network
of support
that allows them
to thrive.

Fourth Annual

Temple University
Graduate Fellows Research Symposium

September 15, 2012

List of Participants

Graduate Fellow Presenter	Department/Program
Jared Abbott	Political Science
Yeseul Ann	String Pedagogy
Gordon Burtch	Management Information Systems
Tiffiny A. Butler	Kinesiology
Jeffrey N. Carroll	Political Science
Esther Hio-Tong Castillo	Sociology
Rabee Cheheltani	Mechanical Engineering
Azer Damirov	Violin Performance
Aisha Dossumova	Violin Performance
Yevgeniy Dyo	Violin Performance
Alec Foster	Geography and Urban Studies
Kartik K. Ganju	Management Information Systems
Azeb Gebre	Psychology
Kyle D. Gilroy	Mechanical Engineering
Ashley A. Goerke	Marketing and Supply Chain Management
Rachel A. Gooze	Public Health
Sendy Guerrier	Geography and Urban Studies
Jaileene Hernandez	Biology / TU-MARC Program
Colleen Hooper	Dance
Danielle N. Johnson	Sociology
Nobuko Kawamura	Violin Performance
Kaveh Laksari	Mechanical Engineering
Giuseppina Lamberti	Mechanical Engineering
Melissa Lester	Spanish and Portuguese / TU-MARC U*STAR Program
Yoni Levyatov	Piano Performance
Mehret Mandefro	Anthropology
Manuela Martelli Salamovich	Film and Media Arts
Jennifer Midberry	Mass Media and Communication
Devon M. Middleton	Electrical and Computer Engineering
David Miranda Hardy	Film and Media Arts, 2011
Garvin Peters	Biochemistry / TU-MARC Program
Joshua M. Pongan	Spanish and Portuguese
Elizaveta Provorova	Mass Media and Communication

Graduate Fellow Presenter	Department/Program
Kim Reuter	Biology
Amber Riendeau	Chemistry
Set Rodriguez	Violin Performance
Amrita Sahu	Electrical and Computer Engineering
Vishnu Dutt Sharma	Pharmaceutical Sciences
Eric Stachura	Mathematics
Nina Vieru	Violin Performance
Jamie Weathers	Finance
Alessandro Zangirolami	Film and Media Arts, 2012
Autumn Zellers	Anthropology
Other Student Participant	**Department/Program**
Miguel J. Abele	Physics
Marybeth T. Acac	Religion
Francine Affourtit	Printmaking
Amanda Alvarez	Political Science
Jeff Antsen	Political Science
Bradley Baker	Tourism and Hospitality Management
Srimoye Banerjee	Biomedical Neuroscience
Robert Bingham	Dance
Katelyn Bouska	Piano Performance
Qingqing Cai	Computer and Information Sciences
Corinne Castro	Sociology
Davinah Childs	Urban Education
Minjung Choi	Management Information Systems
Egon Cohen	Religion
Kristin Deady	Glass
Kathryn Devlin	Psychology
Kalina Eneva	Psychology
Jose Fernandez	Philosophy
Keshar Ghimire	Economics
Amy Gillette	Art History
Ida Goldkorn	Criminal Justice
Trent Gray	Biology
Joseph Gregorio	Music Composition
Dawn Guzman	Neuroscience
Jessica Hamilton	Psychology
Nicholas Hestand	Chemistry
Lynn K. Hieu	Neuroscience
Bao Hoang	Physics
Alexandra Hoff	Psychology
Kirsten Hooper	Microbiology and Immunology
Chung-Wei Huang	Film and Media Arts
Mingyuan Huang	Film and Media Arts
Ann Humphrey	Art History
Tiffany Hunt	Art History
Madeleine Hunt-Ehrlich	Film and Media Arts
Moonyoung Hwang	Philosophy

Other Student Participant	Department/Program
Dane Jensen	Psychology
Jeong Mi Kim	Tourism and Sport
Ji Mi Kim	Strategic Management
Virginia Kocieda	Microbiology and Immunology
Cristelle Kouame	Economics
Line Francine Kouecheu	Engineering
Hojun Lee	Kinesiology
Ethan Levine	Sociology
Kang Kang Li	Computer and Information Sciences
Li “Sophie” Liang	Accounting
Arianna J. Lightfoot	Anthropology
Nicole Lounsbury	Pharmaceutical Sciences
Zheng “Claire” Lu	Pharmaceutical Sciences
Megan Luthern	Anthropology
Amy Malleck	Art History
Mark Martinez	Painting
Ginger McCartney	Urban Education
Beatriz Mendez	Biomedical Neuroscience
Rogelio Mercado	Psychology
Jernelle C. Miller	Biochemistry
Sung Namkung	General and Strategic Management
Quynh Nguyen	Computer and Information Sciences
Matthew Nixon	History
Kaitlin O’Donnell	Philosophy
David Paulson	Anthropology
Karen Pezzetti	Urban Education
Julie Pfau	Religion
Helene Philogene	Pharmacology
Kate M. Rahbari	Biology
Marion Ramirez	Dance
Thomas A. Reinstein	History
Marco D. Resnick	School Psychology
Thomas W. Richards	History
Jonathan Ryan	Painting
Alexis L. Rylander	Biology
Sarah Seligman	Psychology
Mary Elizabeth Shanahan	Dance
Imran Sheikh	Biomedical Sciences
Katherine Silkaitis	Biochemistry
Laura M. Skipper	Psychology
Kruti Soni	Pharmaceutical Sciences
Theresa Sterner	Sculpture
Anna Swan	Psychology
Emily Tancredi-Brice	Urban Education
David Thomas	History
Joseph Trout	Chemistry
Vincent Tu	Biology

Other Student Participant	Department/Program
Uduak Udoeyo	Biology
Andrew Van Horn	Anthropology
Jofiel M. Veras	Chemistry
Everett A. Vieira	Political Science
Heather Waters	Music Education
William Worden	Mathematics
Chi Zhang	Finance
Kaining Zhi	Pharmaceutical Sciences
Faculty / Staff / Guest	**Affiliation**
Karen Addison-Williams	Parent Advocate / Former FFF Administrator
Sandra Andino	Non-profit Advocate, Educator, and Artist / Former FFF
Rodrigo Andrade	Assistant Professor, Chemistry
Kenneth J. Blank	Senior Vice Provost for Research and Graduate Education
Casey Breslin	Assistant Professor, Kinesiology / Former FFF at Auburn University
Hai-Lung Dai	Interim Provost
Kurosh Darvish	Associate Professor, Mechanical Engineering
Keith Diaz	Postdoctoral Research Scientist, Columbia University Medical Center / Former FFF
Angelika Dimoka	Associate Professor, Marketing and Supply Chain Management
Richard M. Englert	Acting President
Paul Garrett	Associate Professor, Anthropology
Cynthia Harmon-Williams	Budget Manager, Graduate School
Marc Ilies	Assistant Professor, Pharmaceutical Sciences
Zebulon V. Kendrick	Vice Provost, Graduate School
Dustin Kidd	Associate Professor, Sociology
Mindie Lazarus-Black	Professor, Anthropology
Walden S. Lester	Alumnus and Former FFF
A. Marjatta Lyyra	Professor, Physics
Jenny Magnes	Assistant Professor, Physics, Vassar College / Former FFF
Swati Nagar	Associate Professor, Pharmaceutical Sciences
Svetlana Neretina	Assistant Professor, Mechanical Engineering
Albert Paolone	Former Faculty
Paul Pavlou	Professor, Management Information Systems
Hamil Pearsall	Assistant Professor, Geography and Urban Studies
Kathryn Petrich-LaFevre	Director of Graduate Information, Graduate School
Eduard Schmieder	Laura H. Carnell Professor of Violin
Justin Yuan Shi	Associate Professor, Computer and Information Sciences
Naoto Tanaka	Research Assistant, Biology
Allan E. Thomas	Assistant Professor of Teaching/Instruction, Chemistry
Vinod Venkatraman	Assistant Professor, Marketing and Supply Chain Management
Sheila A. Ward	Professor, Health, Physical Education and Exercise Science, Norfolk State University / Former FFF
Kimmika Williams-Witherspoon	Associate Professor, Theater

Fourth Annual

Temple University
Graduate Fellows Research Symposium

September 15, 2012

Biography:

KAREN ADDISON-WILLIAMS

Karen Addison-Williams joined the Graduate School in 1988 and was a part of Temple University for over 11 years, filling several roles. Early on, she served as Graduate School Recruiter and then as Director of Graduate Recruitment and Coordinator of the newly developed Future Faculty Fellows Program. At the end of her tenure with the university, Karen served as Director of the FFF Program and Undergraduate Science Initiatives, dividing time between the Graduate School and the Provost's Office. Karen's commitment has always been to help in whatever way possible to ensure that students are successful as they navigate the academic maze. During her time with the FFF Program, Karen searched the greater part of the country seeking outstanding candidates interested in earning terminal degrees and entering the professoriate in content areas where they were underrepresented, either by ethnicity or gender.

In 1999, after the birth of her second child, Karen left the Graduate School to be a stay-at-home mom, a job she has treasured for the last 13 years. Realizing there was much to be done in her local school district, Karen has been an active volunteer for over 11 years. Formerly she served as President of the elementary school's Parent Faculty Club and the district's Parent Club Council. Currently, Karen serves as a parent liaison to the Superintendent through the district's Collaborative Action Group and on the Policy and Family Engagement sub-committees of the district's school board. Karen works to be an advocate for all Norristown Area School District children and parents, and to empower parents to advocate for themselves in order to help their children achieve greater academic success. In a similar vein, Karen also serves on the Pennsylvania Governor's State Parent Advisory Council, looking at a wide range of educational issues affecting school-aged children and their families across the state, most notably, the value and benefit of parental involvement and quality family engagement.

Karen has served in many capacities over the years. However, her most important and rewarding job has been that of mother and first teacher to her two beautiful sons: Omari, age 16, and Khari, age 13. Karen, along with her husband Jeff and sons, resides in East Norriton, Montgomery County, PA.

Biography:
SANDRA ANDINO

Sandra Andino, Ph.D., is a graduate of Temple University's Cultural Anthropology and Urban Studies Departments. Her knowledge in the field of arts and culture, gained through many years of experience with non-profit agencies in New York and Philadelphia, has earned her a place as a committed leader, educator, and artist in the Latino and African American communities. Dr. Andino's strong advocacy for the arts and arts education and their positive impact on transforming the lives of children and youth in our communities has led her to work with such agencies as Bedford Stuyvesant Restoration Corporation, Brooklyn Children's Museum, Norris Square Civic Association, Philadelphia Folklore Project, Taller Puertorriqueño, Temple University's Intergenerational Center, and WHYY-TV, among others. In addition, she has served as an instructor in schools and institutions of higher learning in New York and Philadelphia, including the College of New Rochelle, Hostos Community College, and Temple University.

As an extension of her dissertation research on graffiti art in Philadelphia, Dr. Andino presented her first solo photography show and published her first journal article in 1995. In 2000, she co-curated a graffiti arts show at the Painted Bride Art Center. Through the lens of her camera, Dr. Andino documents stories and expresses her artistic vision as an Afro-Latina photographer, illustrating the communities in which she lives and works. In both 2005 and 2009, she was awarded the *Art for Social Change* grant by the Leeway Foundation. These awards permitted Dr. Andino to produce and exhibit two photography shows at Taller Puertorriqueño, namely, *Manos Labradoras/Laboring Hands* (November 2006) and *Afro-Latinos in Philadelphia: Stories from El Barrio* (February 2011).

Fourth Annual

Temple University
Graduate Fellows Research Symposium

September 15, 2012

Biography:
JENNY MAGNES

Committed to undergraduate education and community outreach, Jenny Magnes is currently an Assistant Professor of Physics at Vassar College. She supervises undergraduate students and visiting scholars in her Vassar Applied Optics Laboratory (VAOL) using research funds from Vassar College, NASA, and the NSF. Previously, Dr. Magnes taught at the United States Military Academy (USMA) in West Point, NY. In 2003, she earned her Ph.D. in Physics at Temple University, where she was awarded a Future Faculty Fellowship.

Dr. Magnes has been the recipient of numerous grants. Chief among her recent awards are:

- NSF Grant Award #1058385 for Physics of Living Physical Systems (September 2011). Vassar Co-PI: Kate Susman. Includes summer stipends for three students. $263,000.
- CCAS Grant for Technology Inquiry Module (April 2011). $10,000.
- Grant from Vassar College Research Committee for Automated Diffraction Analysis (April 2010). $3,000.
- CCAS Grant for Teaching Module in New Computer Science Modeling Course (March 2010). Co-PI: Nancy Ide. $2,500.
- Frances D. Fergusson Faculty Technology Exploration Fund for Exploring Absorption Spectrometers for Undergraduate Teaching and Outreach Projects (November 2009). $2,700.
- NASA Grant Subaward through Delaware State University for CAN/NASA Group 5 University Research Center (July 2009). Includes summer stipends for three students. $50,000.

Dr. Magnes' significant publications include:

- Magnes, J., Raley-Susman, K., Melikechi, N., Sampson, A., Eells, R., Bello, A., & Lueckheide, M. (2012). Analysis of freely swimming C. elegans using laser diffraction. *Open Journal of Biophysics*, 2(3), 101-107. DOI: 10.4236/ojbiphy.2012.23013.
- Magnes, J., Schwarz, G., Hartke, J., Burt, D., & Melikechi, N. (2007). Optomechanical integration method for finite integrals. *Applied Optics*, 46, 6918-6922.
- Magnes, J., Susman, K., & Eells, R. (2012). Quantitative locomotion study of freely swimming micro-organisms using laser diffraction. *Journal of Visualized Experiments*, e4412. DOI: 10.3791/4412.

Biography:

SHEILA A. WARD

Sheila A. Ward is presently a tenured Professor in the Department of Health, Physical Education and Exercise Science at Norfolk State University. Integration of her degrees in exercise physiology, epidemiology/public health, and dance has served as the foundation to promote "Health Empowerment through Cultural Awareness," the guiding principle she relies on to conduct scholarly activities related to chronic disease prevention and management.

Dr. Ward is currently on the American College of Sports Medicine's (ACSM) Health Equity Committee (three-year appointment); is an ACSM representative to the Physical Activity Promoting Colleges and Universities Committee (three-year appointment); and serves on the Nominating Committee of the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD). Dr. Ward served as Publications Chair of the National Dance Association and on the Editorial Board of the *Journal of Physical Education, Recreation and Dance (JOPERD)* from 2006 to 2009. She is currently on the Editorial Board of *The Physician and Sportsmedicine*; serves as a reviewer for the American College of Sportsmedicine's *Health and Fitness Journal* and *JOPERD*; and is Chair of Grants and Research for the Black Women in Sport Foundation. She is the Co-Director of Eleone Dance Theatre of Philadelphia, PA.

Dr. Ward has successfully received state, federal, and private funding for research and program implementation related to dance, health disparities, and chronic disease prevention and management and HIV/AIDS awareness and prevention. She is currently funded by the Office on Women's Health (OWH) of the Department of Health and Human Services to implement Norfolk State University's Health and Wellness Initiative for Women. She earned her Ph.D. in Exercise Physiology at Temple University in 1995.

Biographies of the Musicians

EDUARD SCHMIEDER, Laura H. Carnell Professor of Violin

Born and educated in Russia, Eduard Schmieder has been characterized as an "extraordinary musician of the late 20th century" (Henry Roth, *Violin Virtuosos: From Paganini to the 21st Century,* 1997). As artist and teacher, he amalgamates and creatively transforms the great traditions of American and European art. He maintains a concert schedule as conductor and violinist and teaches an internationally selected class of students, who have won top prizes at the most prestigious international competitions; have established careers as soloists and chamber musicians; and hold leading positions in orchestras in Europe, Asia, and the United States. Schmieder himself has performed in prestigious concert halls worldwide and has collaborated with such musicians as Martha Argerich, Erick Friedman, Ida Haendel, Yehudi Menuhin, Jon Kimura Parker, Brooks Smith, and Tsuyoshi Tsutsumi. In 1996, he performed a recital in Genoa on Paganini's famous Guarneri del Gesu "Il Cannone" violin.

Schmieder was formerly the Distinguished Algur H. Meadows Chair of Violin and Chamber Music in the Meadows School of the Arts at Southern Methodist University in Dallas, TX (1990-2006) and a tenured professor of violin at the University of Southern California, the position previously held by Jascha Heifetz. In addition, Schmieder has taught master classes in virtually every foremost conservatory in the world. Since 2004, he has been on the faculty at the Mozarteum International Summer Academy in Salzburg, Austria. He also frequently serves as a jury member for leading international competitions such as ARD, Lipizer, Paganini, Queen Elisabeth, Sarasate, and Sibelius. He is the recipient of numerous awards for his accomplishments as a musician and as a teacher and for invaluable contributions to culture.

YESEUL ANN, Violinist

Home: Seoul, South Korea
Education: 2012-present – M.M. Program in String Pedagogy, Temple University, Boyer College of Music and Dance; 2012 – Professional Studies Certificate in Violin Performance, Temple University, Boyer College of Music and Dance; 2011 – M.M. in Violin Performance, Yale University; 2010 – B.M. in Violin Performance, Conservatoire de Paris

AZER DAMIROV, Violinist

Home: Baku, Azerbaijan
Education: 2011-present – M.M. Program in Violin Performance, Temple University, Boyer College of Music and Dance; 2011 – B.M. in Violin Performance, Temple University, Boyer College of Music and Dance; 2006 – B.M. in Violin Performance, Academic Music College, Moscow, Russia

AISHA DOSSUMOVA, Violinist

Home: Almaty, Kazakhstan
Education: 2010-present – D.M.A. Program in Violin Performance, Temple University, Boyer College of Music and Dance; 2009 – Professional Studies Certificate in Violin Performance, Temple University, Boyer College of Music and Dance; 2008 – M.M. in Violin Performance, Temple University, Boyer College of Music and Dance; 2002 – B.M. in Violin Performance, Kazakh National Academy of Music, Astana, Kazakhstan

YEVGENIY DYO, Violinist

Home: Almaty, Kazakhstan
Education: 2010-present – D.M.A. Program in Violin Performance, Temple University, Boyer College of Music and Dance; 2009 – Professional Studies Certificate in Violin Performance, Temple University, Boyer College of Music and Dance; 2008 – M.M. in Violin Performance, Temple University, Boyer College of Music and Dance; 2006 – B.M. in Violin Performance, Kazakh National Academy of Music, Astana, Kazakhstan

NOBUKO KAWAMURA, Violinist

Home: Morioka, Japan
Education: 2012-present – Professional Studies Certificate Program in Violin Performance, Temple University, Boyer College of Music and Dance; 2012 – M.M in Violin Performance, Temple University, Boyer College of Music and Dance; 2005 – B.M. in Violin Performance, Toho Gakuen University, Tokyo, Japan

YONI LEVYATOV, Pianist

Home: St. Petersburg, Russia; Israel
Education: 2007-present – D.M.A. Program in Piano Performance, Temple University, Boyer College of Music and Dance; 2005 – M.M. in Piano Performance, Manhattan School of Music

SET RODRIGUEZ, Violinist

Home: Canary Islands, Spain
Education: 2012-present – Professional Studies Certificate Program in Violin Performance, Temple University, Boyer College of Music and Dance; 2012 – M.M. in Violin Performance, Temple University, Boyer College of Music and Dance; 2009 – B.M. in Violin Performance, Rowan University; 2006 – M.M. in Violin Pedagogy, Royal Conservatory of the Canary Islands

NINA VIERU, Violinist

Home: Chişinău, Moldova
Education: 2012-present – M.M. Program in Violin Performance, Temple University, Boyer College of Music and Dance; 2012 – B.M. in Violin Performance, Temple University, Boyer College of Music and Dance

Reflections on the Future Faculty Fellows Program:

Lee D. Baker, Ph.D.
Professor of Cultural Anthropology
Dean of Academic Affairs, Trinity College of Arts and Sciences
Associate Vice Provost for Undergraduate Education
Duke University

I came to Temple in Fall 1989 on a Greyhound bus from Portland, Oregon, right after receiving my B.S. in Anthropology from Portland State. I had a passion for anthropology and the desire to become a professor, but that was about it. I did not know how to read critically, write persuasively, nor have a Future Faculty Fellowship. Honestly, I did not really know what graduate school entailed. I did secure a position working in the Graduate School where I witnessed how effective administrators can make institutions more responsive and create great opportunities for students. The Dean of the Graduate School, Jack Nelson, quickly became my mentor.

At Temple, I found for the first time in my life that my ideas were affirmed in a broader context. Dean Nelson – I called him Jack – was instrumental in forming the fellowship program and arranged for me to get funding through the program, which opened a whole new vista of intellectual relationships. The funding was important and allowed me to focus on my research, but it was the support, the retreats, and the seminars that Karen Addison-Williams organized that were the most beneficial in my professional growth and development. My fellow graduate students in the department were great, but I shared something special with the Future Faculty Fellows because we developed a sense of collegiality and shared sense of purpose that formed indelible memories and intellectual networks that continue to this day.

Although I did not fully recognize and appreciate it at the time, the FFF program provided a sturdy foundation of support, mentorship, and networking that enabled me to develop a successful career as a professor and administrator. My fabulous start as a Future Faculty Fellow made all the difference. I have had the privilege of developing similar programs at Duke and have worked to support future faculty and future physicians. In a small way, I hope that I am continuing to articulate the mission of the Future Faculty Fellowship program at Duke University.

Reflections on the Future Faculty Fellows Program:

KEITH DIAZ, Ph.D.
Postdoctoral Research Scientist
Columbia University Medical Center

As a recent graduate of Temple University who was supported by the Future Faculty Fellowship (FFF) Program, I am filled with enormous pride in knowing that I graduated from an institution that not only supports ethnic diversity among its student and faculty populations, but is also selflessly committed to diversifying college and university faculty across the country. In reflecting on my own personal journey, it is apparent that my life was forever changed by the opportunities provided by the FFF Program, as is most certainly the case for the dozens of Fellows who preceded me over the last 25 years.

Coming from a working-class family, when I chose to leave my career in education to return to school to pursue a graduate degree, I never had any intentions of undertaking a Ph.D. program. The thought of accruing another four to six years of student loan debt was far from appealing. Nor did I consider myself smart enough to even dream of such a thing! As a second-generation Hispanic-American, I was one of the first in my family to go to college – let alone earn a doctorate. But, thanks to faculty both in my department and in the Graduate School who saw my potential, I was encouraged to apply for the FFF Program. Thankfully, I was awarded a fellowship by the Graduate School. This changed my career path in an instant.

Outside of providing me with an opportunity to pursue a degree I had never dreamed would be possible, the FFF Program also provided many opportunities and experiences that supported my continued growth and development as an upcoming researcher and future faculty member. Most notably, the two fellowship years provided by the program permitted me to have two years of protected time in which I could be fully immersed in research and develop skills and establish a publication record that have permitted me to aspire for positions within the highest ranks of academia. Without this protected time, my research productivity would have been drastically diminished and I am certain my career outlook would be very different.

The FFF Program also helped me in many other ways. The Annual Graduate Fellows Research Symposium provided me with the first opportunities to hone my presentation skills in an intimate and friendly environment where I received valuable feedback that prepared me well to present at national conferences. In addition, the symposiums, talks, and retreats hosted by the FFF Program gave me opportunities to meet many prominent minority faculty members in academia who inspired me, encouraged me, and provided valuable career advice. Meeting faculty who are proud of their racial/ethnic heritage and who sacrificed their time to mentor future minority faculty is something I will not soon forget. In fact, these faculty members have instilled in me a strong desire to further the development and support of programs to increase the number of minority professors, scientists, and physicians in hopes that one day the need to promote diversity will no longer be necessary.

In closing, for me the FFF program was more than just “Here’s a check, go make it happen.” It was the guidance and support of the wonderful faculty behind the program that were vital to my success as a graduate student. I know that I would not be where I am today without the FFF program.

Reflections on the Future Faculty Fellows Program:

JENNY MAGNES, Ph.D.
Assistant Professor of Physics
Department of Physics and Astronomy
Vassar College

Temple University Graduate School states, "Temple University is committed to doing all it can to diversify its graduate population and the professoriate." By the nature of this statement, Future Faculty Fellows (FFF) are in the minority in their professions/departments. Critical mass has either not been achieved or will never be reached in their professions. Minorities can easily feel isolated and be excluded from activities that enhance their professional lives. In particular, I represented about 5% of my department as a Western female practicing physics. The FFF meetings helped ease the sense of isolation I felt, making it much easier to gain perspective in the academic landscape through discussions that my fellow graduate students in Physics weren't having with me. Minority issues in any field make people uncomfortable, but nonetheless need to be discussed. Platforms like the FFF Program create a welcome space for such discussions.

The FFF Program definitely made me more marketable as I first searched for employment. I landed a permanent faculty position straight out of graduate school at a top institution. On at least one occasion, I was able to re-connect with the FFF. I am also very happy to return to Temple University for this celebration of the FFF Program. I am thrilled that the program is thriving and supporting underrepresented groups throughout academia. I will return to my home institution motivated and hopeful that most academics strive for intellectual exchange regardless of the boundaries constructed by societies.

Reflections on the Future Faculty Fellows Program:

LAYLI MAPARYAN, Ph.D.
Katherine Stone Kaufman '67 Executive Director
Wellesley Centers for Women
Wellesley College

The Future Faculty Fellows Program was an investment in my talent that looked beyond all of the factors that could have held me back from achievement of the Ph.D. and a successful career in academia. When I came to Temple, I was a soon-to-be single parent of two preschoolers without any significant means other than my academic credentials. I had been a National Achievement Scholar, a member of my undergraduate institution's Honors Program, and a Ford Minority Pre-doctoral Fellow, but once those opportunities ended, it might have meant the end of the road for me if not for the Future Faculty Fellows Program.

It wasn't easy being in graduate school with two small children on a limited income – but the Future Faculty Fellows Program sustained me financially, intellectually, and socially. Our monthly FFF seminars gave us professional development advice, provided important networking opportunities, and allowed us to develop the friendships that got us through graduate school and helped us make it into the professoriate. Now, nearly 20 years later, I am the Executive Director of the nation's largest women- and gender-focused academic research institute after spending 19 years as a college professor. In addition, I have authored two groundbreaking books on womanism – a social-change standpoint that puts everyday women, their genius, and their communities at the center. I am also a scholar who has had the privilege of mentoring numerous young women – and men – who, like me, might not have been able to make it if I had not been in the position to "give back" what was given to me: support, advice, and inspiration. Thus, it is with great fondness and profound gratitude that I look back on my experience with the Future Faculty Fellows Program at Temple University, insofar as it delivered on its intention – that is, to enable one more individual from an underrepresented group to become a member of the professoriate – and so much more.

Reflections on the Future Faculty Fellows Program:

ALLAN E. THOMAS, Ph.D.
Assistant Professor of Teaching/Instruction
Department of Chemistry, College of Science and Technology
Temple University

Being a Future Faculty Fellow, I was able to complete my requirements for the Ph.D. in Physical Chemistry in five years. I entered the Ph.D. program at 36 years of age, with a wife, four children, and having given up employment in high school administration. My first question was: "How am I going to make it financially?" The financial assistance provided by the Future Faculty Fellows Program was all important.

When I became a Future Faculty Fellow in 1989, I became part of an outstanding program, for the support given by Karen Addison-Williams and the staff was phenomenal. I looked forward to the support meetings because they provided us an opportunity to meet and get to know students from various departments. A sense of pride was evident throughout the program during my tenure as a graduate student. I was blessed to be one of four "FFF" in the Chemistry Department during that time. I am proud to say, all four graduated with post-baccalaureate degrees and are doing well, which is a testimony to the importance and success of the program.

The rewards for participation in the FFF Program are many. Proudly, I have achieved several awards, including:

- Guy F. Allen Outstanding Teaching Award for Outstanding Graduate Instruction, 1989-90
- Distinguished Teaching Award, Temple University College of Arts and Science, 1997-98
- Induction as Honorary Member of the Golden Key National Honor Society, 1998
- Distinguished Teaching Award, Temple University College of Science and Technology, 2007-08

Reflections on the Future Faculty Fellows Program:

SHEILA A. WARD, Ph.D., M.P.H.
Professor of Health, Physical Education and Exercise Science
Department of Health, Physical Education and Exercise Science, School of Education
Norfolk State University

The Future Faculty Fellows Program afforded me the opportunity to prepare for a collegiate professorship in a friendly and very nurturing environment. Our monthly fellow forums often generated provocative and engaging conversations related to the academy as well as current events. The assistantship provided me with the opportunity to focus on my challenging studies without financial stress. The commitment of support from my department, which enabled me to serve as an adjunct instructor and graduate teaching associate, provided some of my earliest collegiate teaching experience with mentorship.

Plato, Skepticism and the Missed Articulation Between Generalized Agnosticism and Radical Democracy

Jared Abbott

Department of Political Science, College of Liberal Arts

Mentor: Joseph Schwartz

Building a theory of radical political equality upon a foundation of philosophical skepticism is an endeavor made particularly difficult by a devastating paradox at the heart of skepticism: since any consistent form of skepticism requires that the analytical tools of skepticism be applied to skepticism itself, skepticism cannot be articulated without undermining its own epistemological legitimacy. Thus, despite its intuitive appeal as a means of understanding objective reality, skepticism is logically self-negating. To address this problem, Aryeh Botwinick argues that skepticism can indeed be sustained if it is conceptualized within the framework of a "generalized agnosticism" vis-à-vis objective reality in which the epistemological status of all truth claims, including those of skepticism, is the same. Such a conceptualization produces philosophical silence with respect to the legitimacy of any particular political practice and, in turn, yields the norm of equality of political participation.

While Botwinick compellingly demonstrates in his body of work the sustainability of skepticism as a philosophical grounding for radical democracy, his account does not go far enough in solidifying this link. This research builds on Botwinick's work to argue that not only a strong rhetorical link, but additionally a *necessary* practical link exist between a consistent version of skepticism and radical-democratic politics. This case is made through an examination of Plato's conceptions of skepticism and politics, which show that while Plato is indeed a proponent of generalized agnosticism, his lack of concern with equality of political participation ultimately undermines his theoretical commitment to generalized agnosticism.

An Empirical Examination of Cultural Differences in Online Interpersonal Exchange

Gordon Burtch[1], Anindya Ghose[2], and Sunil Wattal[1]

[1] Department of Management Information Systems, Fox School of Business and Management, Temple University; and [2] Department of Information, Operations, and Management Sciences, Stern School of Business, New York University

Mentor: Sunil Wattal

Background: Contrary to Thomas Friedman's now famous Flat World hypothesis, in this work, it is argued that the world is by no means flat, as distance continues to exist along dimensions other than the physical, e.g., culture. Many online marketplaces today offer participants the opportunity to engage in economic exchange with others the world over. As a result, the differences between parties are often striking. Bearing this in mind, the impact of cultural differences on lending behavior at the world's largest micro-finance website, Kiva.org, is explored.

Methods: The dataset is comprised of over three million loans, spanning a five-year period. Physical distance in terms of kilometers is operationalized, as are cultural differences in terms of variation in populations' responses to the most recent wave of the World Values Survey. Econometric modeling techniques are employed to quantify the effects of physical distance and cultural differences on lending volumes between pairs of countries, while controlling for a number of relevant factors (e.g., wealth disparity, linguistic and religious overlap, natural disaster occurrence in a borrower country).

Results: Cultural differences are negatively associated with lending and this association is decreasing in physical distance, which is interpreted as an awareness effect. It seems, therefore, that greater physical distance from a borrower makes it less likely that a lender will be aware of any cultural differences. These findings are robust for a variety of different specifications, operationalizations, and data splits.

Conclusion and Future Work: The results can inform the design of international online markets, particularly with regard to decisions about the types and content of information displayed to users. Purveyors may wish to order the presentation of loans to a given lender based on the cultural differences and physical distance of the borrower. The findings further suggest that economic exchange between certain dyads might benefit from the presence of institutional trust mechanisms and that some possible avenues for future research, both theoretically and empirically, in the behavioral economics space may exist. Although cultural differences are associated with lower lending volumes, the aggregate data do not allow a definitive determination of the precise mechanisms that drive these outcomes. While it is surmised that these differences in culture are impeding trust formation, it would be prudent for future work to explore a variety of alternative mechanisms that may also be at play.

The Effect of Post-Pubertal Food Restriction on Bone Structure and Strength

Tiffiny A. Butler, Amie L. Pole, and Vanessa R. Yingling

Department of Kinesiology, College of Health Professions and Social Work

Mentor: Vanessa R. Yingling

Objective: Approximately 90% of peak bone mass is accrued by age 18, with nutrition playing a key role. Changes to the bone structure during development could have lasting consequences for the incidence of fracture later in life. The goal is to determine the effect of 30% post-pubertal food restriction on bone structure and strength at maturity.

Hypothesis: Food restriction (FR) will significantly decrease bone strength at maturity.

Methods: Animals were randomly assigned into seven groups:

- baseline (BL)(n=18)
- control (C)(n=17)
- food restriction (FR)(n=17)
- control recovery (C-R)(n=17)
- food restriction recovery (FR-R)(n=17)
- control ovariectomy (C-OVX)(n=17)
- food restriction ovariectomy (FR-OVX)(n=17)

A six-week 30% food restriction protocol was administered (65 days of age) followed by a ten-week recovery period and ovariectomy surgery (OVX) at 180 days of age. At sacrifice (108 days, 180 days and 227 days, respectively), right femurs were mechanically tested and left femurs were scanned in an ex vivo micro ct.

Results: Relative to body weight, peak moment and stiffness were significantly greater in the acute FR group. However, following OVX, an increased percentage in trabecular bone volume with decreases in trabecular separation was found.

Discussion: Food restriction had only a transient benefit on bone strength. However, trabecular changes did sustain into maturity, indicating structural changes following food restriction were maintained to maturity and remained following OVX surgery.

Conclusion: Moderate food restriction is positive for bone, transiently increasing bone strength by preserving trabecular bone architecture long term.

Information Utilization in Municipal Decision Making: An Exploratory Study of the Social Compact Neighborhood Market DrillDown

Jeffrey N. Carroll

Department of Political Science, College of Liberal Arts

Mentor: Michael Hagen

This exploratory study employs comparative case studies to examine the impact of a non-traditional data source that measures market power of inner-city neighborhoods: The Social Compact Neighborhood Market DrillDown. The four case studies are Baltimore, MD; Louisville, KY; Tampa, FL; and Detroit, MI.

This study seeks to identify the impact of DrillDown data on the policy process with the intent to apply several conceptualizations of information use (instrumental, conceptual, and symbolic) to explain how the DrillDown is utilized. Four initial independent variables are examined to explain the impact of the DrillDown on decision making: applicability to agenda, congruence between findings and prior preferences, trust of information producer, and availability of alternative information sources.

Creating More Livable Cities: Urban Space that Centers on Time

Esther Hio-Tong Castillo

Department of Sociology, College of Liberal Arts

Mentor: Anne Shlay

The concept of livability is featured prominently in recent writings on urban policy. Urban livability is increasingly measured and advocated to boost the competitiveness of city-regions. Scholars propose that urban livability is twofold: it consists of livelihood and sustainability. This study offers insights on the component of livelihood by examining mixed-use urban space as a site for everyday activities. It is argued that urban establishment centered on the daily schedule of its residents essentially creates a livable urban space.

This study analyzes the concept of livability and its linkage with everyday life through the case of Macau, China. Macau is a city that has experienced dramatic urban restructuring since the political changeover in 1999 from colonial Portuguese governmental control to control by the Chinese state. Macau is further characterized by changing meanings of livelihood and the concept of livability. To perform this study, observations were undertaken in a mixed-use urban space of Macau. Interviews were conducted with local residents. These interviews focused on the meaning of livability and how the urban environment provides or fails to provide livable space for its residents. In conclusion, livable urban space centers its organization on the cycles of daily routine of residents. Work space is also integrated with the space for leisure and everyday life.

Development of Infrared Spectroscopic Methods for Assessment of Extracellular Matrix Changes in Cardiovascular Diseases

Rabee Cheheltani

Department of Mechanical Engineering, College of Engineering

Mentor: Mohammad F. Kiani

Objective: The goal is to develop a methodology for detecting extracellular matrix (ECM) changes in cardiovascular pathologies, including myocardial infarction (MI) and abdominal aortic aneurysm (AAA), using Fourier Transform Infrared Imaging Spectroscopy (FT-IRIS) as an alternative or complementary technique to conventional staining techniques.

Hypothesis: FT-IRIS can characterize ECM changes in cardiovascular tissue.

Methods: Frozen infarcted rat heart sections from MI-induced animals and human aortic wall sections from AAA patients were mounted on low-e slides and histological slides for FT-IRIS data collection and staining, respectively. FT-IRIS data were collected with a Perkin Elmer Spotlight spectrometer. FT-IRIS analysis was performed using ISYS software. The results from FT-IRIS analysis were compared to images from histochemical and immunohistochemical staining of the MI and AAA tissues.

Results: FT-IRIS demonstrates a qualitatively similar distribution to several histological staining methods for collagen in MI samples and to Movat's penthachrome staining in AAA samples. Images from the FT-IRIS and immunohistochemical staining for collagen type I in MI samples strongly correlated with an average R-squared value of 0.74 ±0.14.

Conclusion and Future Work: FT-IRIS can characterize changes in ECM components based on the molecular signature of proteins. This provides valuable information on the quality of cardiovascular ECM proteins in normal and diseased tissues. Further investigation of cardiovascular tissue using FT-IRIS can characterize the deposition of different collagen types and other ECM proteins. This has valuable potential in assessing the efficacy of various diagnostic strategies, treatment methods, and drug delivery systems in cardiac tissue pathologies.

A Contingent Valuation of Tampa's Urban Forest

Alec Foster

Department of Geography and Urban Studies, College of Liberal Arts

Mentor: Hamil Pearsall

Urban forests provide environmental, social, and economic benefits to urban residents. These benefits are often overlooked when making spatial and financial distributive decisions in urban areas. The City of Tampa has, however, demonstrated interest in its urban forest resource and estimated its extent and some of the benefits provided. Estimating economic values for benefits that have not been quantified can help to ensure that resources are distributed more efficiently.

In this study, five methods of estimating urban forest benefits in the City of Tampa are reviewed, with contingent valuation being the method chosen through this review process. A mailed, dichotomous choice contingent valuation survey was executed with two points of contact, yielding 107 responses for a 21.4% response rate. Despite positively rating the City's urban forest, the majority of respondents (62.6%) were willing to pay for it to increase. The Turnbull distribution-free estimator was used to estimate a lower bound of $3.23 for willingness to pay to increase Tampa's urban forest resource by 250,000 trees. Willingness to pay was positively associated with income and education. The survey responses also yielded important attitudinal and behavioral information that can help local decision makers increase the efficiency of urban forest distribution, maintenance, and promotion.

Can Information and Communication Technology Lead to Well-Being? An Empirical Analysis

Kartik K. Ganju[1], Rajiv D. Banker[2], and Paul A. Pavlou[1]

[1] Department of Management Information Systems, Fox School of Business and Management, Temple University; and [2] Department of Accounting, Fox School of Business and Management, Temple University

Mentors: Rajiv D. Banker and Paul A. Pavlou

This study extends research that has shown the effect of information technology on productivity of nations. It examines the effect that Information and Communication Technology (ICT) can have on the well-being of nations. This is important for two reasons. First, in the economics literature, a number of studies have focused on well-being rather than measures of GDP as a gauge of how satisfied people are with their lives. Additionally, due to effects that ICT can have that are not directly related to productivity, investments in information technology should have an impact on the well-being of the country independent of the productivity of the nation.

This study uses a proprietary data base to show that government emphasis on ICT increases the ease with which citizens are able to access ICT services. Additionally, the ease with which individuals can do so leads to greater well-being in societies. Overall, the aim is to show that a push by governments to encourage the uptake of ICT within an economy can lead to an increase in the ease with which ICT services can be adopted, which can further lead to an increase in the well-being of an economy.

The Impact of Online Social Networking on the Psychological and Academic Adjustment of College Students

Azeb Gebre and Ronald D. Taylor

Department of Psychology, College of Liberal Arts

Mentor: Ronald D. Taylor

Research on Social Networking Sites (SNSs), such as Facebook, highlights the benefits of such technologies as an arena for dealing with social and developmental issues common among young adults. Using 168 (45.3%) male and 203 (54.7%) female undergraduates, the current study sought to investigate the impact of intensity of online social networking use on the psychological and academic adjustment of college students. The study further examined which aspects of social networking are the most beneficial for adjustment by looking at three motives for social networking: emotional support, school-related support, and formation and maintenance of interpersonal connections.

Analyses revealed that intensity of SNS use was significantly related to positive psychological and academic outcomes. Those who were highly engaged with SNSs reported not only lower levels of psychological distress and anxiety, but also more dedication to their education. Results also showed that those who used SNSs for emotional support were also more likely to report higher psychological distress and anxiety. Furthermore, those who used social networking for the purpose of forming and maintaining interpersonal connections were more dedicated to their academics, suggesting that those who choose to use SNSs in this manner may be forming and cementing relationships that could bolster their academic dedication rather than idly wasting time. The findings of this study demonstrate that the manner in which SNSs are utilized has important implications for college adjustment. Consequently, initiatives geared toward improving college retention rates should aim to incorporate these technologies into their protocol.

This research was supported by the Summer Research Opportunities Program (SROP) of the Alliance for Graduate Education and the Professoriate (AGEP) in the Social, Behavioral, and Economic Sciences (SBES) at the Temple University Graduate School.

The Plasmonic Nanohut

Kyle D. Gilroy

Department of Mechanical Engineering, College of Engineering

Mentor: Svetlana Neretina

Wet chemistry coupled with solid state dewetting provides a powerful pathway for the synthesis of intricately shaped nanostructures. This study focuses on a protocol for developing the first-ever nanohut. A typical nanohut can be described as a hollow gold hemisphere supported on a substrate with a door etched through the side. Fabricated nanohuts range in diameter from 50-200nm and are formed on the (0001)-oriented sapphire surface. The gold nanohut is formed via galvanic replacement reactions between a silver hemisphere and aqueous chloroauric acid ($HAuCl_4$). Nanohuts have much potential for advancing surface-enhanced Raman spectroscopy (SERS), infrared sensor technology, and nanoelectronic devices. This technique also allows for control over the position of the plasmon peak, which can range in wavelength from 450-700nm.

Morphologic and compositional changes were recorded using a series of techniques, including High Resolution Scanning Electron Microscopy (HRSEM), Atomic Force Microscopy (AFM), Energy Dispersive Spectroscopy (EDS), Transmission Electron Microscopy (TEM), Selected Area Diffraction (SAD), and UV/Vis Spectroscopy. A theoretical analysis was performed using Discrete Dipole Approximation (DDA) coupled with Large-scale Atomic/Molecular Massively Parallel Simulator (LAMMPS). LAMMPS was used solely to generate a representative model of the nanohut. Future work will be focused on integrating nanohut technology into next generation devices.

Why Slow and Steady Wins the Race: Seeking to Understand the Impact of Experience on Action-Based Learning Performance

Ashley A. Goerke

**Department of Marketing and Supply Chain Management,
Fox School of Business and Management**

Mentor: Eric Eisenstein

It is well documented that the populations in developed nations are aging at a rapid pace. As these individuals age, the portfolio of products they consume is also evolving. Given that this market already makes up a large proportion of purchasing power in developing nations, and that this is only continuing to increase as the years pass, the importance of research devoted to understanding elderly consumers is clear.

Cognitive psychology and neuroscience disciplines have seen an increase in research surrounding the influence of aging on cognitive tasks such as learning and information processing, but consumer research regarding the subject continues to remain sparse. Much of the previously referred to research often depicts a negative correlation between aging and learning performance.

Building on intriguing preliminary results from a previous research study, it is further proposed that an advantage for senior consumers lies in taking an “action-based” approach to learning tasks. This strategy has the potential to allow elderly consumers to apply previously mastered skills, those from years of learning in an active marketplace, to learning scenarios in a new product context. This proposition continues to be tested through the comparison of the abilities of young and old adults to predict the price of emeralds after feedback (experiential) training and to seek further understanding of the phenomena through manipulations of training, test length, and marketplace change. While the findings provide evidence that elderly consumers learn slower in the short run, it was found that the “old” consumers ultimately outperform the “young” consumers after repeat trials.

Workplace Stress and the Quality of Teacher-Child Relationships in Head Start

Rachel A. Gooze and Robert C. Whitaker

Department of Public Health, College of Health Professions and Social Work

Mentor: Robert C. Whitaker

Objective: The quality of the emotional relationship between teachers and young children affects children's social-emotional and cognitive development, but little is known about whether workplace stress impacts the quality of teacher-child relationships. The purpose of this study was to determine whether workplace stress is associated with poorer quality teacher-child relationships in Head Start, the nation's largest federally funded early childhood education program.

Methods: Teachers from 37 Head Start programs in Pennsylvania completed an anonymous, web-based survey about workplace stress and the levels of conflict and closeness in their relationships with children in their classrooms. The analysis focused on the association of high conflict (highest quartile) and low closeness (lowest quartile) with the presence or absence of three types of perceived workplace stress: high demands (> median), low control (< median), and low support (< median).

Results: Surveys were completed by 994 teachers (52.0%), of whom 19.8% experienced none of the three types of workplace stress, and 23.3% experienced all three types. Teachers experiencing all three types of workplace stress were more likely than those experiencing no types to report high conflict in their relationships with children, even after controlling for teachers' depressive symptoms and economic stressors (odds ratio [OR] = 1.98, 95% confidence interval [CI]: 1.19-3.29). Only low control was significantly associated with low closeness in teacher-child relationships after adjusting for covariates (OR = 1.50, 95% CI: 1.09-2.05).

Conclusion: Higher levels of perceived workplace stress were associated with higher conflict in teacher-child relationships. Head Start should consider addressing workplace stress as part of its professional development and training activities for teachers.

Intersectionality, Stretched Networks and Job Options for Haitian Immigrants in Philadelphia

Sendy Guerrier

Department of Geography and Urban Studies, College of Liberal Arts

Mentor: Melissa Gilbert

Intersectionality theorists argue that identity categories such as race, class, gender, religion, and nationality are mutually and interdependently constituted and shape every aspect of daily life. Geographers are well positioned to contribute to debates about the empirical power of intersectionality because of the disciplinary focus on spatial materiality and social relations. This study proposes an intersectionality framework that examines how the construction and use of place-based and transnational social networks shape Haitian immigrants' ability to find, maintain, and achieve occupational mobility within the long-term care industry.

Analysis of census data at the national level suggests that the long-term care industry may be a site of significant employment for foreign-born Haitians in the Philadelphia metropolitan region. However, no empirical data exists to support or explain this at the metropolitan scale. Philadelphia is typically a second or third migratory destination for Haitian immigrants within the United States. These immigrants have accumulated social and human capital from their previous migratory transitions, yet still occupy a marginalized labor market position. By constructing a framework to examine the ways in which place-based social networks are constructed and used across transnational social fields and in place, this study seeks to elucidate how social relations existing at multiple scales shape the labor market matching and occupational mobility of an understudied immigrant group.

Developing New Antibiotics: Can Phenstatin Derivatives Limit Bacterial Cell Division by Inhibiting FtsZ Proteins?

Jaileene Hernandez[1], Gíssela Araya Rojas[2], and Octavio Monasterio[2]

[1] Department of Biology, Temple University College of Science and Technology and Temple University Minority Access to Research Careers (TU-MARC) Program; and [2] Departamento de Biología, Facultad de Ciencias, Universidad de Chile

Mentor: Octavio Monasterio

Antibiotic resistance is the ability of a pathogenic microorganism to survive the effects of an antibiotic. Misuse and overuse of antibiotics are major causes of resistance promoting the spread of infectious agents for which few treatment options exist. Developing, testing, and supplying new antibiotics to the general market constitute a very time-consuming and expensive process. In other words, the rate at which new antibiotics are produced lags behind the pathogens' development of resistance.

Phenstatin derivatives are natural antimitotic stilbenes derived from the bark of *Combretum caffrum* bushwillow shrubs growing in South Africa. The most common antibiotic mechanisms inhibit bacterial cell division. An initial step in cell division is the localization of a protein ring in the middle of the cell called the Z-ring, formed by the protein filamentous temperature-sensitive Z (FtsZ). This initial step recruits additional proteins to form the divisome complex. The GTPase activity of FtsZ is essential for the transduction of the chemical energy of GTP hydrolysis into the mechanical force for the shrinking of the membranes. Measuring the FtsZ polymerization provides an assay for functional activity. The critical concentration of FtsZ is the lowest concentration that will polymerize into the Z-ring. From GTPase activity and polymerization measurements, the critical concentration of FtsZ was determined to be ~1.5 µM FtsZ. These assays will be used to test the antibiotic activity of phenstatin derivatives. This research project illustrates the significance of plant derivatives as potential new antibiotic strategies.

Participation and Reflection: A Ritual Towards Understanding Dance

Colleen Hooper

Department of Dance, Boyer College of Music and Dance

Mentor: Karen Bond

This phenomenological study and group discussion were designed to explore how a live dance performance impacted both audience members and performers. Performer and audience responses were gathered about a Fall 2011 restaging of Merían Soto's 1992 piece "Historias." Max van Manen's guidelines were employed to capture lived experience and resulted in the collection of written responses from eight audience members and six principal performers. "Historias" addressed government policies designed to promote sterilization among Puerto Rican women, and many of the respondents wrote about reproduction, bearing children, and their conception of the female body.

The responses were analyzed to create poetic transcriptions according to the methods outlined in Corrine Glesne's 1997 article entitled "That Rare Feeling: Re-presenting Research Through Poetic Transcription." To facilitate a group discussion, dance students, along with Soto and performers from "Historias," were invited to form a circle and recite the poetic transcriptions. This ritual created a safe place to discuss and discover the various reactions that audience members and performers had to the piece.

The poster presentation displays the study methods, explains the collection methods, and provides options for presenting this information in a group discussion. It emphasizes how this process and these methods can be applied to a wide range of dance performances. By inviting audience members and performers to participate and reflect, this study presents a framework that educators can use to investigate a performance's impact.

This poster is scheduled for presentation in October 2012 at the National Dance Education Organization (NDEO) Conference in Los Angeles, CA.

The Impact of Health Center Programs on Community Health

Danielle N. Johnson

Department of Sociology, College of Liberal Arts

Mentor: Gretchen A. Condran

The Community Health Center (CHC) program is a public medical service formalized in the 1960s as an aspect of the federal "War on Poverty" effort. Considered a safety-net program, CHCs primarily serve uninsured populations and/or populations with limited access to quality healthcare. For this reason, the effectiveness of the CHC program is a critical public health issue in the United States.

This study explores the impact of the CHC program through statistical analyses utilizing data from the 2006-2010 American Community Survey and the 2011 Southeastern Pennsylvania Household Health Survey. The foci of the analyses are the identification of population characteristics that increase the likelihood of a CHC being located in a particular community, and the comparison of self-reported health outcomes for individuals living in communities with CHCs to the health of those without immediate access to these services.

After hypothesizing that CHC access would correlate with more favorable self-reported health outcomes for populations, the findings suggest that when controlling for other factors influencing health outcomes, access to a CHC is not a significant factor in determining population health. Although previous research has shown that CHCs significantly improve the health of patients, this study argues that the presence of a CHC alone does not likely lead to improved health conditions for the overall community. A major implication of this finding is the possibility that CHCs do not reach the most vulnerable populations, which remain susceptible to poorer health and distanced from the health care system due to additional barriers to access.

This research was supported by the 2012 First Summers Research Initiative at the Temple University Graduate School.

Investigating the Hyperelasticity of Porcine Aorta Under Sub-failure Loadings

Kaveh Laksari and Mobin Rastgar Agah

Department of Mechanical Engineering, College of Engineering

Mentor: Kurosh Darvish

Studies on the mechanisms of traumatic aortic rupture (TAR) have not gained enough momentum. As a result, the understanding of the behavior of arteries under crash loadings is limited. Although the behavior of blood vessels under physiological conditions has been investigated by many researchers, it is not clear whether the blood vessels behave similarly under post-physiological pressures and deformations.

Modeling the material properties of the aorta under extreme loading is the first step toward a better insight into the mechanism of TAR. For this study, samples of porcine aorta were assembled in an inflation setup capable of generating sub-failure pressures. Pressure inside the samples was increased in quasi-static and sinusoidal profiles and recorded with fiber optic pressure sensors. The deformation of the aorta was captured with two high-speed cameras in 3D. An exponential hyperelastic strain energy function was assumed. By optimization techniques, the martial parameters of the model that could explain the recorded loading deformation were derived. This model can be used in further studies on TAR and in related finite element analysis.

Adhesive Interactions of Biomimetic Functionalized Particles with Endothelium in Bifurcating Microchannels

Giuseppina Lamberti

Department of Mechanical Engineering, College of Engineering

Mentor: Mohammad F. Kiani

Objective: The early inflammation response to tissue injury/infection involves the initiation of the leukocyte adhesion cascade mediated by a series of interactions between receptors and ligands on the endothelium. This study characterizes the adhesion profile of functionalized particles under physiological flow conditions in a microfluidic platform characterized by bifurcations.

Hypothesis: Differences in the level of adhesion of functionalized particles are dependent on ligand-receptor biochemical interactions as well as geometric features of the in vitro channels.

Methods: Functionalized particles were prepared by coating their surfaces with different ratios of antibodies against ICAM-1 and E-selectin (aICAM-1:aE-selectin = 100:0, 70:30, 50:50, 30:70, 0:100). The adhesion of functionalized particles to 4hr TNF-α activated HUVECs under shear flow (0.5, 2, and 4 dyn/cm^2) in bifurcating microchannels and in a parallel plate flow chamber was then quantified.

Results: The level of adhesion of 50:50 aICAM-1:aE-selectin particles was significantly higher compared to other ratios in the bifurcating microchannels (~1.5-4 folds higher). However, in the parallel plate flow chamber, 70:30 aICAM-1:aE-selectin particles exhibited a significantly higher level of adhesion (~1.5-2.5 folds higher). Furthermore, the adhesion of particles in junction regions was about 3-18 folds higher than in straight sections of the microchannels. However, while particle adhesion decreased with increasing shear in straight channels, it increased with increasing shear in the junction regions.

Conclusion: The differential adhesion of particles in bifurcating microchannels and in parallel plate flow chamber indicates that the adhesion profile of particles is highly dependent on the vascular geometry of the system used.

Determining the Role of the Diacylglycerol Kinase (DGK) Catalytic Domains in T Cell Receptor (TCR) Signaling

Melissa Lester[1], Rohan Joshi[2], and Gary Koretzky[2]

[1] Department of Spanish and Portuguese, Temple University College of Liberal Arts and Temple University Minority Access to Research Careers – Undergraduate Student Training for Academic Research (TU-MARC U*STAR) Program; and
[2] Department of Immunology, School of Medicine, University of Pennsylvania

Mentor: Gary Koretzky

In T lymphocytes, after the T cell receptor (TCR) engages antigen, a signaling cascade is triggered through second messengers, including diacylglycerol (DAG). DAG activates pathways critical for T cell activation such as the phosphorylation of ERK. Diacylglycerol Kinases (DGKs) regulate DAG by catalyzing its conversion to phosphatidic acid (PA), thus terminating activation. In the absence of DGKα or DGKζ, isoforms expressed in T cells, T cells have increased proliferation, activation markers, and ERK phosphorylation in response to TCR engagement.

Interestingly, the Koretzky lab has found T cells lacking DGKζ (DGKζKO) have increased ERK phosphorylation compared to T cells lacking DGKα. This difference could be due to differences in expression levels, catalytic activity, or localization of each isoform. Since the catalytic domains have 34% sequence dissimilarity, it is hypothesized that differences in the catalytic activity may account for the differences in ERK phosphorylation. To test this, two chimeric proteins, a DGKα with a DGKζ catalytic domain (DGKα-ζcat) and a DGKζ with a DGKα catalytic domain (DGKζ-αcat), are under design. CD4+ T cells lacking DGKζ will be transduced with these chimeric proteins. It is predicted that re-expression of DGKα-ζcat will suppress ERK phosphorylation to the same degree as wild type (WT) DGKζ re-expression. Conversely, it is predicted that the re-expression of DGKζ-αcat will suppress ERK phosphorylation to the same degree as WT DGKα re-expression. The findings could contribute to the understanding of how DGKs catalyze DAG and the development of DGK isoform specific enzyme inhibitors.

Story Comes Second: Branding Mental Health Among Returning Veterans at the U.S. Department of Veterans Affairs

Mehret Mandefro

Department of Anthropology, College of Liberal Arts

Mentor: Mindie Lazarus-Black

The "Make a Connection" campaign at the U.S. Department of Veterans Affairs (VA) employs social marketing techniques to brand mental health among veterans returning from the Iraq and Afghanistan wars. Social marketing refers to the use of marketing techniques to design and implement programs to promote socially beneficial behavior change. The social marketing of health has long been recognized as an effective tool to promote public health. The VA launched its campaign to better engage veterans and persuade them to establish social ties that teach them how to live well.

This study analyzes the content of the "Make a Connection" campaign to illuminate broader questions concerning the use of media to promote health literacy. By drawing on the targeted ads that comprise the campaign and its social media components, the VA is examined for how it uses media to visually reconceive what it will take to help returning veterans connect with the institution.

It is argued in this study that the VA's approach to branding mental health in the campaign represents a new frontier in the primary prevention of health problems that are referred to as a "story comes second" strategy. By exploring how visual media is taken up in the institutional life of the VA in service of its broader mandate, the study aims to reveal what this new domain of primary prevention offers as a critical intervention for improving the population health of veterans.

Apnea
(TRT: 8:54 minutes)

Manuela Martelli Salamovich (Chile)

Department of Film and Media Arts,
Division of Theater, Film and Media Arts, Center for the Arts

Six-year-old Claire and Maria, her Ecuadorian nanny, take a bath together. They are killing time as they await the arrival of Claire's mom.

This is a film about womanhood and sexuality in a context of social contradictions and cultural differences.

Manuela Martelli Salamovich is currently in Chile working on her thesis film.

American Images of the Middle East: Media Consumers' Perceptions of Arabs, Muslims and Middle Easterners

Jennifer Midberry

Mass Media and Communication Program, School of Media and Communication

Mentors: Deborah Cai and Fabienne Darling-Wolf

This preliminary qualitative study investigates how media consumers negotiate Orientalist depictions of Middle Easterners, Arabs and Muslims and how media visuals shape perceptions about them. In focus groups comprised of 22 Temple University students, informants were interviewed about their attitudes toward, and mental images of, Middle Easterners, Arabs and Muslims. To narrow the focus and to assess more readily the media impact, questions zeroed in on Iraqis. This project investigated the following research questions: What images do Americans have of Middle Easterners, Arabs and Muslims? What terms and images do Americans use to describe them? How might Americans' media consumption shape such mental images?

Three significant findings emerged. First, Orientalist stereotypes depicted in the U.S. media have registered with these participants and shaped their perceptions. Second, many of the informants had inaccurate ideas about the Iraq war in connection to 9/11 and conflated the wars in Iraq and Afghanistan. Third, informants expressed ambivalent ideas about Iraqis that reflected a contrast between their more nuanced personal perceptions of Iraqis and stereotypical media representations.

Disturbingly, this study demonstrates that the most powerful and immediate mental images that came to mind for informants about Iraqis are stereotypical and based on media portrayals. Several more focus groups will be conducted to build on this data. Additionally, future research will focus on ways that people can combat media-influenced stereotypes so that they are not the predominant and immediate images that come to mind about people of other cultures.

Diffusion Tensor Imaging of the Pediatric Thoracic Spinal Cord Using a Short Echo Inner-Field-of-View Sequence

Devon M. Middleton[1,2], Feroze B. Mohamed[1,2], Nadia Barakat[3], Jurgen Finsterbusch[4], Scott H. Faro[1,2], Pallay Shah[1], Amer Samdani[3], and M. J. Mulcahey[3]

[1] Department of Radiology, Temple University School of Medicine; [2] Department of Electrical and Computer Engineering, Temple University College of Engineering; [3] Shriners Hospital for Children, Philadelphia, PA; and [4] University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Mentor: Feroze B. Mohamed

Objective: Diffusion tensor imaging (DTI) of the spinal cord (SC) is a magnetic resonance imaging (MRI) technique that can provide useful information on white matter integrity, but imaging of the thoracic SC (T-SC) is challenging due to physiological motion and small cord size, particularly in pediatric subjects. Using an inner-field-of-view (iFOV) sequence has been shown to be effective in imaging the pediatric cervical SC. This study evaluates the suitability of this technique for the T-SC.

Materials and Methods: Eight pediatric subjects, six typically developing (TD) and two injured, were imaged twice using a 3 Tesla MRI scanner and a newly developed iFOV DTI sequence. DTI images were acquired with 3mm axial slices, 20 diffusion directions, TE 89ms, and TR 7400ms. Motion correction was applied and tensor estimation was performed on the corrected images. Values for fractional anisotropy (FA), mean diffusivity (MD), axial diffusivity (AD), and radial diffusivity (RD) were calculated.

Results: Images were successfully acquired using the iFOV sequence. Mean indices for TD subjects were FA = 0.42±0.05, MD = 0.52±0.09, AD = 0.75±0.09, and RD = 0.40±0.05. Subjects with spinal cord injury showed decreases in FA and increases in diffusivity indices with values of FA = 0.24±0.04, MD = 0.63±0.10, AD = 0.79±0.10, and RD = 0.56±0.09.

Conclusion: The iFOV used was effective in acquiring good-quality DTI images of the pediatric T-SC. Preliminary data shows a decrease in FA in injured subjects as expected, and further data collection can aid in the identification of DTI indices as injury biomarkers.

This research was supported by the Shriners Hospitals for Children Grant #70015.

Topo Gigio is Dead

(TRT: 23:33 minutes)

David Miranda Hardy (Chile)

M.F.A. in Film and Media Arts, 2011

After meeting unexpectedly at a funeral in Philadelphia, two Chileans, Daniela and Thomas, seek to come to terms with their parents' brutal past. Daniela is the daughter of a man tortured by the Pinochet dictatorship. Thomas is the son of the doctor who did the torturing. Both have had to deal with a past that is not theirs, and together they discover a space to question their roles and their inheritance.

Dos chilenos, Daniela y Tomás, se encuentran en Filadelfia. Daniela es hija de un torturado de la dictadura de Pinochet. Tomás es hijo del médico que lo torturó. Ambos han tenido que lidiar con un pasado que no les pertenece y juntos descubren un espacio para cuestionar sus roles y su herencia.

Topo Gigio is Dead has been featured in over 20 international film festivals, including Huelva (Spain), Los Angeles Latino International Film Festival, Starz Denver Film Festival, Toulouse (France), and UNO Port Art Films (Japan). It has been used to lead discussions on human rights and Chilean second generation at Haverford College, Universidad Alberto Hurtado (Chile), the University of Delaware, and Yale University. In October, David Miranda Hardy will use the film in a poster conference panel at “In Search of Peace: Dialogues Between Theories and Practices” for the European Science Foundation in Norrköping, Sweden. He is currently Assistant Professor of Film and Media Culture at Middlebury College in Middlebury, VT.

Identification of Antifreeze Activity in the Alaskan Pollock *Theragra Chalcogramma*

Garvin Peters[1], Arthur L. DeVries[2], and Chi-Hing Christina Cheng[3]

[1] Department of Biochemistry, Temple University School of Medicine and Temple University Minority Access to Research Careers (TU-MARC) Program; [2] Department of Molecular and Integrative Physiology, School of Molecular and Cellular Biology, University of Illinois at Urbana-Champaign; and [3] Department of Animal Biology, School of Integrative Biology, University of Illinois at Urbana-Champaign

Mentors: Chi-Hing Christina Cheng and Arthur L. DeVries

Under subzero conditions in the Arctic seas, several northern cods have evolved novel antifreeze glycoproteins (AFGPs) capable of depressing the freezing point of their blood below that of seawater, allowing them to survive in such a harsh climate. AFGPs have been characterized for several cod species but not for the Alaskan pollock *Theragra chalcogramma,* a member of the cod family.

This study investigated whether antifreeze activity is present in the blood serum of *T. chalcogramma* individuals collected from the Bering Sea. Antifreeze activity was observed in several serum samples and persisted after treatment with trichloroacetic acid and heat (100^{o} C), characteristic of known antifreeze glycoproteins. Protein gel electrophoresis showed that *T. chalcogramma* AFGPs consist of only two size isoforms, significantly fewer than that of other high-latitude cods. To evaluate whether the antifreeze proteins are encoded by AFGP genes, a Southern blot hybridization of *T. chalcogramma* DNA using probes created from the sequences polar cod and Atlantic tomcod AFGP genes was performed. Multiple positive hybridizing bands were observed, supporting the presence of AFGP gene sequences in *T. chalcogramma*. The specific sequence of the genes expressed will be identified, allowing for evolutionary relationships between other species with AFGPs to be established.

A Study of Linguistic Change in the Language Contact Situation of Aruba

Joshua M. Pongan

Department of Spanish and Portuguese, College of Liberal Arts

Mentor: Gerardo Augusto Lorenzino

The native language of Arubans is Papiamento, a creole language with a vocabulary primarily of Spanish origin, but with a distinct grammar. However, within Aruba, multilingualism is the norm. Although it is not an official language in Aruba, Spanish is spoken by the majority of Arubans. When multiple languages are spoken by a community, one may influence another. The purpose of this study was to examine the linguistic contact between Papiamento and Spanish.

While previous research has focused on how Spanish influences Papiamento (Baum, 1976; Eckkrammer, 1994, 2004; Sánchez, 2002, 2005, 2008), this study will contribute to the understanding of linguistic contact by exploring a type of language change underrepresented in earlier studies, namely, the transfer of linguistic features of Papiamento to Aruban Spanish (Vaquero de Ramírez, 1986). Data was collected through sociolinguistic interviews. The presence of Papiamento features in Spanish occurred in the speech of all participants, although the frequency and degree of Papiamento influence varied from speaker to speaker. Examples of Papiamento influence include differences in pronunciation, inconsistency in grammatical gender, variation in use of grammatical aspect and mood, and semantic reinterpretations of words. The differences in how many Papiamento features were observed in the subjects can be attributed to both linguistic factors, such as similarities and difference in language typologies and dialectal variation within Spanish, and non-linguistic factors, such as sex, age, and profession. Future research will include a greater number of participants to allow for a statistical analysis of Papiamento features in the Spanish of local Arubans.

Oprah.com as an Online Resource About Child Sexual Abuse

Elizaveta Provorova

Mass Media and Communication Program, School of Media and Communication

Mentor: Nancy Morris

When people want to find information on a sensitive topic, i.e., one that they feel uncomfortable discussing with others, they often turn to the Internet and peruse various websites in search of relevant information. However, websites can be a useful source of information only if they are appropriately designed. For this study, the website of *The Oprah Winfrey Show* (Oprah.com) was analyzed according to the way it provides information on child sexual abuse, an issue whose significance has been repeatedly emphasized by the show's host.

The hypothesis guiding the research is that, although Oprah.com contains valid information, the way the data is presented defies the purpose of informing survivors and their supporters. The multimodal framework for hypermedia analysis proposed by Pauwels (2012) is used to discuss the website's content choices, navigation options, and interplay of design elements. The analysis shows that the organization of pages about child sexual abuse on Oprah.com is flawed and thus hampers their usability. Therefore, Oprah.com is an example of a website that has the potential to inform people about an important issue but is most likely to fail because of its design and navigation structure.

In conclusion, several recommendations are proposed for how Oprah.com could be improved to better inform survivors of child sexual abuse and their supporters. The value of the study lies in its generalizability. The recommendations for Oprah.com can be used by anyone willing to create a website aimed to raise awareness about child sexual abuse or other similarly sensitive issues.

Habitat Degradation and Lemur Fruit Tree Mutualisms in Madagascar

Kim Reuter

Department of Biology, College of Science and Technology

Mentor: Brent Sewall

The diurnal *Eulemur coronatus* and *E. sanfordi* lemurs can only be found in northern Madagascar, a biodiversity hotspot. Population estimates indicate that only 1,000 to 10,000 *E. coronatus* lemurs remain, with even more reduced *E. sanfordi* lemur populations. How habitat destruction disrupts mutualisms between lemurs and fruit-bearing trees is still unclear, despite the wealth of information that mutualistic networks – mapped mutualistic interactions – can provide to conservation scientists about how habitat degradation is affecting species interactions. Mutualistic networks, which have the power to highlight generalist and specialist species important to ecosystems in a system-wide view that few other analyses methods can provide, could help prioritization of species for conservation purposes.

This study is the first to analyze the mutualistic networks formed by lemurs and other fruit-eating animals with fruit-bearing trees in Ankarana National Park, northern Madagascar, across a gradient of different forest types. From May to August 2012, preliminary data of lemur and frugivore feeding was collected along transects across primary, secondary, and degraded forests. Evidence of human use and habitat sampling data was also collected along these transects. Results will be analyzed using ArcGIS and JMP to highlight how the *E. coronatus* and *E. sanfordi* lemurs are changing their feeding behaviors and preferences over an increasingly disturbed and fragmented habitat. The increased understanding of these interactions will help conservation managers to better plan regeneration programs and predict where ecosystems will experience secondary extinctions or species invasions.

Suppression of Pyrite Oxidation in Acidic Aqueous Environments Using Deferoxamine Mesylate, a Trihydroxamate Siderophore

Amber Riendeau, Ann Valentine, William Wuest, and Daniel R. Strongin

Department of Chemistry, College of Science and Technology

Mentor: Daniel R. Strongin

Siderophores are low molecular weight compounds that coordinate Fe(III) with high affinity in order to solubilize iron not readily available to the microorganisms that require it for growth. Initial studies investigated the effect of siderophores on pyrite (FeS_2) oxidation, which include iron oxyhydroxide and sulfate products. Batch geochemical kinetic reaction studies examined the oxidation of pyrite in the presence of 100 μM deferoxamine mesylate, a trihydroxamate siderophore.

Release of SO_4^{2-} was measured using ion chromatography. UV-vis spectrometry was used to monitor the formation of the Fe-DFOB complex, which has a characteristic band in the 430-450 nm range. The surface of these complexes was evaluated using ATR-FTIR spectroscopy to construct a molecular level of understanding of the mechanism associated with the oxidation suppression.

Both batch reaction and spectroscopic results show that the siderophore significantly suppressed pyrite oxidation. The absence of the characteristic band for the Fe-DFOB complex in the UV-vis spectra suggests that chelation of iron by the siderophore may not play a role in the suppression of pyrite oxidation. This is further reinforced by the appearance of the vibrational mode at 1582 cm^{-1} in the ATR-FTIR spectrum, which is associated with the C=O bend (hydroxamic/hydroxamate) of the siderophore. This potentially suggests that the siderophore may be forming a protective coating on the surface, blocking molecular oxygen from adsorbing onto the pyrite surface and thus preventing oxidation from occurring. Future studies will use ATR-FTIR spectroscopy to monitor the oxidation of pyrite in the presence of deferoxamine mesylate in situ.

This poster was presented in August 2012 at the 244th American Chemical Society National Meeting and Exposition in Philadelphia, PA. The research was supported by the 2012 First Summers Research Initiative at the Temple University Graduate School.

Hyperspectral and Tactile Imaging of Canine Mammary Tumors

Amrita Sahu, Firdous Saleheen, Vira Oleksyuk, Rachael Gaeta, Karin Sorenmo, and Chang-Hee Won

Department of Electrical and Computer Engineering, College of Engineering

Mentor: Chang-Hee Won

Background: Hyperspectral and tactile imaging systems are used to characterize the mechanical and spectral properties of canine mammary tumors. This system provides a non-invasive method of differentiation between malignant and benign tumors. The Tactile Imaging System (TIS) consists of a sensing probe, light source, and a camera. The images obtained from the system are used to develop an image processing algorithm to discern malignancy of the tumor. Dogs are often present with multiple mammary tumors in various stages of transformation and are ideal models to test this technology.

Hypothesis: Malignant tumors will have different tactile and spectral properties due to differences in elasticity, size, and mobility, as well as tissue oxygenation and blood supply.

Methods: Five spontaneous mammary tumors were included in this feasibility study. The hyperspectral and tactile images were captured prior to surgery, and the results were correlated to histopathological diagnosis to develop the algorithm.

Results: Out of five mammary tumors, three were benign and two were malignant. The malignant tumors were larger and had higher relative elasticity than the benign tumors. Benign tumors had an average of 20 arbitrary units of higher reflectance intensity at 730nm wavelength than malignant tumors.

Conclusion: Results confirm the utility of the hyperspectral and tactile system. The preliminary results support that this method will provide a safe alternative to test for mammary tumor malignancy.

This research was supported in part by the Pennsylvania Department of Health's Health Research Formula Fund through the Office of the Senior Vice Provost for Research and Graduate Education at Temple University and the Germinator Fund through BioStrategy Partners.

Interfacial Engineering of Pyridinium Gemini Surfactants in Novel Synthetic Transfection Systems with Enhanced Efficiency

Vishnu Dutt Sharma, Eronmwon A. Aifuwa, and Marc A. Ilies

Department of Pharmaceutical Sciences, School of Pharmacy

Mentor: Marc A. Ilies

Objective: The goal is to develop novel transfection systems for gene delivery with high efficiency and low cytotoxicity that are able to treat diseases at their core level using genetic material as drug.

Hypothesis: Pyridinium gemini surfactants appropriately designed and formulated can efficiently compact and deliver DNA.

Methods: Eighteen pyridinium gemini surfactants with hydrophilic linkers were synthesized from lipophilic pyrylium salts. The impact of chain length and counterion on the self-assembling process was studied in bulk and in solution via DSC, nanoDSC, conductivity experiments, DLS, and zeta potential measurements. The ability of resulting self-assemblies to condense DNA, either alone or as co-formulated with DOPE or cholesterol, was investigated through DLS, zeta potential measurements, and gel electrophoresis. Lipoplexes were assessed for transfection on the NCI-H23 cancer cell line against standard commercial transfection systems. Cytotoxicity experiments were performed using WST-1 assay.

Results: Self-assembling of gemini surfactants in bulk was found to increase monotonously with elongation of chain length from 10 to 17 carbon atoms and to depend strongly on the counterion. Efficient compaction of DNA was observed when pyridinium amphiphiles were co-formulated with DOPE or cholesterol. Among the counterions, chloride gave maximum transfection efficiency. Gemini surfactants C-16 and C-17 displayed higher transfection efficiency than Lipofectamine® in the presence of elevated serum levels.

Conclusion: Self-assembling properties of novel pyridinium gemini surfactants were found to be strongly correlated with their ability to condense and transfect DNA into lung cancer cell lines. Two formulations surpassed standard transfection systems at elevated serum concentrations that mimicked in vivo conditions.

Spectral Properties of the Reflection Operator in Two Dimensions

Eric Strachura[1], Irina Mitrea[1], and Katharine A. Ott[2]

[1] Department of Mathematics, Temple University College of Science and Technology; and [2] Department of Mathematics, University of Kentucky

Mentor: Irina Mitrea

The radiosity equation is a boundary integral equation that models the energy transfer between different parts of a surface. Techniques from functional analysis are used to discuss solutions of this equation, given initial data in the Lebesgue scale of p-integrable functions, i.e., in L^p, for $1 < p < \infty$. In particular, under study are the spectral properties of the reflection operator, a singular integral operator arising naturally in this setting, as it acts on infinite angles in two dimensions. More specifically, in this geometric context, an explicit characterization of the spectrum, spectral radius formulas, and spectral radius estimates for the reflection operator acting on L^p are established. This analysis is relevant to the solvability of the radiosity equation with L^p data since when the spectral radius is less than one, the solution can be expressed as a convergent Neumann series. Future directions of this research include applications of these results to more general geometric settings.

How Does Employee Satisfaction Affect Corporate Innovation?

Jamie Weathers

Department of Finance, Fox School of Business and Management

Mentor: Connie X. Mao

This study proposes a new channel by which employee satisfaction affects firm value: corporate innovation. In the current economy, human, rather than physical, capital is particularly important since the growth and success of a corporation depends on quality and innovation (Zingales, 2000). In the human relations theories (e.g., Hertzberg, 1959; Maslow, 1943; McGregor, 1960), employees are perceived as key organizational assets, rather than expendable commodities. Employees can create substantial value by inventing new products or building client relationships.

These theories suggest that employee satisfaction, resulting from better treatment, greater loyalty, and higher job security, can improve retention and be an incentive to innovate. On the other hand, employee satisfaction might be associated with less incentive to innovate. Innovation involves the exploration of new untested approaches that are likely to fail. A success of innovation often comes after several failures. In other words, innovation activities tend to be much riskier than exploitation activities, which are repetitions of the conventional work method. The agency theory suggests that higher job security associated with employee satisfaction might spur complacency, thus leading to employees' unwillingness to take on risky innovative projects. As a result, employee satisfaction is associated with a lower level of innovation.

This study examines the relationship between employee satisfaction and corporate innovation. Thus far, a significantly higher level of innovation productivity among firms exhibiting employee satisfaction has been found, although no significant difference in the quality of innovation has been noted. Further analyses will be conducted to dissect the causality between employee satisfaction and corporate innovation.

Deer
(TRT: 37:00 minutes)

Alessandro Zangirolami (Italy)

M.F.A. in Film and Media Arts, 2012

Keith is a man battling systems larger than himself: his nervous system, the system of his thoughts, the court system. His body moves without his consent, his mind and mouth follow. Keith is a man struggling to maintain custody of his young son Darren, a piece of him, his hope for the future, his lifeline to the outside world. Simultaneously, the film tracks Keith's battle to remain in control of his own life, in his relationships with his ex-wife Rachel, and his struggle to maintain control over Tourette's syndrome. Keith cannot express his own feelings. Or maybe he cannot stop expressing his own feelings. We are left to make up our own minds which one it is.

Alessandro Zangirolami recently moved to London.

Crying Soldiers and Wild Indians: A Field Report on the 2012 Media Wars in Cauca, Colombia

Autumn Zellers

Department of Anthropology, College of Liberal Arts

Mentor: Paul Garrett

In July 2012, confrontations between the FARC guerrillas and the Colombian military came to a head in indigenous territories in the department of Cauca in southwest Colombia. In response, indigenous communities demanded the expulsion of all armed groups, legal and illegal, from their territories. This study explores how media coverage of indigenous peoples' interactions with the Colombian military during this time projected views of indigenous peoples to the broader national public. This coverage represented indigenous demands and actions in response to the conflict as essentially uncharacteristic or aggressive, or worse, as collaborative with guerrilla groups in the area who also sought the expulsion of the military.

The media's representation of the indigenous can be traced to the historical view of the Indian as the noble savage who is passive and naturalistic. Such passivity translates, in political terms, to one who is incapable of making autonomous decisions. This was reflected maximally through the circulation in national television news of an image of an army sergeant crying in response to the relocation of his troop from its base camp at the demand of the indigenous community. These events provoke further questions about how the Caucan indigenous movement is shaped by media representation as these peoples struggle to politically distinguish themselves from the guerrillas. Looming in the background of the debates is the issue of drug trafficking – and the limits of cultural and political autonomy in a territorial context that is structured on narcotic production and international circulation.

Graduate Fellows
at Temple University
study and learn,
conduct research,
and excel in
a variety of disciplines.

Fourth Annual

Temple University
Graduate Fellows Research Symposium

September 15, 2012

Notes

Notes

Fourth Annual

Temple University
Graduate Fellows Research Symposium

September 15, 2012

Notes

Notes