**Friday, February 22, 2019**

To assist you in finding meeting rooms, we include a map of the Tampa Airport Marriott on the inside cover page.

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<th>Time</th>
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<td>12:00 P.M.</td>
<td>Grand Ballroom Foyer</td>
<td><strong>REGISTRATION</strong></td>
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| 1:00 - 2:20 P.M. | Pinellas Room         | **SESSION 1**
|               |                           | Writing the Prospectus and Dissertation                                |
|               |                           | • Dr. Marvin Dawkins, Professor, Department of Sociology, Miami School |
| 2:30 - 3:45 P.M. | Pinellas Room         | **SESSION 2**
|               |                           | How to Prepare for the Comprehensive Exam                              |
|               |                           | • Dr. Iraida Carrion, Associate Professor, School of Social Work, University of South Florida |
|               |                           | • Dr. Sylvia Thomas, Associate Professor, Department of Electrical Engineering, University of South Florida |
| 3:55 - 5:25 P.M. | Pinellas Room         | **SESSION 3**
|               |                           | Achieving Precision, Coherence, and Clarity in Academic Writing        |
|               |                           | • Dr. Elizabeth Metzger, Associate Professor, Department of English, University of South Florida |
|               |                           | • Dr. Vernetta Williams, Assistant Professor, Department of English, University of South Florida |
| 6:00 - 8:30 P.M. |                          | **DINNER ~ Grand Ballroom East**                                    |
|               |                           | Welcome and Occasion                                                  |
|               |                           | • Dr. Lawrence Morehouse, President and CEO, FEF                      |
|               |                           | MDF Online Writing Workshops                                          |
|               |                           | • Lyra Logan, Esq., Executive Vice President & General Counsel, FEF    |
|               |                           | Fellow Presentations                                                  |
|               |                           | • Mohammed Gbadomosi, UF (2017), Pharmaceutical Sciences, & Quanti          |
|               |                           | • Stephanie Diaz, UM (2018), Ecology, & Quanti                        |
Saturday, February 23, 2019

8:00 A.M.
REGISTRATION ~ Grand Ballroom Foyer
BREAKFAST ~ Grand Ballroom Foyer

8:45 - 9:05 A.M.
OPENING SESSION ~ Grand Ballroom West
Introduction of Discussants
• Dr. Lawrence Morehouse, President and CEO, FEF

9:15 - 10:30 A.M. ~ Collier Room
PANEL 1 — Nutrition and Empowerment: Perspectives from Kinesiology, Public Health and Anthropology
• Judith Williams, Panel Chair, FIU (2015), Anthropology, “The Maître Divas de Wynwood: Culinary Consumption and the Black Aesthetic in Hip, Haute, Cuisine”
• Yvette Figueroa, UM (2016), Kinesiology, “The Impact of Total Caloric and Macronutrient Consumption on Strength and Power During an Off-Season Training Program in Collegiate Volleyball Players”
• Katie McNamara, UF (2017), Public Health, “Decolonizing the Community Voice: How (Re)Constructing Empowerment Can Create Pathways to Improved Nutrition in Nepal”

Discussant (15 minutes)
- Dr. Chante Washington-Oates, Postdoctoral Associate, University of Miami

Audience – Q&A (10 Minutes)

9:15 - 10:30 A.M. ~ Sarasota Room
PANEL 2 — Contemporary Research in the Biological Sciences: A Focus on Gene Therapy, Cancer Cell Detection and Phylogenetic Reconstruction
• Dr. Henrietta Fasanya, Panel Chair, UF (2013), Biological Sciences, “Use of Ganglioside 2 and 3 as an Immunoaffinity Target for Circulating Osteosarcoma Cell Detection”
• Enrico Barrozo, UF (2015), Biological Sciences, “Gene Therapy for Ocular Herpes”
• Alexandra Hernandez, UF (2016), Biological Sciences, “Does Recoding Improve Phylogenetic Reconstruction?”
• Jessica Lewis, UF (2016), Biomedical Sciences, “The Role of USF1 in the Regulation of Lipogenesis and Breast Cancer Tumor Progression”

Discussants (15 minutes)
- Dr. Marianne Porter, Assistant Professor, Department of Biological Sciences, Florida Atlantic University
- Dr. Joseph Ryan, Assistant Professor, Whitney Laboratory for Marine Bioscience, University of Florida

Audience – Q&A (10 Minutes)

9:15 - 10:30 A.M. ~ Hernando Room
PANEL 3 — An Examination of Informal Entrepreneurial Firms, Intrinsic Bubbles in Stock Prices and Investor Reaction to Supplier Diversity
• Andria Hill, Panel Chair, UCF (2016), Accounting, “Investors’ Reactions to Supplier Diversity Disclosures”
• Faisal Awwal, FIU (2016), Finance, “Intrinsic Bubbles in Stock Prices Under Persistent Dividend Growth Rates”
• Everlyne Misati, FIU (2018), Management, “Essays on Informal Entrepreneurial Firms”

Discussants (15 minutes)
- Dr. Vivek Bhargava, CFA, Professor of Finance and Associate Dean of Faculty & Administration, Florida Gulf Coast University
- Dr. Delroy Hunter, Serge Bonanni Professor of International Finance, University of South Florida
- Dr. Daphne Simmonds, Assistant Professor, Department of CIS and Business Analytics, Metropolitan State University of Denver

Audience – Q&A (10 Minutes)
### 9:15 - 10:30 A.M. ~ Pasco Room

**PANEL 4** — Frontiers in Environmental Engineering: An Examination of Hydraulic Efficiency, Reusable Nutrient Recovery and PRO as an Efficient Means for Desalination


Discussants (15 minutes)

- **Dr. Fernando Gonzalez**, Associate Professor, Department of Bioengineering, Florida Gulf Coast University
- **Dr. Claude Villiers**, Associate Professor, Department of Environmental & Civil Engineering, Florida Gulf Coast University

Audience – Q&A (10 Minutes)

### 9:15 - 10:30 A.M. ~ Pinellas Room

**PANEL 6** — Psychology and Communication Sciences and Disorders: The Impact of Motor Skills on Language Growth, Vestibular Function and Cognitive Impairment, and Brain Training

- **Liana Mentor, Panel Chair**, UM (2014), Psychology, “A Case Study: Programs for Black Males at Predominantly White Institutions”

Discussants (15 minutes)

- **Dr. Michelle R. Dunlap**, Professor of Human Development, Connecticut College
- **Dr. Laura Kohn-Wood**, Dean, School of Education & Human Development, University of Miami

Audience – Q&A (10 Minutes)

### 9:15 - 10:30 A.M. ~ Lee Room

**PANEL 5** — Significant Research in Elementary and Secondary Education

- **Sherrina Lofton, Panel Chair**, FSU (2014), Education
- **Deborah McEwan**, FAU (2014), Education, “The Perspectives of Black Church Leaders on Their Roles on the Empowerment of Black Male Students”

Discussants (15 minutes)

- **Dr. Tony Barringer**, Associate Provost & Associate Vice President for Academic Affairs, Florida Gulf Coast University
- **Dr. Sonja Montas-Hunter**, Assistant Vice-Provost, Office of Student Access & Success, Florida International University

Audience – Q&A (10 Minutes)

### 9:15 - 10:30 A.M. ~ Manatee Room

**PANEL 7** — Research Frontiers in Physics: An Examination of Solid State Nuclear Magnetic Resonance and LAMIS Signal Analysis

- **Dr. Candace Harris**, FAMU, Physics, “Partial Least Squares Calibration Modeling Towards the Multivariate Limit of Detection for Enriched Isotopic Mixtures via Laser Ablation Molecular Isotopic Spectrometry”

Discussant (15 minutes)

- **Dr. Ghanim Ullah**, Assistant Professor, Department of Physics, University of South Florida

Audience – Q&A (10 Minutes)
Panel 8 — Innovations in Electrical Engineering: An Examination of Ink Jet Sensing, Smart Grid Cyberattack Response, and SDN Infrastructures


Discussants (15 minutes)

- Dr. Prabir Barooah, Associate Professor, Department of Mechanical and Aerospace Engineering, University of Florida
- Dr. Ali Gordon, Associate Dean and Associate Professor, Department of Mechanical and Aerospace Engineering, University of Central Florida
- Dr. Arif Sarwat, Associate Professor and Director, FPL-FIU Solar Research Facility, Department of Electrical and Computer Engineering, Florida International University

Audience – Q&A (10 Minutes)

Panel 9 — Innovation in Mechanical Engineering: Baffle Devices and Acoustic Dissipation, Improved Battery Performance, Power Grid Supply, and the Design of Detonation Based Engines

- Kendall Parker, Panel Chair, UF (2017), Mechanical Engineering, “Determining Reserve Requirements for Energy Storage to Manage Demand-Supply Imbalance in Power Grids”

Discussants (15 minutes)

- Dr. Prabir Barooah, Associate Professor, Department of Mechanical and Aerospace Engineering, University of Florida
- Dr. Ali Gordon, Associate Dean and Associate Professor, Department of Mechanical and Aerospace Engineering, University of Central Florida
- Dr. Arif Sarwat, Associate Professor and Director, FPL-FIU Solar Research Facility, Department of Electrical and Computer Engineering, Florida International University

Audience – Q&A (10 Minutes)

**MDF TIPS on Selecting the Best Analytical Software**

- Consider not only the strengths of the software, but also the breadth of coverage and how the package can combine with other software to achieve a desired goal.
- Realize that the long-term strategic usefulness of a package may be more important than its initial ease of use.
- Make sure the software allows the researcher to use the most appropriate statistical model.
- Choose a package that makes it easier to interpret results and illustrate them through graphs or tables.
- Be aware that specific-purpose software will cost more.
Saturday, February 23, 2019

10:40 - 11:55 A.M. ~ Hernando Room

PANEL 10 — The Problem of Race and Class in the American Criminal Justice System with a Specific Focus on Juvenile Delinquency and Drug-Related Arrest

• Jorge Hernandez, Panel Chair, FSU (2016), Criminology, “Racial Differences in Adolescent Delinquency: Examining Peer Delinquency and the Conditioning Effect of Neighborhood Context”

• Oshea Johnson, UM (2016), Sociology, “Same Problem, Different City: Racial Disparities in Drug-Related Arrests and Charging Decisions in Miami-Dade County”

Discussants (15 minutes)

- Dr. Marisa Omori, Assistant Professor of Sociology, University of Miami
- Dr. Eric Stewart, Ronald Simons Professor of Criminology, College of Criminology and Criminal Justice, Florida State University
- Dr. Brian Stults, Associate Professor, College of Criminology & Criminal Justice, Florida State University

Audience – Q&A (10 minutes)

10:40 - 11:55 A.M. ~ Collier Room

PANEL 11 — Crises in Public Health: The Impact of the Decline in Breast Feeding, Recreational and Medical Use of Marijuana, Cervical Cancer Prevention, and Health Crises in African American Rural Communities

• Alexis Barr, Panel Chair, USF (2012), Public Health, “Promoting and Supporting Breastfeeding in the Hospital: Factors Associated with Breastfeeding Cessation at One Month Among WIC Participants”

• Shawnta Lloyd, UF (2017), Public Health, “Gender Differences in Driving Under the Influence of Marijuana: The Role of Medical and Recreational Marijuana Use”


• Calandra Whitted, FAMU (2018), Public Health, “Exploring the Influence of Family Health History in Rural African American Communities”

Discussants (15 minutes)

- Dr. Diane Allen-Gipson, Associate Professor, Department of Pharmaceutical Sciences, University of South Florida
- Dr. Chante Washington-Oates, Postdoctoral Associate, University of Miami

Audience – Q&A (10 Minutes)

10:40 - 11:55 A.M. ~ Pinellas Room

PANEL 12 — Psychology and New Technology: An Examination of the Impact of Technology on Employee Well-Being and Mobile Cognitive Assessment

• Vanessa Quiroz, Panel Chair, FIU (2014), Psychology, “The Impact of Technological Demands on Employee Well-Being and Performance”

• Betsir Zemen, UCF (2014), Psychology, “The Effect of Item Scrolling Requirements and Item Types on Mobile Cognitive Assessment”

Discussants (15 minutes)

- Dr. Michelle R. Dunlap, Professor of Human Development, Connecticut College
- Dr. Laura Kohn-Wood, Dean, School of Education & Human Development, University of Miami

Audience – Q&A (10 Minutes)
Saturday, February 23, 2019

10:40 - 11:55 A.M. ~ Sarasota Room

PANEL 13 — Chemical Analysis and Technological Innovation: Practical Applications of Identity Signatures, Semiconductor Fabrication, and Improved Hydrogen Production Techniques
• Chantrell Frazier, Panel Chair, FIU (2017), Chemistry
• Alice Boone, FIU (2016), Chemistry, “The Enhancement of Human Scent Profiles as Forensic Evidence”
• David Brown, UF (2015), Chemical Engineering, “Stability of Epitaxial Pseudocubic Group IV-V Semiconductors”
• Alyssa Rose, FSU (2014), Chemistry, “1H NMR Characterizations of Hydrogen Generation Catalyst, Spillover, and Participation in Electrochemical Processes”

Discussant (15 minutes)

- Dr. Sheeba Varghese Gupta, Assistant Professor, College of Pharmacy, University of South Florida

Audience – Q&A (10 Minutes)

10:40 - 11:55 A.M. ~ Citrus Room

PANEL 15 — Contemporary Advances in Computer Science: An Analysis of Histogram Layer, Cache Performance and Replacement Algorithms
• Joshua Peeples, Panel Chair, UF (2017), Computer Engineering, “Histogram Layer: A Novel Approach to Feature Engineering”

Discussants (15 minutes)

- Dr. Nasir Ghani, Professor, Department of Electrical Engineering, University of South Florida and Research Liaison, Cyber Florida
- Dr. Lawrence Hall, Distinguished University Professor, Department of Computer Science and Engineering, University of South Florida
- Dr. Alina Zare, Associate Professor, Department of Electrical and Computer Engineering, University of Florida

Audience – Q&A (10 Minutes)

10:40 - 11:55 A.M. ~ Lee Room

PANEL 14 — Significant Research in Post-Secondary Education
• Sherrina Lofton, Panel Chair, FSU (2014), Education
• Frank Conic, UF (2018), Education, “Analysis of the Impact of SB 1720 on Gateway Mathematics Courses”
• WillieMae (India) White, UF (2015), Education, “The TSIC Attainment Gap”
• Selene Willis, USF (2015), Education, “(Re)Presenting Socioscientific Issues (SSI) Curriculum to Address Equity and Social Justice”

Discussants (15 minutes)

- Dr. Tony Barringer, Associate Provost & Associate Vice President for Academic Affairs, Florida Gulf Coast University
- Dr. Sonja Montas-Hunter, Assistant Vice-Provost, Office of Student Access & Success, Florida International University

Audience – Q&A (10 Minutes)

MDF WRITING TIP

- When writing a journal article, shift gears from student to authority on your subject. Your literature review should contain essential resources, but it doesn’t have to be exhaustive. Avoid too much repetition. You don’t have to announce and summarize each point as in a dissertation. Include recent, relevant research; state your insights; and accept responsibility for your assertions.
Saturday, February 23, 2019

10:40 - 11:55 A.M. ~ Pasco Room

PANEL 16 — Environmental Engineering: An Examination of Resistant Genes in Greywater, Remediation of Water Pollutants, and the Mechanical Properties of Bamboo

• Michelle Henderson, Panel Chair, USF (2016), Environmental Engineering, “Quantifying Antibiotic Resistant Genes from Bacteria in Greywater from Suburban Israel”
• David Perez, FAMU (2018), Environmental Engineering, “Remediation of Water Pollutants and Pathogens Within Household Water in Rural South India”
• Lorena Sanchez, USF (2018), Environmental Engineering, “Effect of Bamboo’s Mechanical Properties Due to Treatment, Type, Age, Moisture Content & More As Well As Discussion on Bamboo Pestilence and Standards: A Literature Review”

Discussants (15 minutes)

- Dr. Christopher Alexander, Assistant Professor, Department of Civil and Environmental Engineering, University of South Florida
- Dr. Seneshaw Tsegaye, Assistant Professor, Department of Environmental & Civil Engineering, Florida Gulf Coast University
- Dr. Qiong (Jane) Zhang, Associate Professor, Vasant Surti Faculty Fellow, Civil and Environmental Engineering Department, University of South Florida

Audience – Q&A (10 Minutes)

12:00 - 2:00 P.M. ~ Grand Ballroom East

LUNCHEON

• Dr. Henrietta Fasanya, UF (2013), Biological Sciences, “Use of Ganglioside 2 and 3 as an Immunoaffinity Target for Circulating Osteosarcoma Cell Detection”

2:15 - 3:45 P.M. ~ Sarasota Room

PANEL 17 — Cutting Edge Research in Biomedical Science and Biochemistry: A Focus on Human Papilloma Virus, Histone Variant in DNA Repair, Protein and Polymer Designs, and the Effects of Hormones on Neural Representation

• Connie Tenorio, Panel Chair, FSU (2014), Biochemistry, “Incorporating a Functional Mutation Into a Symmetric Scaffold as Proxy for Functional Adaptation via Rearrangement of Its Folding Nucleus”
• Nella Delva, FSU (2018), Biomedical Sciences, “Does HPV Inactive in Head and Neck Cancer Influences E6 and E7 Oncoproteins?”
• Ernest Phillips, FSU (2017), Biomedical Sciences, “Role of Histone Variant H3.3 in DNA Repair”
• Kristin Schoepfer, FSU, Biochemistry, “Gender Differences and Effects of Hormones on the Neural Representation of Anxiety in Rats”

Discussants (15 minutes)

- Dr. Blanca Camoretti-Mercado, Assistant Professor, Department of Medicine, University of South Florida
- Dr. Mark Kindy, Professor, Department of Molecular Pharmacology & Physiology, University of South Florida
- Dr. Saeid Taheri, Associate Editor, Journal of Alzheimer’s Disease and Assistant Professor, Byrd Alzheimer’s Institute, University of South Florida

Audience – Q&A (10 Minutes)

MDF WRITING TIP

• Don’t let perfectionism stop you from completing your projects. Just do the best you can.
Saturday, February 23, 2019

2:15 - 3:45 P.M. ~ Citrus Room

PANEL 18 — Ecology and Biological Sciences: An Examination of Environmental Policy and Efforts to Preserve the Florida Manatee and African Elephants

• **Haydee Borrero, Panel Chair**, FIU (2014), Ecology, “Habitat and Phorophyte Comparisons of the Mule-Ear Orchid, Trichocentrum Undulatum Between the Core and Edge Distribution: A Cuba and Southern Florida Story”


• **Danielle Ingle**, FAU (2018), Biological Sciences, “Mechanical Behavior of Vertebral Trabecular Bone Varies Regionally and Ontogenetically in the Florida Manatee (Trichechus Manatus Latiostris)”

Discussants (15 minutes)

- **Dr. Hong Liu**, Associate Professor, International Center for Tropical Botany and the Department of Earth and Environment, Florida International University, and Research Associate, Fairchild Tropical Botanic Garden

Audience – Q&A (10 minutes)

2:15 - 3:45 P.M. ~ Collier Room

PANEL 19 — Innovations in Pharmaceutical Sciences: Improving Treatments for Acute Myeloid Leukemia and Sickle Cell Diseases

• **Mohammed Gbadomosi, Panel Chair**, UF (2017), Pharmaceutical Sciences, “Preliminary LASSO Regression Analysis Identifies DNA-Damage Gene Expression Signature Predictive of Clinical Outcomes in Patients Using Gemtuzumab Ozogamicin”

• **Motomori Lewis**, UF (2018), Pharmaceutical Sciences, “Evaluating the Prevalence and Factors Associated with Hospital Readmissions in Patients with Sickle Cell Disease: A Review of Literature”

Discussants (15 minutes)

- **Dr. Diane Allen-Gipson**, Associate Professor, Department of Pharmaceutical Sciences, University of South Florida

- **Dr. Sheeba Varghese Gupta**, Assistant Professor, College of Pharmacy, University of South Florida

Audience – Q&A (10 Minutes)

2:15 - 3:45 P.M. ~ Lee Room

PANEL 20 — Current Topics in Urban Planning, Public Affairs and Foreign Policy

• **Torrian Pace, Panel Chair**, UF (2015), Political Science

• **Shanice Jones**, FSU (2017), Urban Planning/Public Administration, “Conceptualizing Action Early in the Collaborative Process: Driving Forces that Build Capacity for Collaboration Implementation”

• **Rachael Mack**, UCF (2016), Public Affairs, “Strengthens from Within: A Qualitative Study Examining Key Factors Which Strengthen African American Families”

• **Camara Silver**, USF (2015), Political Science, “Domestic Constraints of American Foreign Policy: The Cases of Rwanda and Haiti”

Discussants (15 minutes)

- **Dr. Atalie Ashley-West**, Administrator, Community Action Division, Orange County Government

- **Dr. Bernd Reiter**, Professor and Graduate Director, Department of Government & International Affairs, University of South Florida

Audience – Q&A (10 Minutes)

**MDF WRITING TIP**

- Writing is hard work, and routine practice is better than waiting for inspiration.
Saturday, February 23, 2019

2:15 - 3:45 P.M. ~ Pinellas Room

**PANEL 21 — Chronic Issues in the Health Sciences: New Strategies for Heart Failure and HIV Patients**


Discussants (15 minutes)

- **Dr. Harleah Graham Buck**, Associate Professor, College of Nursing, University of South Florida
- **Dr. Debbie Devine**, Research Associate, Tampa’s James A. Haley’s (VA), Health Services Research and Development Service Center of Innovation on Disability and Rehabilitation Research; and Adjunct Clinical Faculty, College of Nursing, University of South Florida
- **Dr. Jessica Gordon**, ARNP, CPNP-PC, Assistant Professor, College of Nursing, University of South Florida

Audience – Q&A (10 Minutes)

2:15 - 3:45 P.M. ~ Hernando Room


- **Dr. Rocio Lalanda, Panel Chair**, USF, Geosciences, “Understanding Agricultural-Land Conservation from the Perspective of Landowners in Franklin County, Massachusetts”
- **Tonian Robinson**, USF, Geosciences, “A Correlation of Interferometric Synthetic Aperture Radar (InSAR)-Derived Subsidence Velocities with Ground-Based Estimates of Sinkhole Activity, West-Central Florida, USA”

Discussant (15 minutes)

- **Dr. Darlene Lott**, Adjunct Physics Instructor, Hillsborough Community College

Audience – Q&A (10 Minutes)

2:15 - 3:45 P.M. ~ Pasco Room

**PANEL 23 — Significant Discoveries in Materials Science and Electrical and Mechanical Engineering**


Discussants (15 minutes)

- **Dr. Fernando Gonzalez**, Associate Professor, Department of Bioengineering, Florida Gulf Coast University
- **Dr. Seneshaw Tsegaye**, Assistant Professor, Department of Environmental & Civil Engineering, Florida Gulf Coast University
- **Dr. Claude Villiers**, Associate Professor, Department of Environmental & Civil Engineering, Florida Gulf Coast University

Audience – Q&A (10 Minutes)

2:15 - 3:45 P.M. ~ Grand Ballroom West

**PANEL 24 — Innovations in Electrical Engineering: In-Stream Hydrokinetic Energy and Battery Life Cycle**

- **Brittny Freeman**, FAU (2017), Electrical Engineering, “FAST-Based In-Stream Hydrokinetic Generation System Modeling for MCM and PHM”

Discussants (15 minutes)

- **Dr. Prabir Barooah**, Associate Professor, Department of Mechanical and Aerospace Engineering, University of Florida
- **Dr. Ali Gordon**, Associate Dean and Associate Professor, Department of Mechanical and Aerospace Engineering, University of Central Florida
- **Dr. Arif Sarwat**, Associate Professor and Director, FPL-FIU Solar Research Facility, Department of Electrical and Computer Engineering, Florida International University

Audience – Q&A (10 Minutes)
Saturday, February 23, 2019

4:00 - 4:15 P.M. ~ Grand Ballroom West

CLOSING REMARKS

- Lawrence Morehouse, Ph.D., President & CEO, FEF and Charles Jackson, M.P.A., MDF Program Manager, FEF

Advance Your Writing Projects at the SRWI!

2019 SUMMER RESEARCH AND WRITING INSTITUTE

FEF invites you to participate in the 2019 Summer Research and Writing Institute (SRWI), tentatively scheduled for July 28-31.

- Discover the essentials of dissertation writing -- how to write the literature review, theory and methods, analysis and results, and concluding chapters -- in a workshop serving your discipline tract (either social and behavioral sciences, engineering, or physical sciences).

- Practice using SPSS, SAS, and/or STATA software in interactive skill-refresher workshops.

- Review writing fundamentals in the Writing Mechanics workshops for both social and physical sciences.

- Work with professional copy editors to revise your writing.

- Participate in peer reviews of your own and your colleagues’ work.

- Develop a competitive grant proposal in interactive grant writing workshops conducted by highly successful grant writers and administrators from government, corporations, and private foundations.

- Refine your grant proposals in individual consultations with successful grant writers and administrators.

- Learn how to convert your dissertation into a publishable manuscript.

- Discuss best practices for publishing in university and commercial presses and in leading social science, engineering, and physical science journals with senior acquisition editors and distinguished university professors.

- Consult with senior acquisition editors from university and commercial presses, editors from leading scholarly journals, and distinguished university professors about publishing your research.

- Collaborate with McKnight Doctoral Fellows, professors, and university administrators on research and other professional projects.

To register for the 2019 SRWI,
contact Phyllis Reddick at 813-272-2772
or at fef@fefonline.org.
Research Abstracts

PANEL 1 - Nutrition and Empowerment: Perspectives from Kinesiology, Public Health and Anthropology

The Impact of Total Caloric and Macronutrient Consumption on Strength and Power During an Off-Season Training Program in Collegiate Volleyball Players

By Yvette Figueroa, Kinesiology, University of Miami

The purpose of this study was to determine 1) whether there were significant changes in weekly total caloric and macronutrient consumption, strength, and power, and 2) whether total caloric and macronutrient consumption significantly and positively influenced changes in strength and power across a controlled eight-week, off-season resistance training program. Eleven collegiate-level female volleyball players were examined on macronutrient consumption, strength, and power at two-week intervals using three-day food logs, 3-repetition maximum (RM) bench press and back squat, and vertical jump, respectively. Significant increases were seen only in lower body strength and power ($p<0.05$). Total caloric consumption and carbohydrate intake significantly influenced lower body power after an 8-week program ($p<0.05$). We believe this is related to the neuromuscular adaptations that occur early in training. Thus, a longer resistance training program is necessary for structural changes to take place and result in greater contributions to performance-related measures.

Decolonizing the Community Voice: How (Re)Constructing Empowerment Can Create Pathways to Improved Nutrition in Nepal

By Katie McNamara, Public Health, University of Florida

As researchers characterize the drivers of malnutrition as complex and multifactorial, global efforts to ameliorate malnutrition increasingly address its underlying determinants. Improving women’s empowerment has been one strategy of development practice that addresses malnutrition through cultural, economic, and agricultural pathways. However, as these approaches assume a western feminist stance, the voices of men and the local community are rendered irrelevant. This case study seeks to better understand the intersection of nutrition and empowerment from the perspective of men and women across three communities in central Nepal. Our findings suggest that the communities’ conceptualizations of empowerment bridge western and Nepali worldviews and reflect unique gender and cultural norms, religious and ethnic characteristics, and interaction with development organizations and the natural environment. This study suggests that community conceptualizations of empowerment are marginalized by mainstream development and calls for a radical reframing of empowerment from the perspective of local communities to reach nutrition goals.

The Maître Divas of Wynwood: Culinary Consumption and the Black Aesthetic in Hip, Haute, Cuisine

By Judith Williams, Anthropology, Florida International University

In Miami’s Wynwood Arts District, fine dining restaurants often employ Afrocentric Black women, whom I refer to as “Maître Divas” to greet guests and manage their dining rooms. These “Maître Divas” and their cultural self-fashioning are visible markers of a Black aesthetic, which bell hooks asserts is “more than a philosophy or theory of art and beauty; it is a way of inhabiting space, a particular location, a way of looking and becoming.” With an understanding that Blackness is not monolithic, but is in fact an expansive and variable concept, this paper explores the various ways in which the Maitre Divas’ Black aesthetic is exploited by Wynwood’s white restaurant owners to promote their spaces as racially inclusive, ethnically diverse, and culturally “cool”. I also explore the ways in which the Black aesthetic is embraced by Maître Divas as a form of social capital and resistance to anti-Black discrimination.
Research Abstracts

PANEL 2 - Contemporary Research in the Biological Sciences: A Focus on Gene Therapy, Cancer Cell Detection and Phylogenetic Reconstruction

Gene Therapy for Ocular Herpes

By Enrico Barrozo, Biological Sciences, University of Florida

The majority of the population is latently infected by Herpes simplex virus 1 (HSV-1). During the lytic phase, the virus replicates in epithelial tissue before traveling to sensory neurons where it establishes latency. Periodically, HSV-1 reactivates, causing a common cold sore, and is the leading cause of infectious blindness in the United States, blinding 35,000 people each year. Therapies are limited or infeasible, including eye transplants, which fail to treat the latent reservoir of virus and are thus needed every three years. We aim instead to prevent the virus from reactivating by focusing on viral noncoding-RNAs, which studies have shown facilitate reactivation. Our approach utilizes ribozymes, which are RNA molecules that act as enzymes to cleave specific RNA sequences. One design has already shown a reduction in reactivation up to 50 percent in vivo. We are currently designing and testing new ribozymes in vitro, and eventually in vivo, to achieve even better efficiency, with the goal of preventing herpes reactivation.

Use of Ganglioside 2 and 3 as an Immunoaffinity Target for Circulating Osteosarcoma Cell Detection

By Dr. Henrietta Fasanya, Biological Sciences, University of Florida

Osteosarcoma (OS) is the most common primary bone tumor and the third leading cause of pediatric cancer deaths. At diagnosis, 80% of patients will present with metastasis, however only 20% of these cases are clinically detectable. Currently, diagnosis of tumor recurrence and metastasis are primarily dependent on imaging modalities such as computerized tomography or positron emission tomography scans. The detection of circulating tumor cells (CTCs) through passaging patient blood samples through a geometrically enhanced chip has the potential to be used clinically for earlier detection, monitoring the treatment of metastatic cancers and surveying the effect of therapeutic interventions on metastasis. Traditionally, Epithelial Cell Adhesion molecule (EpCAM) has been used as a cell surface marker. Our results demonstrate that OS cells have poor EpCAM expression (<10%). The use of Gangliosides 2 and 3 has strong potential to be used as a target for COC detection. Future studies will evaluate if this marker can be used to detect CTCs in patient samples.

Does Recoding Improve Phylogenetic Reconstruction?

By Alexandra Hernandez, Biological Sciences, University of Florida

Recoding in phylogenetics involves grouping amino acids into chemically-related categories and replacing each residue in an alignment with a numeric representation of its corresponding category. This typically reduces an alignment from 20 to 6 states. Recently, recoding has been proposed as a solution to challenges associated with substitution saturation and compositional heterogeneity in phylogenetics. However, recoding has never been empirically tested. To test if recoding is appropriate for the aforementioned challenges, we simulated 20,000 datasets with increasing saturation levels and 3,000 datasets with increasing heterogeneity levels. For each dataset, we produced trees using non-recoded and recoded models. The expectation was that as saturation or heterogeneity increased, strategies that incorporated recoding would outperform analyses of non-recoded datasets. However, in all of our simulations, trees from recoded alignments were suboptimal to those from non-recoded alignments. These results suggest that recoding does not improve the accuracy of phylogenetic reconstruction and that the many published results that have incorporated recoding should be reevaluated.
Research Abstracts

PANEL 2 - Contemporary Research in the Biological Sciences: A Focus on Gene Therapy, Cancer Cell Detection and Phylogenetic Reconstruction

The Role of USF1 in the Regulation of Lipogenesis and Breast Cancer Tumor Progression

By Jessica Lewis, Biomedical Sciences, University of Florida

Breast cancer accounts for nearly one-quarter of all cancer diagnoses and is the principal cause of cancer-related mortality in women worldwide. Triple negative breast cancer (TNBC) is a clinically aggressive subtype of breast cancer commonly resistant to therapeutics. As such, identifying factors that contribute to poor patient outcomes and mediate the growth and survival of TNBC cells remains an important area of investigation. USF1 (upstream stimulatory factor 1), a gene linked to drive lipogenesis and cellular proliferation, is over-expressed in human malignancies, yet its contribution to cancer remains unclear. We found that USF1 expression is significantly higher in TNBC tumor samples. Also, USF1 gene expression positively correlates with key lipogenic enzymes. Significantly, we found that high expression of USF1 in breast cancer correlates with decreased patient survival. We therefore hypothesize that USF1 promotes breast tumorigenesis and progression by activating lipogenic gene expression. Further studies are underway to determine the mechanisms by which USF1 promotes tumorigenesis and metastatic progression.

PANEL 3 - An Examination of Informal Entrepreneurial Firms, Intrinsic Bubbles in Stock Prices and Investor Reaction to Supplier Diversity

Intrinsic Bubbles in Stock Prices Under Persistent Dividend Growth Rates

By Faisal Awwal, Finance, Florida International University

This paper modifies an original, nonlinear price-dividend valuation model by accounting for a significant time-series property of historical dividends data not taken into consideration previously in the literature. The study estimates the modified model with two sets of annual U.S. stock prices and dividends data, namely the Dow Jones Industrial Average and the S&P 500, over the last century. The empirical study employs tests for the significance of the time-series property for dividends and significance of the modified model relative to the original model. Results show that the time-series property for dividends and the modified model are both statistically and economically significant. Further, as observed in the original model, the nonlinear component of the modified model provide a significant improvement in fit to observed stock prices as compared to the present value stock prices alone. The findings imply that adapting important information within time-series data of a variable can improve model fit.
Research Abstracts

PANEL 3 - An Examination of Informal Entrepreneurial Firms, Intrinsic Bubbles in Stock Prices and Investor Reaction to Supplier Diversity

Investors’ Reactions to Supplier Diversity Disclosures
By Andria Hill, Accounting, University of Central Florida

Supplier diversity programs are based on both social and business considerations. While the concept of social accounting includes a variety of social topics, minimal research explores supplier diversity disclosures within the voluntary sustainability reporting literature. The purpose of this research is to provide a brief overview of how supplier diversity disclosures relate to the existing social environmental and accounting (SEA) literature. Content analysis is the method proposed to explore the content of supplier diversity and supply chain disclosures. Particularly, the content analysis will be performed in order to identify the type of language used (concrete abstract) and the types of information (quantitative and qualitative) included in these disclosures. A behavioral experiment is proposed to explore investor reactions to the voluntary disclosures.

Essays on Informal Entrepreneurial Firms
By Everlyne Misati, Management, Florida International University

Informal enterprises contribute significantly to the world economy. These enterprises represent over one-third and up to one-fifth of global output in developing and developed countries, respectively. Furthermore, these enterprises produce about 35 percent of gross domestic product (GDP) and employ about 70 percent of the labor force in a typical developing economy. Despite this evidence and researchers’ efforts thus far, we still know relatively little about informal enterprises’ internal structures and functioning. Considering the proliferation of informal entrepreneurial firms and researchers’ acknowledgment that firms are not merely black boxes that mysteriously transform inputs into outputs, salient questions remain. For example, what are the strategies and processes of informal entrepreneurial firms, and what explains their growth and formalization? To address this overarching research question, I propose three self-contained yet related studies to (1) quantitatively explore their growth and formalization, (2) conceptually examine their legitimation strategy, and (3) qualitatively illuminate how informal entrepreneurs internationalize their firms’ products through export intermediaries.
Research Abstracts

PANEL 4 - Frontiers in Environment Engineering: An Examination of Hydraulic Efficiency, Reusable Nutrient Recovery and PRO as an Efficient Means for Desalination

Modeling and Design of a Pressure Retarded Osmosis-Based Energy Recovery and Brine Management System for Desalination

By Joshua Benjamin, Environmental Engineering, University of South Florida

Reverse osmosis (RO) based desalination is a process that involves desalting saltwater to create drinking water. While hailed as a solution for drought-stricken regions, utilities have hesitated to adopt desalination due to its high energy costs and the potential environmental impacts from brine disposal. Pressure retarded osmosis (PRO) has been suggested as a potential technology to mitigate these issues. PRO works by capturing the potential energy that exists in the salinity gradient between brine and dilute (e.g., freshwater/wastewater) solutions. However, acquisition of a proper dilute solution can pose challenges, as energy is needed to transport and pretreat the solution before it can undergo PRO. In this study, we developed a Python-based model that simulates how a PRO system could function in preexisting utilities, with a specific focus on the Tampa Bay Desalination Plant. Initial estimates show that PRO can save 14-16% of the energy consumed by the plant. Future work will focus on the environmental/economic impact of the project.

Closing the Loop of Urban Agriculture: Integrating Nutrient Resource Recovery from Wastewater

By Jorge Calabria, Environmental Engineering, University of South Florida

This work proposes a reusable nutrient recovery system (RNRS) designed to passively remove nitrogen from a wastewater stream for use as fertilizer in an appropriate horticulture operation. A small-scale prototype demonstrated nitrogen recovery from synthetic wastewater and reuse via fertigation in a vertical hydroponics system cultivating lettuce (Lactuca sativa). Lettuce crops with RNRS intervention indicated better crop quality parameters (crop mass and pigment development) than control crops fertigated with synthetic wastewater without RNRS intervention. The RNRS demonstrated effective nitrogen removal from wastewater and subsequent crop fertigation with minimal material and energy inputs. Thus, implementation of resource recovery technologies like the proposed RNRS shows positive implications for enhancing sustainability by reducing the costs and environmental impacts associated with wastewater treatment. Additionally, results show that recovered nutrient fertilizers can enhance socio-economic conditions by supporting local agricultural practices and food security.

Residence Time Analysis and Unsteady Flow Effects in an Oxidation Ditch

By Kiesha Pierre, Environmental Engineering, University of South Florida

Unsteady flows resulting from time-dependent inflow and variable aerator speed in a full-scale oxidation ditch and implications on residence time are explored via computational fluid dynamics. Flow in the ditch is driven by one inflow and two surface aerators. It was discovered that unsteady flows are induced by varying aerator speed, not time-dependent inflow. To avoid expensive unsteady flow calculations, residence time analysis was performed for two steady flows representative of the maximum and minimum operating speeds of the aerators. Significant differences between the two computed mean residence times suggest that unsteady flow dynamics may have a significant impact on residence time. Traditionally, residence time analysis is conducted with a single steady flow representative of the average flow. Instead, following the results obtained here, residence time analysis should be conducted under unsteady flow conditions, or a series of steady flow simulations representative of the various operational stages of the system, to obtain a more realistic prediction of the hydraulic efficiency.
Research Abstracts

PANEL 5 - Significant Research in Elementary and Secondary Education

When We Know Better, We Do Better: Frameworks and Tools for Analyzing Preservice Teachers’ Mathematics Knowledge for Teaching Students from Diverse Backgrounds

By Lakesia Dupree, Education, University of South Florida

Equipping teachers with knowledge and practices deemed necessary to work with students from diverse populations is a documented need that plagues teacher preparation. Furthermore, the influx of students from diverse backgrounds enrolled in U.S. schools intensifies the need to prepare the future generation of teachers to provide equitable learning opportunities for every student in their classrooms. This paper highlights ways to analyze the preparation of preservice teachers for teaching students from diverse backgrounds. Results highlight limited opportunities for preservice teachers to engage in teaching elementary students, so that opportunities to assess their teaching practices are also limited. With the recent release of The Association of Mathematics Teacher Educators’ Standards for Preparing Teachers of Mathematics, mathematics teacher educators need additional valid measures to assess the preparation of preservice teachers.

The Perspectives of Black Church Leaders on Their Roles on the Empowerment of Black Male Students

By Deborah McEwan, Education, Florida Atlantic University

This research proposal is a qualitative, interpretive study of Black church leaders’ perspectives of their roles in addressing Black male student educational concerns. The underlying theoretical framework draws from critical/social justice pedagogy contextualized in the transformative role of the Black church as advocated by scholars. The study will investigate critical reflections and praxis of 12 leaders who represent three generational eras, which include Baby Boomers, Generation X, and Generation Y. In a two-phase interview process, participants will respond and reflect on their roles in addressing systems of power and privilege that impair the academic performance of Black male students. An analysis of the critical reflections of these leaders seeks to re-kindle the potential role of the Black church in social justice advocacy and as a source of empowerment for Black male students in the U.S. public education system.

Reading Ready: The Effects of a Spanish Early Literacy Intervention on At-Risk Latino Preschoolers’ School Readiness Skills

By Xigrid Soto, Communication Science, University of South Florida

Preschoolers’ early literacy skills, particularly phonological awareness (PA) and alphabet knowledge (AK), set the foundation for reading. Many Latino preschoolers who are Dual Language Learners (DLL) enter Kindergarten with reduced early literacy skills, placing them at-risk for academic difficulties. Research focusing on Latino preschoolers’ early literacy skills is scarce. Most interventions only target English PA and AK skills despite evidence that suggests providing Latino DLLs with Spanish instruction is beneficial. This study evaluates the effects of a Spanish early literacy intervention for Latino preschoolers. The aims of this study are to determine if this intervention yields Spanish early literacy gains and whether the skills taught transfer across languages. Six children will be recruited. A Multiple Probe Single Subject Experimental Design will be employed. It is expected children will make gains in Spanish early literacy skills following instruction and that they will apply skills learned from one language to another. This study could result in a timely, effective early literacy intervention for at-risk Latino preschoolers.
Research Abstracts

PANEL 6 - Psychology and Communication Sciences and Disorders: The Impact of Motor Skills on Language Growth, Vestibular Function and Cognitive Impairment, and Brain Training

Vestibular Function: An Early Indicator of Mild Cognitive Impairment?
By Karen Bell, Communication Sciences and Disorders, University of South Florida

Alzheimer’s Disease (AD), the most common form of dementia, continues to lack a succinct, cost-effective, widely accessible approach to early detection. Evidence suggests there are declines in both sensory and motor systems several years before a formal diagnosis of dementia is made. Specifically, there are reports of a relationship between vestibular function and cognitive impairment, suggesting that vestibular impairment may be a risk factor for cognitive impairment. The purpose of this study is to: 1) compare differences in vestibular evoked myogenic potentials among young normal adults (YN), cognitively normal aging older adults (CNOA), and older adults with probable mild cognitive impairment (MCI); and 2) examine differences in vestibular sensory function, functional balance, and spatial cognition among YN, CNOA, and older adults with MCI.

The Role of Fine Motor Skills on Expressive Language Growth from 12 to 24 Months
By Sandy Gonzalez, Psychology, Florida International University

Research on the role of motor skills on language growth during the “vocabulary spurt” is limited. The current study investigated infant motor skills at 12 months as predictors of language growth from 12, 18 and 24 months (N=98; 46 female). Motor skills were assessed using the Mullen Scales of Early Learning (MSEL), which includes fine-motor (FM) and gross-motor (GM) subscales. Productive vocabulary size was collected using the MacArthur Bates Communicative Development Inventories (MCDI), with productive vocabulary growth determined using linear slopes per participant across 12 to 24 months. FM score at 12 months significantly predicted MCDI expressive growth from 12 to 24 months. GM score was not a significant predictor of MCDI expressive growth. Thus, greater fine motor skills at 12 months predicted faster language growth over the “vocabulary spurt” period. Infants with better fine motor skills at 12 months may experience more novel interactions with objects and caregivers, allowing for more language learning opportunities.

Is Brain Training Worth It? Exploring Individuals’ Willingness to Engage in Brain Training
By Erin Harrell, Psychology, Florida State University

We aimed to assess how much time individuals would be willing to spend playing brain games to gain prolonged functional independence. In Study 1 (N = 294), participants completed a survey with questions assessing how much time they would be willing to invest in daily brain training to extend their functional independence by certain amounts of time using a slider response that ranged from 0 to 100 minutes. Participants also completed surveys that measured self-perceived health and cognitive functioning, personality, and other demographic variables. Even for relatively small gains, participants reported being willing to dedicate an average of 11 minutes every day to brain training, with some participants willing to engage for significantly longer. The best predictor of willingness to invest time in brain training was belief in brain training efficacy, followed by openness to experience, and participants’ self-perceived cognitive deficit. Study 2 examined the same question in a sample of 120 older adults, this time allowing for open-ended responses.
Research Abstracts

PANEL 6 - Psychology and Communication Sciences and Disorders: The Impact of Motor Skills on Language Growth, Vestibular Function and Cognitive Impairment, and Brain Training

A Case Study: Programs for Black Males at Predominantly White Institutions

By Liana Mentor, Psychology, University of Miami

In response to prevailing evidence of Black male underperformance relative to their peers, certain predominantly white institutions (PWIs) have utilized successful programs to support Black males on college campuses. A multiple-case study approach examined three existing programs used at PWIs in the Southeastern United States to support the undergraduate academic and social experiences of Black males. This study describes how these best practice programs are instrumental in helping students develop interpersonal relationships that benefit their academic achievement and overall well-being while enhancing cross-campus collaborations for the institution. Findings from this study could help support aspects of programs that improve the undergraduate experiences of Black males on predominantly white campuses.

PANEL 7 - Research Frontiers in Physics: An Examination of Solid State Nuclear Magnetic Resonance and LAMIS Signal Analysis

Squid Protein Structure by Solid State Nuclear Magnetic Resonance

By Tommy Boykin, Physics, University of Central Florida

The production of current batteries (e.g., Lithium, Zinc) is expensive, wasteful, and uses non-renewable energy resources. The next generation of batteries will be based on inexpensive, renewable energy resources from naturally proton-conducting materials. One proton-conducting squid protein called reflectin is a possible solution, although researchers require additional information about its molecular structure in order to optimize reflectin for specific devices, including batteries. Applying recombinant protein techniques, we purified the reflectin protein to determine the molecular structure by solid-state nuclear magnetic resonance (NMR). Once we know the structure, we may be able to understand reflectin’s natural electrical properties and determine whether it can be used to make the next generation of inexpensive, natural resources-based batteries.
Research Abstracts

PANEL 7 - Research Frontiers in Physics: An Examination of Solid State Nuclear Magnetic Resonance and LAMIS Signal Analysis

Partial Least Squares Calibration Modeling Towards the Multivariate Limit of Detection for Enriched Isotopic Mixtures Via Laser Ablation Molecular Isotopic Spectrometry

By Dr. Candace Harris, Physics, Florida A&M University

Signatures of isotopes are difficult to detect and therefore are limited by the detector’s capability in optically resolving spectral attributes that appear from isotopic transitions. One enhancement method to distinguish isotopologues is Laser Ablation Molecular Isotopic Spectrometry (LAMIS), an extension of Laser Induced Breakdown Spectroscopy (LIBS). Benefits of such a laser based technique are rapid and direct in the molecular and isotopic characterization of condensed samples without extensive chemical dissolution procedures. The sample’s isotopic composition along with its respective spectra via LAMIS is analyzed using chemometrics, therefore quantifying the detector’s attributes. Using a Partial Least Squares Regression (PLSR) model where the predictors are the molecular isotopic spectra, the potential of LAMIS’ capability for signal to analyze discrimination in trace isotopes is discussed. An International Union of Pure and Applied Chemistry (IUPAC) consistent approach for the multivariate Limit Of Detection (mLOD) interval for PLSR predictions will be applied and is the first of its kind used for LAMIS signal analysis.

PANEL 8 - Innovations in Electrical Engineering: An Examination of Ink Jet Sensing, Smart Grid Cyberattack Response, and SDN Infrastructures


By Lamar Burton, Electrical Engineering, Florida International University

Understanding the many mysteries and dynamic heterogeneity of soil is limited by the lack of sensing technologies which could offer real-time monitoring on biochemical changes within soil. Here we present a facile approach to manufacturing sensors in soil seedling and rhizosphere chambers using soft lithography methods. This method embeds in house fabricated IoT inkjet printed sheets into the multilayer microfluidic (MM) plant-soil-root-on-a-chip structure to achieve real-time electrochemical sensing of nitrate, phosphate, and ammonium ions in seedling soil and rhizosphere chamber. The multiplexed, multianalyte, and multilayered microfluidic (MMMM) device features a seedling chamber containing spike soil for germination and a rhizosphere chamber for observing root growth and rhizobium nodule formation. The integration of the MMMM sensing device with both soil and root chambers appeals as a promising platform for real-time personalized plant fertilizer screening and crop phenomics in precision agriculture.
Research Abstracts

PANEL 8 - Innovations in Electrical Engineering: An Examination of Ink Jet Sensing, Smart Grid Cyberattack Response, and SDN Infrastructures

A Tri-Modular Framework to Improve Smart Grid Cyberattack Response in Command and Control Centers

By Asadullah Khalid, Electrical Engineering, Florida International University

The performance of a utility’s security technologies such as intrusion detection systems, firewalls, and network infrastructure devices has been improving. However, the large volumes of data generated by these technologies are visualized non-contextually, which requires analysts and engineers to spend more time analyzing the information before coordinating an incident response. This increases their cognitive gap and decreases the likelihood of well-informed decisions that could defend against persistent attackers. To bridge this cognitive gap, this paper proposes to shift the information processing and contextualization from human users to intelligent learning algorithms using a tri-modular framework comprising Data Module (DM)- Kafka, Spark and R to process heterogeneous data streams; Classification Module- a Long Short-Term Memory model to classify processed data from DM; and Action Module- naturalistic and rational decision-making for time-critical and non-time-critical situations, respectively. This paper describes the framework’s architecture and develops a proof for DM using partially synthesized streams of real network security data on a single-node cluster.

DoS and DDoS Attacks in Software-Defined Networking (SDN) Infrastructures

By Andrea Wright, Electrical Engineering, University of South Florida

Software-Defined Networking (SDN) technology is gaining strong traction with many network and datacenter operators. SDN setups deploy a centralized controller with a holistic view that manages flow routes for network switches. Their deployment lowers costs and improves the efficiency and flexibility of networking services. However, they also open up numerous security vulnerabilities, such as large-scale Denial of Service (DoS) and Distributed Denial of Service (DDoS) attacks. These attacks can target SDN controllers or disrupt switch-to-controller communication channels, severely impacting control operation. Conversely, SDN-based mechanisms and approaches also present novel avenues for tackling various attacks. While various strategies for DoS and DDoS detection and mitigation have been proposed, many challenges remain. This paper presents a detailed overview and taxonomy of DoS and DDoS threats in SDN settings and surveys a range of proposed detection and mitigation solutions. Subsequently, some key emerging research trends are also presented, along with a generalized architecture for improving the security and resiliency of SDN-based setups.
Research Abstracts

PANEL 9 - Innovation in Mechanical Engineering: Baffle Devices and Acoustic Dissipation, Improved Battery Performance, Power Grid Supply, and the Design of Detonation Based Engines

Acoustic Viscous Dissipation Effects of Injector Baffle Height Separation for Rocket Engine Chambers
By Wilmer Flores, Mechanical Engineering, University of Central Florida

Unstable acoustic frequencies reduce engine performance and damage engine structural integrity. Acoustic oscillations are created from flame combustion and behave as a constant feedback loop under engine conditions. Baffles are a passive device designed to suppress acoustic instabilities and aid in flame stabilization. The current study focused on acoustic viscous dissipation and the effects of staggered baffle heights to longitudinal, tangential, and combined modes. Analysis of modes structures began with the first longitudinal (1L) up to the third tangential second longitudinal combination mode (3T2L) to fully comprehend attenuation behavior. Acoustic pressure wave measurements were recorded to recreate and reconstruct intensity contour images. Decay rates trends were investigated to select an optimal baffle height that demonstrates rapid damping reductions. We believe that optimization of this technology can enhance flame stability and increase engine burn rate.

Characterization of a Tri-Layer System for Improved Li-O2 Battery Performance
By Marcus Herndon, Mechanical Engineering, Florida International University

Lithium–air (Li-O2) batteries (2Li + O2 ⇌ Li2O2) provide an open-circuit voltage (OCV) of around 3.0 V and exhibit a high theoretical specific energy density of 3500 to 5200 Wh/kg with oxygen contained in the battery 5 to 15 times higher than the commercial lithium-ion battery. The purpose of this work is to create a tri-layer system within a lithium-oxygen cell using a designer electrolyte composition at the anode, electrolyte, and the cathode. Charge/discharge cycling determined 143 full cycles with 1M gel polymer electrolyte (GPE)/ 0.1mg carbon nanotube carbon cloth (CNT CC)/ 40uL 0.05M lithium-iodide (Li-I), with a 0.3-1.2 V overpotential. 1M composite-GPE-1%/ 0.5mg CNT CC/ no Li-I (control conditions) cycled for 54 full cycles with an overpotential of 1.7 V. Therefore, the Li–O2 cell improved roundtrip cycle efficiency, revealing a preliminary opportunity to utilize tri-layer systems in Li–O2, and eventually ambient Li–air batteries, furthermore improving safety and evolving the lithium battery.

Determining Reserve Requirements for Energy Storage to Manage Demand-Supply Imbalance in Power Grids
By Kendall Parker, Mechanical Engineering, University of Florida

Renewable energy sources, such as solar and wind, are volatile due to their intermittent nature. Future power grids, therefore, need energy storage systems (ESS) to maintain power reliability. Since ESS are expensive, methods are necessary to determine the minimum size ESS required. Current methods tend to focus on micro-grids or individual sites with renewable generators, do not include reliability constraints, or are difficult to interpret since they are not based on industry parameters. This work proposes a probabilistic data-driven method to determine the minimum size ESS to satisfy a reliability requirement for a power grid with a high penetration of renewable sources. The method is based on prior algorithms to determine reserve requirements for transmission network planning; it differs, however, in the way it estimates the component of demand-supply imbalance that ESS must support and the probabilistic model fitting predictions. Results from application of the method to data from BPA showed a smaller ESS capacity requirement (and thus lower cost) than deterministic methods.
Research Abstracts

PANEL 9 - Innovation in Mechanical Engineering: Baffle Devices and Acoustic Dissipation, Improved Battery Performance, Power Grid Supply, and the Design of Detonation Based Engines

Characteristics of Premixed Reacting Supersonic Flows

By Jonathan Sosa, Mechanical Engineering, University of Central Florida

Detonation based propulsion concepts have been desired as a means to achieve revolutionary advancement in the performance of air-breathing (ramjets, scramjets) and rocket propulsion. Detonation based cycles have received serious consideration in the past decades due to their increased thermodynamic efficiency over constant pressure combustion cycles. Researchers have been unable to experimentally demonstrate a stable detonation wave in steady flow. This has been one of the main challenges of implementing pressure gain combustion cycles in advanced propulsion concepts. Detonation initiation and shock/flame supersonic reactions are studied using high speed optical diagnostics (OH chemiluminescence and schlieren/shadowgraph) recording at 30 kfps. The supersonic flow consists of premixed hydrogen-air mixture with equivalence ratios ranging from φ=0.25-0.95. Three distinct ignition modes are identified: 1) shock induced combustion (φ=0.70-0.80), 2) unsteady compressible flames (φ=0.80-0.90), and 3) deflagration to detonation transition (φ=0.90+). Future work will focus on the fundamental understanding of the influence of temperature on detonation wave stability enabling the design of detonation based engines.

PANEL 10 - The Problem of Race and Class in the American Criminal Justice System with a Specific Focus on Juvenile Delinquency and Drug-Related Arrest

Racial Differences in Adolescent Delinquency: Examining Peer Delinquency and the Conditioning Effect of Neighborhood Context

By Jorge Hernandez, Criminology, Florida State University

Some scholars have identified differential association theory as an explanation of racial differences in offending. Separate research argues that racialized processes have contributed to differences in neighborhood characteristics for black and white residents and that these differing contexts may explain racial differences in offending. Finally, others have shown that the influence of delinquent peers is conditioned by neighborhood characteristics. This study combines these three lines of thought to test several hypotheses using data from a sample of youth from the Project on Human Development in Chicago Neighborhoods. First, the variation in association with delinquent peers is expected to explain a significant amount of the disparity in delinquency between black and white juveniles. Second, the effect of peer delinquency is expected to be reduced in neighborhoods with high levels of informal and formal social control. Lastly, the moderating influence of both these variables on the effect of peer delinquency is expected to be stronger for black juveniles than for whites.
Research Abstracts

PANEL 10 - The Problem of Race and Class in the American Criminal Justice System with a Specific Focus on Juvenile Delinquency and Drug-Related Arrest

Same Problem, Different City: Racial Disparities in Drug-Related Arrests and Charging Decisions in Miami-Dade County

By Oshea Johnson, Sociology, University of Miami

Researchers have documented racial and ethnic disparities at various points in the criminal justice system from arrest to sentencing. While some research aims to understand the various points of a defendant’s travels through the criminal justice system, much of the research focuses on one particular point in case processing. This research study uses six years of data (2010-2015) from the county clerk’s office in Miami-Dade County to track defendants’ interactions with the criminal justice system. It also adds to the literature by tracking a defendant who was arrested for a drug-related crime and the defendant’s likelihood of being convicted based on race and ethnicity. Using multivariate logistic regression, our plan of analysis is to track defendants who were arrested and charged with a drug crime (possession, sale, or “other”), measure the probability that this type of drug crime will lead to a carceral sentence, and examine potential disparities by race/ethnicity based on charge upgrades or downgrades.

PANEL 11 - Crises in Public Health: The Impact of the Decline in Breast Feeding, Recreational and Medical Use of Marijuana, Cervical Cancer Prevention, and Health Crises in African American Rural Communities

Promoting and Supporting Breastfeeding in the Hospital: Factors Associated with Breastfeeding Cessation at One Month Among WIC Participants

By Alexis Barr, Public Health, University of South Florida

This study examines modifiable factors that affect 1-month breastfeeding outcomes among WIC participants and assesses differences by race/ethnicity. Data from WIC Infant and Toddler Feeding Practices Study II, a longitudinal study collected 2013 to 2015, were analyzed using multivariable logistic regression. Among 1,104 Black/African-American women, factors associated with 1-month breastfeeding cessation (1-MBC) include perception of delayed onset of Lactogenesis II (PDOL-II) and formula supplementation before hospital discharge. Among 2,566 White women, factors associated with 1-MBC include PDOL-II, hospital gift packs including formula and formula supplementation before hospital discharge. Among 1,653 Hispanic/Latina women, factors associated with 1-MBC include breastfeeding problems in hospital and formula supplementation before hospital discharge. For all women, interventions should examine why breastfed infants receive formula before hospital discharge, which is crucial for Black/African-American women. Also, policies must be adopted to mandate that hospitals provide high quality and culturally-appropriate breastfeeding assistance to support continued breastfeeding.
Research Abstracts

PANEL 11 - Crises in Public Health: The Impact of the Decline in Breast Feeding, Recreational and Medical Use of Marijuana, Cervical Cancer Prevention, and Health Crises in African American Rural Communities

Gender Differences in Driving Under the Influence of Marijuana: The Role of Medical and Recreational Marijuana Use

By Shawnta Lloyd, Public Health, University of Florida

This study aims to assess gender heterogeneity in the association between the reason for marijuana use and driving under the influence of marijuana (DUIM). A sample of 8,494 past-year marijuana users (18+ years old) were analyzed from the 2016 National Survey on Drug Use and Health. Gender-specific multivariable logistic regression models were conducted to investigate the association between marijuana use (medical use, recreational use, and both medical and recreational use) and past 12-month DUIM. Among marijuana users, 8.3% used for medical reasons, 88.0% used for recreational reasons, and 3.7% used for both medical and recreational reasons. Approximately one-third (30.1%) of users reported DUIM; 25.3% of women and 33.5% of men reported DUIM. Among females, recreational users were almost twice as likely to DUIM compared to medical users (aOR: 1.90; CI: 1.17-3.10). The reason for marijuana use was not significantly associated with DUIM among males. This study highlights the need for gender-tailored strategies to decrease the impact of DUIM.

Cervical Cancer Prevention Behaviors and Human Papillomavirus Vaccination Intention: An Exploratory Study of Minority Women in the Big Bend Region of Florida

By Meardith Pooler-Burgess, Public Health, Florida A&M University

The purpose of this study is to explore the relationships between cervical cancer knowledge, attitude, Papanicolaou (Pap) screening behavior, and HPV vaccination intention. By employing a sequential, mixed-methods research design, this study will explore: (1) cervical cancer knowledge, attitudes and screening behavior, (2) HPV knowledge, attitudes, and HPV vaccine behavioral intention, (3) the association between cervical cancer prevention behaviors and HPV vaccination behavioral intention, and (4) perceived facilitators and barriers that may influence HPV vaccination behavioral intention. This study will recruit minority women between the ages of 21 and 45 who identify as Black or Hispanic and reside in the Big Bend region of Florida. Participants for this study will be recruited from Florida A&M University, County Health Departments, and community organizations in the Big Bend region of Florida. Findings from this exploratory study will lead to evidence-based strategies that will ultimately increase HPV vaccination rates among high-risk populations and decrease the cervical cancer burden among women of color.

Exploring the Influence of Family Health History in Rural African American Communities

By Calandra Whitted, Public Health, Florida A&M University

The Families SHARE workbook is a tool designed to encourage families to share information about genetically-based diseases. The goal of the Families SHARE Florida project is to determine the tool’s efficacy in reducing disease in at-risk individuals within Southern, rural communities through knowledge of family health history. Surveys and focus groups will be used to assess the tool’s effectiveness at calculating risk and providing health care recommendations for heart disease, Type 2 diabetes, and colon, prostate, and breast cancer, all diseases with high incidence and mortality rates in rural black populations. In addition, the study will explore Southern, rural participants’ perceptions of the tool, which was initially validated with an urban population in the Northeastern United States. Study results should help elucidate the ways in which rurality, environment, and culture influence the delivery of family-centered interventions.
Research Abstracts

PANEL 12 - Psychology and New Technology: An Examination of the Impact of Technology on Employee Well-Being and Mobile Cognitive Assessment

The Impact of Technological Demands on Employee Well-Being and Performance

By Vanessa Quiroz, Psychology, Florida International University

In our current knowledge economy, the use of Information and Communication Technology (ICT) based communications has become increasingly pervasive within and across organizations. By using the Job Demands-Resources (JD-R) model as a lens, this paper examines the impact that technological demands (e-mail overload, interruptions, telepressure) can have on employee productivity and job satisfaction. Specifically, we argue that high technological job demands in the workplace are associated with reduced employee job satisfaction and productivity through the experience of psychological stressors specific to technology (i.e., technostrain). We also hypothesize that job resources, such as technological self-efficacy, voluntariness, and co-worker support can moderate the effects of technostrain on job satisfaction and productivity. No previous research has, to the author's knowledge, linked the everyday work experiences of stress through ICT-Use, e-mail overload and telepressure, as central constructs of job demands. This research contributes to the stress literature by identifying some of the factors that buffer the effects of technological job demands on employee well-being.

The Effect of Item Scrolling Requirements and Item Types on Mobile Cognitive Assessment

By Betsir Zemen, Psychology, University of Central Florida

The use of mobile assessment in personnel selection is an increasing trend that offers benefits to both job applicants and organizations, including increased efficiency and convenience of testing. This study of 440 undergraduate participants aims to determine if two specific item characteristics, item scrolling requirement and item type, have a negative impact on mobile cognitive ability test scores. It is predicted that item type will moderate the negative effect of item scrolling on test scores. Results will inform the development of mobile-optimized cognitive ability tests, and future research will examine additional item characteristics that may impact mobile cognitive assessment.
Research Abstracts

PANEL 13 - Chemical Analysis and Technological Innovation: Practical Applications of Identity Signatures, Semiconductor Fabrication, and Improved Hydrogen Production Techniques

The Enhancement of Human Scent Profiles as Forensic Evidence

By Alice Boone, Chemistry, Florida International University

Due to the novelty of human scent research, human scent evidence has been undervalued in the court of law. However, this type of evidence has significant value when physical evidence is not available at crime scenes. In order to demonstrate the individualization and differentiation of human scent evidence, this study aims to further investigate the identification of chemical signatures within the hands and axilla (armpit) of specific ethnicities and genders. During the study, the axilla odor of 60 participants were sampled. Upon collection, samples were extracted using both Headspace Solid Phase Micro extraction (HS-SPME) and Liquid Extraction (LE) and analyzed using Gas Chromatography-Mass Spectrometry (GC-MS). The study showed that using HS-SPME immediately followed by LE successfully extracted semi-volatile and non-volatile compounds, which previously could not be recovered using HS-SPME alone. This work will lead to the study of extracted compounds in an effort to better identify chemical signatures of specific ethnicities and genders.

Stability of Epitaxial Pseudocubic Group IV-V Semiconductors

By David Brown, Chemical Engineering, University of Florida

For the scaling of Moore’s Law, new materials have to accommodate higher doping for lower contact resistance and higher tensile strain for improved electron mobility. In recent years, highly doped Si:P and Si:As films have been studied for providing high dopant activation and source-drain stressors for FinFET devices. The tensile epitaxial strain is believed to be caused by vacancy stabilized Si3P4 and Si3As4 phases. In this study, the epitaxial stability of these vacancy stabilized Si3P4, Si3As4, Ge3P4, and Ge3As4 phases is studied from first-principles using electronic-structure calculations at the level of density functional theory. The strain study is implemented locking lattices to a Ge and Si substrates. These phases are metastable as “free” bulk, but the epitaxial strain calculations have not been calculated. The pseudocubic phases were not found to be strain stabilized, so these phases cannot be present in these thin films.

1H NMR Characterizations of Hydrogen Generation Catalyst, Spillover, and Participation in Electrochemical Processes

By Alyssa Rose, Chemistry, Florida State University

This study focuses on the analysis of inorganic catalysts for hydrogen production, hydrogen spillover phenomenon, and organic cathodes for lithium-ion battery materials using Solid-State NMR. In situ and ex situ solid-state 1H NMR are used to study the role hydrogen plays in each system. Goals include the characterization of side products, cycling stability and the determination of reaction mechanisms and structural changes. Impacts on society and the chemistry field as a whole include a better understanding of the fundamental science involved in these types of reactions, which could lead to safer, cheaper, and more energy-efficient systems.
Research Abstracts

PANEL 14 - Significant Research in Post-Secondary Education

Analysis of the Impact of SB 1720 on Gateway Mathematics Courses

By Frank Conic, Education, University of Florida

Although many educators regard underprepared students as the most pressing problem in higher education today (Bailey & Cho, 2011), nationwide there has been increasing opposition to developmental education. One outcome of this mounting opposition in Florida is the passage of Senate Bill 1720 (SB 1720), which was signed into law in July 2013. The law mandates that students who graduate from a Florida public high school in 2007 or later cannot be required by higher education institutions to take placement tests or to enroll in developmental classes, although they can choose to enroll in developmental courses on the advice of their academic advisors. The goal of this study is to measure the impact of SB 1720 on student achievement by examining outcomes of students at a large community college enrolled in the gateway mathematics course (Mat 1033) from 2014 to 2017, who exercised their choice to opt in or opt out.

The TSIC Attainment Gap

By WillieMae (India) White, Education, University of Florida

Take Stock in Children (TSIC) is a non-profit organization that seeks to close generational gaps among learners in public schools. Currently, TSIC scholars graduate from high school at a 96% retention rate. However, once in college, this rate drops to 67%. The purpose of the study is to determine the factors that contribute to the attainment gap between TSIC high school scholars and TSIC college scholars. This work will be a mixed case study of quantitative standardized test data and qualitative data from surveys and interviews of students, teachers and administrators. The study examines participants’ opinions about factors contributing to academic achievement of TSIC scholars. Participants include TSIC representatives, administrators and educational leaders from two districts. We expect the study to conclude that scholarships and mentors contribute to the academic achievement and college retention of TSIC scholars.

(Re)Presenting Socioscientific Issues (SSI) Curriculum to Address Equity and Social Justice

By Selene Willis, Education, University of South Florida

Socioscientific issues (SSI) curriculum aims to produce scientifically functional literate citizens through moral and ethical decision making. However, we argue that ethics pertaining to equity and social justice (SJ) should not be overlooked in the curriculum. Utilizing critical pedagogy, I assess opportunities provided by socioscientific issues (SSI) curricula for students to consider equity in relationship to controversial issues. Findings from content analysis of four empirical articles between 2009 to 2017 reveal equity and SJ are absent despite SSI’s emphasis on ethical and moral reasoning. I advance a conceptual framework that promotes students’ sociopolitical consciousness for the enactment of social action or activism.
Research Abstracts

PANEL 15 - Contemporary Advances in Computer Science: An Analysis of Histogram Layer, Cache Performance and Replacement Algorithms

IO Trace Analysis: Applications of Embeddings and Sequence Models to Storage Segment Prediction Towards Improving Caching Performance and Cache Replacement Algorithms

By Pedro Espina, Computer Science, Florida International University

The widening gap between CPU speeds and computer memory speeds is referred to as the memory wall. A modern operating system spends most of its time waiting for data to be retrieved from memory. The immediate solution is to have an intermediary memory, a cache memory, that is only a fraction of the size of the main memory but can deliver data to the CPU at faster speeds. This paper explores two important aspects of caches, cache replacement policies and cache prefetching. Recent advances in natural language processing, NLP, have made it possible to translate text corpora between languages by representing words as multi-dimensional vectors in order to learn semantic similarities between them. Empirical comparison based on the simulation of real system traces shows that this approach can be applied to sequences of data requests to improve cache replacement policies and to make predictions about future request sequences based on past ones, allowing for data to be pre-fetched into the cache.

Histogram Layer: A Novel Approach to Feature Engineering

By Joshua Peeples, Computer Engineering, University of Florida

Before the popularity of deep learning, feature engineering played a vital role in the fields of Computer Vision and Machine Learning. A few popular examples of engineered features include Histogram of Oriented Gradients (HoG), Local Binary Patterns (LBP), Scale Invariant Feature Transform (SIFT), and edge descriptors such as Canny and Sobel. Many of these engineered features were created through the use of histograms, but the process to select the best bin centers and widths to optimize performance can be difficult and time consuming. Deep learning architectures such as Convolutional Neural Networks (CNNs) have performed well in various applications such as facial recognition, semantic segmentation, object detection and image classification with features learned by the network. In this work, a new histogram layer is proposed to learn optimal “engineered” features and maximize the performance of a deep learning framework. The histogram layer can learn bin centers and widths through the backpropagation of errors. Preliminary results are presented on several datasets.
Research Abstracts

PANEL 16 - Environmental Engineering: An Examination of Resistant Genes in Greywater, Remediation of Water Pollutants, and the Mechanical Properties of Bamboo

Quantifying Antibiotic Resistant Genes from Bacteria in Greywater from Suburban Israel

By Michelle Henderson, Environmental Engineering, University of South Florida

Antibiotic-resistant genes (ARG) from bacteria are raising public health concerns worldwide. ARG are especially problematic because of their ability to be transported in the environment via wastewater. Wastewater such as greywater is frequently reused for non-potable activities such as crop irrigation, toilet flushing, and dust suppression. Antibiotic resistance in bacteria occurs naturally in the environment but can be exacerbated by the influence of wastewater with high concentrations of antibiotics. For this research, ARG from bacteria will be quantified and identified in greywater and soil in suburban Israel to determine its impact on the surrounding desert environment. Polymerase chain reaction (PCR) and quantitative polymerase chain reaction (qPCR) will be used to detect and quantify ARG presence.

Remediation of Water Pollutants and Pathogens Within Household Water in Rural South India

By David Perez, Environmental Engineering, Florida A&M University

Unsafe drinking water is recognized as a leading factor in diarrheal diseases, which are responsible for about 1.8 to 2.5 million annual child deaths globally, with six hundred thousand deaths in India alone. In a partnership with the Indian Social Service Institute (ISSI) and the FAMU-FAU College of Engineering, a field study was designed to assist in the development of techniques to construct low-cost filtration devices called bio-sand filters (BSFs) for the local rural community. A two-month pilot study was conducted in the Indian state of Tamil Nadu to evaluate the performance of the BSFs under various setups, to investigate long-term removal efficiencies, and to improve filter design. Water analysis did not indicate a growth of a biological layer, meaning the method for assembly of a BSF must be configured for greater efficacy. However, previous research indicates that BSFs, when constructed properly, are effective.

Effect of Bamboo’s Mechanical Properties Due to Treatment, Type, Age, Moisture Content & More As Well As Discussion on Bamboo Pestilence and Standards: A Literature Review

By Lorena Sanchez, Environmental Engineering, University of South Florida

Bamboo is a highly renewable material used in some countries as a viable building construction material. It is not yet used in the United States, however, since it is not included in building code/safety standards. To develop standards, the mechanical properties of bamboo must be understood and documented. Although some studies have been conducted, most have been published in different languages and have not been aggregated. Here we translate and aggregate previously published information about the mechanical properties of bamboo. As much of the research on bamboo has been done in Asia (English) and Latin America (Portuguese and Spanish), we used a comprehensive search of articles in English, Spanish, and Portuguese and found 43 peer-reviewed publications that examine bamboo by age, species, density, moisture content, post-harvest treatment, and testing standard employed. This information allows us to better understand the material properties of bamboo in order to help develop standards for the use of this resource in the United States and beyond.
Research Abstracts

PANEL 17 - Cutting Edge Research in Biomedical Science and Biochemistry: A Focus on Human Papilloma Virus, Histone Variant in DNA Repair, Protein and Polymer Designs, and the Effects of Hormones on Neural Representation

Does HPV Inactive in Head and Neck Cancer Influences E6 and E7 Oncoproteins?

By Nella Delva, Biomedical Sciences, Florida State University

Human Papilloma Virus (HPV) is one of the most common sexually transmitted infections. Head and Neck Squamous Carcinoma (HNSCC) is the sixth most common cancer worldwide, and about 25% of all HNSCC cases involve tumors positive for HPV DNA. While studying these cancers, researchers have identified a gene expression signature of HPV-inactive tumors that is an “intermediate” between HPV-active cancers, which are positive for viral DNA, and HPV-negative cancers, where viral DNA is not present. Our hypothesis is that HPV-inactive tumors may have risen from HPV-active tumors, but have undergone genetic and/or molecular changes leading them to acquire their inactive status. This study focuses on the molecular characteristics of HPV-inactive tumors. Results will allow us to determine which mutations are associated with the HPV-inactive group, in comparison with HPV-active and HPV-negative cancers, which could lead to a complete revision of the role of HPV and the potential preventive value of HPV vaccines at other cancer sites.

Role of Histone Variant H3.3 in DNA Repair

By Ernest Phillips, Biomedical Sciences, Florida State University

DNA is packaged primarily with the help of canonical histone proteins H2A, H2B, H3 and H4 to form chromatin which in turn regulates access to the genetic information contained in the DNA. Chromatin structure is further modified by the incorporation of variant histones that differ slightly in sequence from the canonical histones and can have unique functions. Specific point mutations (K27M, K36M and G34R/W/V/L) in histone H3.3, a variant of canonical histone H3, have been shown to drive specific types of cancers, including lethal childhood glioblastomas. How these H3.3 mutations drive cancer is not fully understood. Since defects in DNA repair are intimately associated with cancer formation, a role for H3.3 in DNA repair needs to be investigated. Our objective is to determine the potential role of histone H3.3 in DNA repair. We hypothesize that histone H3.3 is recruited to DNA damage sites where it plays a crucial role in generating chromatin accessible to DNA repair factors.
Research Abstracts

PANEL 17 - Cutting Edge Research in Biomedical Science and Biochemistry: A Focus on Human Papilloma Virus, Histone Variant in DNA Repair, Protein and Polymer Designs, and the Effects of Hormones on Neural Representation

Gender Differences and Effects of Hormones on the Neural Representation of Anxiety in Rats

By Kristin Schoepfer, Biochemistry, Florida State University

Anxiety is an adaptive response to potential threat, and inappropriate overrepresentation of this response characterizes anxiety disorders. Women are ~60% likelier than men to be diagnosed with an anxiety disorder, yet possible neural correlates remain underexplored. To examine this phenomenon, we surgically implanted extracellular recording electrodes into four emotion-related brain regions of adult (8 weeks) male (n=3) and female (n=4) Sprague-Dawley rats and recorded their local field potentials during free exploration of neutral and anxiety-provoking environments. Using time-frequency analysis methods, we found few gender differences in neural connectivity while animals were in a neutral environment. However, in females, periods of high estradiol concentration selectively enhanced theta-band (4-12Hz) power correlations between brain regions. Exposure to the anxiety-provoking Elevated Plus Maze enhanced theta-band phase locking in selective regional connections, and this measure of connectivity was again enhanced for females in high-estradiol states. These preliminary findings suggest that estradiol may bias the female rodent brain to appraise the external environment in a threat-avoidant manner.

Incorporating a Functional Mutation Into a Symmetric Scaffold as Proxy for Functional Adaptation via Rearrangement of Its Folding Nucleus

By Connie Tenorio, Biochemistry, Florida State University

Proteins are remarkable biopolymers comprised of connected building blocks called amino acids, of which 20 common types are found. These blocks (residues) form chains and coalesce to form a folded structure known as a protein. Thus, for a protein that is 150 amino acids in length, there are 15,020 possible combinations. Of this staggering number, evolution has only sampled a few of the potential possibilities. The sequence in which amino acids are arranged determines the three dimensional shape proteins take. Understanding how the structural and functional properties that can arise in the folding triggered by this sequence is the main objective of protein design. This research focuses on traversing the world of de novo protein design by using the underlying axioms of physics that rule the molecular world of protein folding and stability. Thus far we have achieved the generation of a super stable scaffold that tolerates the energetic penalties incurred throughout the design process.
Research Abstracts

PANEL 18 - Ecology and Biological Sciences: An Examination of Environmental Policy and Efforts to Preserve the Florida Manatee and African Elephants

Habitat and Phorophyte Comparisons of the Mule-Ear Orchid, *Trichocentrum Undulatum* Between the Core and Edge Distribution: A Cuba and Southern Florida Story

By Haydee Borrero, Ecology, Florida International University

The Florida state-listed endangered mule-ear orchid, *Trichocentrum undulatum*, is an epiphytic orchid that is endemic to the Caribbean region. Southern Florida is the northern limit of the species distribution, with only one surviving population, in a habitat threatened by sea level rise due to its coastal proximity. We studied the species’ ecology in neighboring Cuba and compared it to that in South Florida. We found a high density of *T. undulatum* throughout Cuba in various habitats, and we documented over 84 phorophyte species. With the continuing threats of habitat loss due to sea-level rise and detrimental plant-animal interactions, the future of the mule-ear orchid population found in the coastal regions of Florida is grim. It may be wise to implement reintroductions and artificially diversify the orchid’s phorophyte hosts in South Florida. The knowledge gained by comparisons between core and edge distributions for the species may aid in future restoration and conservation activities by providing baseline information.

Simulation Modeling of African Elephant Movement

By Stephanie Diaz, Ecology, University of Miami

Understanding the spatiotemporal dynamics of elephant movement is critical for effective conservation of elephant populations. This study developed an individual-based model (IBM) to simulate elephant movement in Chobe National Park (CNP). Once validated, the model will be used to predict how elephant space use will be impacted by both anthropogenic changes (e.g. artificial water sources) to the landscape and potential changes associated with global climate change. The main features of the model are known external and internal drivers of elephant movement (including the temperature the elephant perceives and the time since the elephant last visited a water source). The movement of elephants within the model’s environment thus results from the simulated elephants interacting with landscape attributes. To gauge the model’s power and robustness, movement characteristics were derived from empirical data and compared with model outputs. These comparisons indicate that the model is relatively successful at reproducing elephant movement characteristics.

Mechanical Behavior of Vertebral Trabecular Bone Varies Regionally and Ontogenetically in the Florida Manatee (*Trichechus Manatus Latirostris*)

By Danielle Ingle, Biological Sciences, Florida Atlantic University

Trabecular bone forms a porous architecture that changes in vivo to support mechanical demands on the body and can reflect the degree of an animal’s species-specific precociality; skeletons must be stronger and stiffer in animals that are mobile soon after birth. Previous studies have shown that aquatic mammals have vertebral microarchitecture that differ from their terrestrial counterparts. Here, we investigated the following in a precocial obligate swimmer: (1) mechanical property variation among regions of the vertebral column and ontogenetic development and (2) relationships between vertebral process lengths and bone properties. We investigated bone behavior in the Florida manatee (*Trichechus manatus latirostris*) at various regions along the vertebral column. Vertebrae were machined into three orientations for compressive tests, and stiffness, yield strength, and toughness were calculated. We found significant variation among column regions and age groups. Transverse process lengths had moderate positive correlations with bone mechanical properties, potentially providing greater surface area for muscle attachment and increasing force production on vertebrae.
Research Abstracts

PANEL 19 - Innovations in Pharmaceutical Sciences: Improving Treatments for Acute Myeloid Leukemia and Sickle Cell Diseases

Preliminary LASSO Regression Analysis Identifies DNA-Damage Gene Expression Signature Predictive of Clinical Outcomes in Patients Using Gemtuzumab Ozogamicin

By Mohammed Gbadomosi, Pharmaceutical Sciences, University of Florida

Acute myeloid leukemia (AML) is a complex heterogeneous disease characterized by a variety of genomic abnormalities. As a result of the heterogeneous nature, clinical outcomes surrounding AML remain abysmal, however, many efforts using personalized treatment approaches are currently underway, inspiring new hope. Among the premier treatment options are immunoconjugates such as gemtuzumab ozogamicin (GO), the first FDA-approved antibody-drug conjugate (ADC) for treating AML. Despite the targeted mechanism through GO-CD33 internalization and the potent apoptotic capabilities of covalently linked calicheamicin, GO is still subjected to interpatient variability in treatment response. In fact, initial approaches to improve GO therapy have all revealed key elements, such as dosing regimen, expression levels of CD33, and CD33 SNPs, governing response to GO.

Evaluating the Prevalence and Factors Associated with Hospital Readmissions in Patients with Sickle Cell Disease: A Review of Literature

By Motomori Lewis, Pharmaceutical Sciences, University of Florida

Since the 2012 Center for Medicare and Medicaid Services mandate to reduce hospital readmissions, readmission rates have been used as a quality of care metric to determine hospital reimbursements. In patients with sickle cell disease (SCD), healthcare utilization is extremely high, and hospital readmission rates consistently exceed national averages for more pervasive conditions. This literature review evaluated the prevalence and factors associated with hospital readmissions for patients with SCD in articles published from 2000 to 2018. Seventeen studies assessing both children and adults with SCD were selected from six databases including PubMed, Web of Science, and CINAHL. Rates of readmission within 30 days of discharge ranged from 16.7% to 40.0%. Key factors associated with readmissions include age in early adulthood, record of outpatient follow-up appointments, low opioid prescription dosage upon discharge, and insurance provider. There is a consensus that factors leading to SCD readmissions are multifactorial and further evidence is needed to improve readmission outcomes for this high-risk population.
Research Abstracts

PANEL 20 - Current Topics in Urban Planning, Public Affairs and Foreign Policy

Conceptualizing Action Early in the Collaborative Process: Driving Forces that Build Capacity for Collaboration Implementation

By Shanice Jones, Urban Planning/Public Administration, Florida State University

Over the last several decades, collaborative governance has grown in popularity and practice within the environmental and natural resource management fields. However, managing resources and carrying out plans generated in the collaborative process to achieve an agreed upon mission is difficult because of a number of barriers. The challenges around implementing the collaborative process into public land managers’ work, action, and decisions are magnified at the landscape scale, particularly as authority and accountability overlap private land owners and public management. This research study explores how collaborative groups can navigate these tensions and support management across multiple ownership and management boundaries. The study will use a single case study, the Landscape Conservation Cooperative Network (LCC), to capture a more nuanced understanding of how and to what extent the collaborative process influences desired environmental outcomes. The study seeks to understand how landscape scale collaboration coordinates multiple governing jurisdictions to address challenges across boundaries.

Strengthens from Within: A Qualitative Study Examining Key Factors Which Strengthen African American Families

By Rachael Mack, Public Affairs, University of Central Florida

Research indicates that African American and low-income families increasingly experience disadvantages that affect them economically, educationally, socially, behaviorally and emotionally. Although existing literature highlights assets and protective factors within these families, research is limited in defining intrinsic strengths that aid in their resilience and ability to withstand common stressors in the face of concentrated disadvantage. Through the use of community-based participatory research methodology, this study utilized a convenience sample of African American and low-income parents (N=33) to conduct focus groups exploring their perspectives of existing internal and external factors that strengthen their families. Five themes and their accompanying sub-categories were identified: reciprocal communication (i.e., respect); intentional time (i.e., unity and support); solid foundations (i.e., structure, church, and expectations); planting a seed (i.e., support, extracurricular activities, and exposure); and “it takes a village” (i.e., support, community, and mentoring). Findings from this study suggest that low-income and African American families have an array of strengths moderated by external factors.

Domestic Constraints of American Foreign Policy: The Cases of Rwanda and Haiti

By Camara Silver, Political Science, University of South Florida

This study examines the constraints that shaped the Clinton administration’s foreign policy decisions during two humanitarian crises in 1994: the genocide in Rwanda and the military Junta’s removal of President Jean Aristide in Haiti. Specifically, we examine the reluctance exhibited by the United States to intervene in the Rwandan genocide as well as the domestic considerations that went into Clinton’s decision to support United Nations Security Council Resolution 940, which authorized the United States to lead a peacekeeping operation to restore Jean Aristide as president of Haiti. These two case studies demonstrate the Clinton administration’s foreign policy concerns involving humanitarian crises. Certain domestic factors, such as the public’s outrage after 18 army rangers were killed in Somalia during a peacekeeping mission, as well as media attention, constrained the Clinton administration from sending out similar future missions, focusing only on strategic humanitarian cases.
Research Abstracts

PANEL 21 - Chronic Issues in the Health Sciences: New Strategies for Heart Failure and HIV Patients

A Circle of Gratitude: Testing a Model of Gratitude, Self-Efficacy, and Medication Adherence in Heart Failure Patients

By Lakeshia Cousin, Health Sciences/Nursing, University of South Florida

Although consistent self-care slows the progression of heart failure (HF) for the nearly 6.5 million Americans currently living with this disease, little is known about the actual relationships among gratitude, self-efficacy, and medication adherence in HF. A structural equation model was used to examine this association. Patient mean age was 66 years (SD = 11), 95% were male, 79% White, 12% Black, and 6% Asian. Gratitude exerted an indirect effect on medication adherence through self-efficacy (b = 0.16; p < 0.05): gratitude was positively related to self-efficacy (b = 0.50; p <0.05), and self-efficacy was positively related to medication adherence (b = 0.31; p < 0.05). In addition, the model fit was acceptable (CFI = 0.92, TLI = 0.90, RMSEA = 0.08). This study provides evidence that self-efficacy was a mechanism through which gratitude was associated with medication adherence in HF patients, suggesting a way to advance self-care. Future work will examine whether a gratitude intervention results in improved self-care.

The Individual, Interactive, and Syndemic Effect of Substance Use, Depression, Education, and Ethnicity on Retention in HIV Care

By Kristopher Myers, Public Health, Florida International University

There are currently no studies assessing the individual, syndemic, and interactive associations of individual-level factors with retention in HIV care. The study assessed the effect of retention among 407 HIV positive persons from the Miami Adult Study on HIV/AIDS (MASH) cohort. Researchers conducted a logistic regression to determine the significance of all variables, conducted a backward regression, controlling for all main effects and eliminating all interactions with p-values>0.10; and assessed the syndemic associations of retention. They found that “Non-Hispanic Black,” “Black-Hispanic” and “Other” ethnic identities were associated with retention. Researchers also determined that the interaction between depression and alcoholism and the interaction between age and male gender were negatively associated with retention. Accordingly, African Americans, depressed persons prone to alcoholism, and older males may require improved efforts from clinicians to maintain retention in HIV care.
Research Abstracts


Understanding Agricultural-Land Conservation from the Perspective of Landowners in Franklin County, Massachusetts

By Dr. Rocio Lalanda, Geosciences, University of South Florida

What motivates landowners to use conservation easements for the protection of their land against future development? While conservation easements have become a popular strategy for land conservation in the United States, a growing body of literature is examining how and why landowners decide to participate in conservation easements. This research project seeks to expand knowledge about this issue in environmental, geographical and rural land development literatures through a qualitative fieldwork study of landowners associated with the Franklin Land Trust, a nonprofit conservation organization in western Massachusetts. More specifically, the study examines the key features that shape landowners’ decisions to grant conservation easements for agricultural land, and the benefits and drawbacks of these legal tools as perceived by the actual landowners involved. Overall, this study seeks to contribute to land conservation studies through an analysis of individual motivations and experiences that shape the decisions of agricultural-land owners to grant conservation easements.

Controls on Organic Matter Sequestration During Cretaceous Oceanic Anoxic Event 2 in the Western North Atlantic

By Vanessa Londono, Geosciences, Florida International University

Cretaceous Oceanic Anoxic Events (OAEs) are intervals of the past in which perturbations in the carbon cycle resulted in the increased global deposition of organic matter (OM), anoxia, and extinctions. The most prominent and widespread is OAE 2 (~94 million years ago) which was possibly triggered by long-term changes in atmospheric CO2 from intense volcanic activity. The mechanisms that promoted the widespread accumulation of OM during OAE 2 are not clearly defined but focus on the relative roles of paleoproductivity and preservation. I will test the hypothesis that increased paleoproductivity led to the deposition of the OM-rich sediments at my site in the North Atlantic using these paleoproductivity proxies: benthic foraminifera, stable isotopes of carbon and nitrogen, total organic carbon (TOC), total inorganic carbon (TIC), major and trace elements, and biomarkers. Ultimately, determining the cause of enhanced burial at this site will provide further insight into the long-term response of the carbon cycle to increased CO2 and enhanced greenhouse conditions.

A Correlation of Interferometric Synthetic Aperture Radar (InSAR)-Derived Subsidence Velocities With Ground-Based Estimates of Sinkhole Activity, West-Central Florida, USA

By Tonian Robinson, Geosciences, University of South Florida

Sinkholes are one of the leading natural disasters in West Florida; therefore, precursory detection is crucial to alleviate the risks of property damage. Detection of surface subsidence caused by sinkholes is possible using Interferometric Synthetic Aperture Radar (InSAR). We hypothesize that the degree of subsidence will correlate with both the raveling index (RI) and sinkhole resistance ratio (SRR) of the location, where the higher the RI and lower SRR, the faster the subsidence velocity. The RI is a measure of the lengths of zones of low standard penetration test (SPT) blow count N-values. Low N-values are indicators of loose soil or voids and may be associated with past or present sinkhole activity. The SRR is an advancement of the RI, in that, it includes both RI values and soil strength parameters from cone penetrations tests (CPT). This hypothesis will be tested by statistically analyzing the correlation of local RI’s and SRR’s to nearby InSAR-derived velocities.
Enabling Technobiology with Magnetolectric Nanoparticles
By Krystine Pimentel, Electrical Engineering, Florida International University

Current patient care lacks highly localized therapies with adequate treatment specificity to substantially reduce or entirely eliminate side effects. The low specificity is the main stumbling block in the development of cancer therapeutics. Independently, neurodegenerative diseases (Parkinson’s disease, Epilepsy, Alzheimer’s disease, and many others) have treatment strategies that require macroscale brain stimulation using invasive direct-contact electrodes. However, to date, there is no treatment that can provide such highly localized electric stimulation in any region of the brain on demand, non-invasively. To address these important shortcomings, this research engineers magnetolectric nanoparticle (MENs) based systems for personalized patient care. Unlike any other nanoparticles known to date, MENs have a non-zero magnetolectric (ME) effect that is capable of wirelessly controlling electric fields at the sub-cellular level. As a result, MENs enable a new dimension to wirelessly control intrinsic biological mechanisms for unprecedented treatment and diagnostic capabilities. This prominent technique of molecular-level control of biological processes wirelessly is afforded by an approach called technobiology.

Corrosion Mechanisms of External Coatings on Aluminum Alloys Using Atmospheric and Accelerated Corrosion Test Methods for Service Life Prediction
By Michelle Pierre, Materials Science and Engineering, Florida International University

Aluminum plays a major role in material components for military, commercial aircraft, and spaceflight engineering. Improving the performance of aluminum against corrosion is significant to NASA’s space operation missions. Coatings performance are qualified at NASA Kennedy Space Center’s (KSC) beachside atmospheric corrosion site for 18 months and 5 year final qualification. Accelerated corrosion tests in the field and laboratory increase the severity of degradation in materials to ascertain material performance. However, an accelerated method as a tool for predicting long-term service is not universally accepted. There is a need for a protocol that can correlate corrosion products from accelerated testbeds to the timescale of NASA KSC. Alternating seawater spray system (ASST) is a new accelerated method that involves a cyclic wet-dry spraying of seawater directly onto coated samples while they are simultaneously exposed to natural atmospheric conditions. This research will correlate the corrosion mechanisms and pore size/concentration of coated aluminum alloy exposed to ASST to NASA KSC’s marine test site.

Characterization and Modeling of Glass/Epoxy Composites: Scale-Up Effects on the Fiber/Matrix Interface
By Raul Vidal, Mechanical Engineering, Florida Atlantic University

Composite materials (such as glass/epoxy) are cheaper/easier to manufacture than traditional materials for electrical, mechanical and marine applications. Before use, we need to model expected behavior to validate functionality, and models vary by type of polymer, fibers and orientation. Extensive testing has been done for composites containing a fiber content (volume fraction) of 30 percent or more, but no one has been able to study lower fiber volume fractions, as traditional manufacturing does not allow enough control. To place fibers at controlled distances, a more novel approach to manufacturing is necessary. We have found that semiconductor fabrication techniques can control the placement of fiber and thus we used photolithographic techniques to create microchannel guides for fiber placement. We have created a successful proof-of-concept using 3D printing (additive manufacturing) and are about to gather data to build new models of composite behavior.
Research Abstracts

PANEL 24 - Innovations in Electrical Engineering: In-Stream Hydrokinetic Energy and Battery Life Cycle

FAST-Based In-Stream Hydrokinetic Generation System Modeling for MCM and PHM

By Brittny Freeman, Electrical Engineering, Florida Atlantic University

In-stream hydrokinetic electricity production, that is, electricity production from moving currents without the use of dams, has a technically feasible average U.S. electricity production output estimated at 14 gigawatts from rivers, 50 gigawatts from tides, and 19 gigawatts from ocean currents. This combined power potential is equivalent to 17% of the total 2011 U.S. power production. For both environmental and economic reasons, research and development is currently underway related to efficiently harnessing these renewable resources and reducing the levelized cost of energy (LCOE). Towards this goal, we have developed an intelligent and online Machine Condition Monitoring (MCM) and Prognostic Health Monitoring (PHM) simulation platform based on the National Renewable Energy Laboratory’s (NREL) Fatigue, Aerodynamics, Structures, and Turbulence (FAST) simulation suite. FAST is a design tool that dynamically simulates wind turbines; however, we have re-parameterized it to produce simulations more representative of a 20-kW in-stream hydrokinetic turbine housed within a holistic Matlab/Simulink platform for incipient fault detection and prognosis schemes.

Life Cycle Prediction of Sealed Lead Acid Batteries Based on a Weibull Model

By Yemeserach Mekonnen, Electrical Engineering, University of South Florida

Sealed Lead Acid (SLA) batteries are used as backup batteries in Access Points (APs) and Relays in smart power grids, which are critical in routing energy metering data to utility companies. Reliability of backup batteries is crucial in order for the AP to carry out continuous and dependable data transmission during power outages. However, utilities do not know how long these batteries can remain functional. To estimate their life cycle, we collected experimental data on new batteries undergoing cyclic tests with a discharging and charging profile similar to the AP field operational conditions. Failure data was then modeled to extrapolate reliability parameters. The Mean Time to Failure (MTTF) under 100% depth of discharge is 74 cycles and 2 years under 37°C temperature. Results from this study are already being used to improve system reliability and maintenance in smart grid infrastructure. Furthermore, the methods developed in this work can now be used to predict the life cycle of other types of batteries.
Consider the following advice presented during an FEF Annual McKnight Fellows Meeting panel on Employment Opportunities, Negotiating Contracts, Publishing, and Earning Tenure and Promotion in Academia by

- Dr. Thomasenia Adams, Panel Chair, Professor, College of Education, University of Florida
- Dr. Glen Jones, Vice Chancellor of Academic Affairs, Arkansas State University
- Dr. Todd Wyatt, Associate Professor, College of Medicine & College of Public Health, University of Nebraska Medical Center
- Dr. Kofi Glover, Associate Provost, University of South Florida
- Dr. David Mazyck, Associate Professor, College of Engineering, University of Florida

MDF TIPS on Publishing for Tenure and Promotion

- Articulate a plan for completing a major writing project such as a book or journal article. Not all colleagues appreciate the value of a published book. Know what your profession, department and college accept and/or desire.

- Maintain a focused, strong, and consistent scholarship record. Aim for two to three publications every year. Skips in your publication record may suggest instability.

- Write empirical-based or data-driven articles as much as possible. Use concept and practice-oriented papers to complement these submissions.

- Collaborate using varying authorship patterns. Always being listed as first author might make you appear dogmatic. Never being listed first might make you appear to lack leadership. Negotiate listing position when you collaborate with others.

- Know the acceptance rate and level of readership for the journals in which you publish. Obtain this information from the editor, journal Websites or, in many instances, from Cabell's Directory of Publishing Opportunities.

- Publish in journals that have an acceptance rate of 30% or lower. Your university also might value impact factor of journals. Inquire about this.

- Mentoring doctoral students can lead you to co-author manuscripts. However, don't take advantage of doctoral students and use them just to build your record. Instead, genuinely take care to nurture their professional development.

- Consider publishing in journals outside as well as inside your field. This shows a broad interest in and acceptance of your work.

- Consider your university type (i.e., research, teaching). Let this factor guide your decisions on what and how you publish.
**Presenter & Discussant Biographical Sketches**

**Dr. Diane Allen-Gipson** is Associate Professor in the College of Pharmacy and Pharmaceutical Sciences at the University of South Florida. Her research interest is investigating lung wound injury and repair, and she has found that a nucleoside, adenosine, is key to the repair process. Dr. Allen-Gipson has served as principal investigator for numerous grants totaling over $500,000, including the National Institutes of Health: National Heart Lung Blood Institute Career Development Grant K01; Nebraska Tobacco Health and Human Services Grant, LB506; and Bayer Pharma, Grant 4Targets. She has published in several peer-reviewed publications, including *The Journal of Investigative Medicine*, *The Journal of Pharmacology and Experimental Therapeutics*, and *The American Journal of Physiology*, and serves as a member of the Editorial Board for the *American Journal of Respiratory Cell and Molecular Biology (Red Journal)*. Dr. Allen-Gipson obtained her Ph.D. in pharmaceutical sciences from Florida A&M University.

**Dr. Christopher Alexander** is Assistant Professor, Structures and Materials, in the Department of Civil and Environmental Engineering at the University of South Florida. Prior to his position at USF, he was a Postdoctoral Research Fellow at Sandia National Laboratories in New Mexico. Dr. Alexander earned a master’s in civil engineering and a Ph.D. in chemical engineering from the University of Florida. Before attending graduate school, he earned his bachelor’s in civil engineering from USF. He conducts research in the areas of corrosion diagnosis and control, electrochemical impedance spectroscopy, and multi-physics modeling.

**Dr. Atalie Ashley-West** is the Administrator in the Community Action Division in the Orange County Government. In her current role, she oversees compliance, data analytics, strategic planning, needs assessments, process improvement, and operational effectiveness for the county’s social service division. She also serves as Adjunct Professor in the Master of Healthcare Administration program at Advent Health University. Dr. Ashley-West holds a B.A. in psychology and an MPH in community and family health, with graduate certifications in epidemiology and biostatistics, from the University of South Florida. She also holds a Ph.D. in public affairs from the University of Central Florida, where she was also a McKnight Doctoral Fellow. Dr. Ashley-West’s research centers on social determinants of health and health disparities, and applying structural equation models to population health problems. Her work has been published in the *Journal of Health Promotion and Practice*, and her work on social determinants of health have been presented to the American Public Health Association, the Association of Maternal and Child Health Programs, the Moffitt Cancer Center, and the American Association for Cancer Research.

**Dr. Prabir Barooah** is Associate Professor in the Department of Mechanical and Aerospace Engineering at the University of Florida. He received his Ph.D. from the University of California, Santa Barbara in 2007. Prior to his doctoral studies, Dr. Barooah was a Research Engineer at United Technologies Research Center in East Hartford, Connecticut. He earned his master’s and bachelor’s of technology degrees, both in mechanical engineering, respectively from the University of Delaware and the Indian Institute of Technology, Kanpur. Dr. Barooah’s awards include the ASEE SE Section’s Outstanding Researcher Award, an NSF CAREER award, General Chairs’ Recognition Award for interactive papers at the 48th IEEE Conference on Decision and Control, best paper award at the 2nd International Conference on Intelligent Sensing and Information Processing, and the NASA group achievement award. His research encompasses control systems for a smart, sustainable energy infrastructure (particularly, enabling buildings to reduce energy use and provide “virtual storage” to the electric grid for integrating renewable energy sources such as solar and wind), distributed estimation and control algorithms (for applications such as localization/synchronization of sensor networks and robotic swarms), and distributed optimization.
Presenter & Discussant Biographical Sketches

**Dr. Tony A. Barringer** is Associate Provost and Associate Vice President for Faculty Affairs at Florida Gulf Coast University, where he also has served as Interim Dean, Associate Dean, and Division Chair. Prior to joining FGCU in 1997, he taught at the College of Lake County and Southeast Missouri State University. He has over twenty years of practical experience in criminal justice and has taught in higher education nearly as long. Dr. Barringer has presented nationally and internationally, served as a consultant to the Bulgarian Ministry of Justice, and, because of the impact of his research and practice, served as a guest discussant at the Florida Department of Corrections’ Re-entry Summit. He has acted as Principal or Co-Principal Investigator for approximately $1 million in funded state and federal grants in juvenile justice and wraparound services and has published widely on the subject of minorities’ experiences with the criminal justice system. Dr. Barringer earned a B.S. in criminal justice and an M.S. in public administration from Southeast Missouri State University and a doctorate from Northern Illinois University.

**Dr. Vivek Bhargava** is Professor of Finance and Associate Dean of Faculty & Administration in the Lutgert College of Business at Florida Gulf Coast University. He has over twenty-eight years of combined business and academic experience. Prior to joining FGCU, Dr. Bhargava was the Dean or Interim Dean of the School of Business at Alcorn State University for over five years. Dr. Bhargava earned his Bachelor of Engineering in chemical engineering; MBA, and Ph.D. in finance from the University of Alabama. He also is a Chartered Financial Analyst® (CFA). Dr. Bhargava has published over 30 research papers in the fields of financial investments and derivatives in nationally and internationally recognized journals, including *Journal of Portfolio Management*, *Financial Review*, *Journal of Multinational Financial Management*, *International Journal of Finance*, and the *European Journal of Finance*. He has made over 50 presentations at national and international academic conferences.

**Dr. Harleah Graham Buck, RN, FPCN, FAAN** is Associate Professor of Nursing at the University of South Florida where she is also the Coordinator of Chronic Illness Initiatives. She previously was on the faculty of Penn State University and completed a postdoctoral research fellowship at the University of Pennsylvania. Dr. Buck has over 30 years of nursing experience at multiple large health care systems. She is funded by both the National Institutes of Health and the National Science Foundation. Dr. Buck’s research examines the influence of the interaction between older adults and their informal caregivers when self-managing chronic illness at home. Dr. Buck’s contributions to nursing have been acknowledged with multiple honors and awards as well as invitations to present on palliative care and chronic disease topics in national webinars and scientific sessions. She is recipient of the 2017 Mathy Mezey Excellence in Aging Award by the American Heart Association; honored as Best Cited Author by the *European Journal of Cardiovascular Nursing* for ‘Caregivers’ contributions to heart failure self-care: A systematic review’; and awarded by a juried panel the 2016 *Journal of Continuing Education in Nursing* Innovation Award for her rural health project infusing geriatric continuing education into Critical Access Hospitals. She currently co-chairs the American Academy of Nursing’s Palliative and End of Life Care Expert Panel.

**Dr. Blanca Camoretti-Mercado** is Assistant Professor of Allergy and Immunology, Department of Medicine, University of South Florida. She completed her doctorate at the University of Buenos Aires and a fellowship at the University of Chicago. A popular speaker and recipient of diversity, mentor, and teacher awards, her investigations focus on asthma, COPD, and drug discovery. She received grants from NIH, AHA, ALA, LAM Foundation, Blowitz-Bridgeway Foundation, and ATS (American Thoracic Society). Dr. Camoretti-Mercado serves on NIH and AHA Study Sections, and is Editorial Board member of *Frontiers in Cardiovascular Medicine, Impact*, and *Clinical Medicine Insights: Circulatory, Respiratory and Pulmonary Medicine*. She serves in the Executive Committee of the RSF Assembly of ATS as chair of the Nominating Committee and chair of the PhD Basic and translational Scientists Working Group. Dr. Camoretti-Mercado is member of the Planning and Evaluation Committee of ATS, and has served as immediate past-chair of the SRF Assembly, and member of the ATS Board of Directors, the International Conference Committee, the International Lung Health Committee, the Science and Innovation Center, Finance Committee, and Members in Training and Transition Committee. Dr. Camoretti-Mercado has organized, chaired and facilitated numerous scientific sessions and was chair of the Women Lung Conference of the ALA Education Committee in Chicago.
Presenter & Discussant Biographical Sketches

Dr. Iraida Carrion is Associate Professor in the School of Social Work at the University of South Florida and MSW Program Director at the USF Sarasota-Manatee Cohort. She earned her master’s in Social Work and Ph.D. in applied anthropology and has had an extensive career as a clinician and educator. Dr. Carrion’s research on health disparities among Latinos intersects end of life care, cancer, and aging, and addresses implications of health care practice disparities and interventions involving complex systems of care delivery. She has published 21 articles in Social Science and Medicine, Journal of Palliative Medicine, Supportive Cancer in Care, Journal of Cancer Education, American Journal of Hospice and Palliative, Geriatric Nursing, Social Work in Health Care Medicine, Pain Management Nursing, and The Journal of Loss & Trauma and three book chapters on hospice utilization, migrant health, and care-giving. She has presented in Austria, Canada, Holland, London, and Turkey as well as at national and state conferences. In 2011, Dr. Carrion received the McKnight Junior Faculty Development Fellowship, and in 2013, received the Hispanic Pathway Award and the Status of Latino Faculty Award at USF.

Dr. Marvin P. Dawkins received his Ph.D. from Florida State University and completed postdoctoral research fellowships at the Joint Center for Political and Economic Studies (Washington, DC) and Johns Hopkins University (Baltimore, MD). He is currently Professor of Sociology in the Department of Sociology at the University of Miami. His research focuses on issues of race and social equity in such areas as education, career aspirations and mobility, substance abuse prevention, and sports. He has published widely in these areas, including his most recent publication entitled “TEAMS (Teaching Excellence, Achievement and Motivation through Sport): A Case Study of a University-Community Collaboration” (with J. Sokol-Katz, J. Braddock and L. Basinger-Fleischman) in D. Van Rheenen and J. DeOrnellas (Eds.) Envisioning Scholar-Practitioner Collaborations: Communities of Practice in Education and Sport. (Information Age Publishing, 2018). Dr. Dawkins serves as the University of Miami’s Faculty Athletics Representative to the Atlantic Coast Conference (ACC) and National Collegiate Athletic Association (NCAA). He also served as ACC President for 2017-2018.

Dr. Debbie T. Devine, ARNP-FNP, is Research Associate at Tampa’s James A. Haley’s (VA), HSR&D Center of Innovation on Disability and Rehabilitation Research. Dr. Devine has over 22 years of experience as a Family Nurse Practitioner, Scientist, and Educator. She specializes in women’s health, pediatric and adolescent health; with a focus in patient safety; healthcare disparities in underserved populations; evidence based practice; and developing policies and standards of care.

Dr. Michelle Dunlap is Professor of Human Development at Connecticut College and has been affiliated with the college since earning her Ph.D. more than 20 years ago. She earned her master’s and Ph.D. in social psychology from the University of Florida after graduating with high distinction and honors in psychology from Wayne State University. While attending graduate school, Dr. Dunlap taught college and worked as a Head Start mental health counselor. Dr. Dunlap has authored several books as well as journal articles, book chapters, and essays about her research on college students working in community service-learning settings, intergroup relations, and perceptions and misperceptions of African American child rearing. In 2005, the State of Connecticut African American Affairs Commission named her as Woman of the Year, and in 2008, she won the New England Resource Center for Higher Education’s Lynton Award for Scholarship of Engagement. Dr. Dunlap has served in many professional, academic, and community organizations, and teaches courses related to children, families, personality and adolescent development, and families in a multicultural society.
Dr. Nasir Ghani is Professor in the Electrical Engineering Department at University of South Florida and Research Liaison for Cyber Florida. Earlier he was Associate Chair of the ECE Department at the University of New Mexico and a faculty at Tennessee Tech University. He has also spent several years working at Blue Chip organizations (IBM, Motorola, Nokia) and hi-tech startups. He is involved in a range of research activities in cyberinfrastructure networks, cybersecurity, cloud computing, disaster recovery, and cyber-physical systems. He has published over 200 peer-reviewed publications, and his research has been supported by the National Science Foundation, Defense Threat Reduction Agency, Department of Energy, Qatar Foundation, and Sprint-Nextel. He received the NSF CAREER Award in 2005 and best paper awards at IEEE PIMRC 2017 and IEEE ANTS 2010. He has served as an Associate Editor for the IEEE/OSA Journal of Optical and Communications and Networking, IEEE Systems, and IEEE Communications Letters. He has also edited special issues of IEEE Network and IEEE Communications Magazine and has chaired symposia for IEEE GLOBECOM, IEEE ICC, IEEE ICCCN, and workshops for IEEE INFOCOM. He was also the chair of the IEEE Technical Committee on High Speed Networking (TCHSN) from 2007 to 2010. He received the bachelor’s in computer engineering from the University of Waterloo, the master’s in electrical engineering from McMaster University and the Ph.D. in computer engineering from the University of Waterloo.

Dr. Fernando Gonzalez, Associate Professor of Engineering, joined Florida Gulf Coast University as an Assistant Professor in the Software Engineering Program in fall 2013. Previously he was an Assistant Professor in the Engineering, Math, and Physics Department at Texas A&M International University, a Technical Staff Member (researcher) for the U.S. Department of Energy at Los Alamos National Laboratory in New Mexico, and a faculty member in the Electrical and Computer Engineering Department of the University of Central Florida. Dr. Gonzalez graduated from the University of Illinois in 1997 with a Ph.D. in electrical engineering and received his Master’s in electrical engineering and his Bachelor’s in computer science from Florida International University in 1992 and 1989. His research interests include the intelligent control of large scale autonomous systems, autonomous vehicles, discrete-event modeling and simulation and human signature verification. Dr. Gonzalez has published numerous papers in conference proceedings and journals.

Dr. Ali Gordon serves as Associate Dean of Graduate Studies, College of Engineering and Computer Science, and Associate Professor, Mechanical and Aerospace Engineering, University of Central Florida. Just prior to joining UCF, he earned a Ph.D. in mechanical engineering from Georgia Tech. His principal research activities are focused on the development of continuum-level models to predict behavior of materials subjected to complex operating environments. This research has been funded by NSF, ONR, AFRL, and various industrial partners. He has led or co-authored over 100 articles and is a recipient of the Orr Award and the Widera Award for best papers in journals of the American Society of Mechanical Engineering (ASME). In the classroom, he instructs curricula related to theoretical/experimental mechanics of materials and structures and was twice awarded UCFs highest honor for teaching. During the 2012 summer, he was selected as the first Visiting Scientist of Structural Integrity with Siemens Energy. More recently, he was thrice appointed as an AFOSR Summer Faculty Fellow at Wright-Patterson Air Force Base. Dr. Gordon is an active member of ASME and is the advisor of UCF’s ASME chapter.

Dr. Jessica Gordon, APRN, CPNP-PC, received her B.S.N. from the University of Arizona and her master’s and doctoral degrees from the University of South Florida, where she is now Assistant Professor in the College of Nursing. Currently, she researches the microbiomes and biological, behavioral, and health outcomes of preterm infants for an NIH funded grant (Dr. Maureen Groer, PI). Dr. Gordon has published and been featured in Pediatric Nursing, USA Today, The Tampa Tribune, USF On the Move Magazine, and Centro Tampa. Her community service includes local, state and national initiatives such as the NICHQ Safe Sleep Community for Practice Pilot, the Florida State Health Improvement Plan, the Florida Breastfeeding Coalition (President), and American Psychiatric Nurses Association (member at large, Florida chapter). Because of her contributions to the health of women, infants, and children, she was a finalist for Tampa Bay Business Journal’s Health Care Hero. As a doctoral student, Dr. Gordon won accolades for her poster and oral presentations, and received a College of Nursing Graduate Fellowship Award and a CANS/SNRS Dissertation Grant. Dr. Gordon has over 15 years of clinical, academic and research experience.
Presenter & Discussant Biographical Sketches

Dr. Sheeba Varghese Gupta is Assistant Professor in the Department of Pharmaceutical Sciences at the University of South Florida College of Pharmacy. Prior to joining USF, she served as an Assistant Professor at the University of Incarnate Word’s Feik School of Pharmacy and as a Postdoctoral Research Associate at the University of Michigan. Dr. Varghese Gupta has published in peer reviewed journals and presented at national meetings. At USF, in addition to teaching courses in PharmD curriculum, she is instrumental in the discovery of novel anti-influenza agents and drug delivery systems. Dr. Varghese Gupta earned an M.S. from Bharati Vidyapeeth College of Pharmacy (Kolhapur, India) and her Ph.D. in pharmaceutical sciences from Wayne State University.

Dr. Lawrence Hall is a Distinguished University Professor in the Department of Computer Science and Engineering at University of South Florida. He received his Ph.D. in computer science from the Florida State University in 1986 and a B.S. in applied mathematics from the Florida Institute of Technology in 1980. He is a fellow of the IEEE. He is a fellow of the AAAS, AIMBE and IAPR. He received the Norbert Wiener award in 2012 and the Joseph Wohl award in 2017 from the IEEE SMC Society. His research interests lie in learning from big data, distributed machine learning, medical image understanding, bioinformatics, pattern recognition, modeling impression in decision making, and integrating AI into image processing. He continues to explore unsupervised and semi-supervised learning using scalable fuzzy approaches. He has authored or co-authored over 90 publications in journals, as well as many conference papers and book chapters. He has received over $5M in research funding from agencies such as the National Science Foundation, National Institutes of Health, Department of Energy, DARPA, and NASA.

Dr. Delroy Hunter is the Serge Bonanni Professor of International Finance at the University of South Florida, where he teaches graduate courses in investments, international finance and empirical methods. Dr. Hunter has published articles in the Journal of Financial Economics, The Accounting Review, the Journal of Business, the Journal of Financial Intermediation and the Journal of Corporate Finance. His honors include the Goldman Sachs Quant Award at the Western Finance Association Conference, “best paper” semi-finalist at several conferences, and multiple Muma College of Business awards. Dr. Hunter has presented at national and international meetings, at the central bank workshop, and for university seminars. He is an Associate Editor for the Journal of Financial Stability and Quarterly Journal of Finance & Accounting and has reviewed articles for journals, grant-funding agencies and conferences. Dr. Hunter earned his Ph.D. at the University of Warwick, United Kingdom, where he was a Commonwealth Scholar, his master’s from the University of Florida and his bachelor’s from the University of the West Indies, Jamaica. Prior to joining USF in 2001, he taught at Bentley University and the University of the West Indies.

Dr. Laura Kohn-Wood served as chair of the Department of Educational and Psychological Studies and first co-chair of the University’s Standing Committee on Diversity, Equity, and Inclusion, prior to being named Dean of the School of Education and Human Development at the University of Miami. She was founding director of the School’s master’s program in Community and Social Change and helped develop the Ph.D. program in Community Well-Being. Dr. Kohn-Wood’s scholarship focuses on the impact of race, ethnicity, and culture on the experience of psychological distress in diverse populations and examines positive coping and mental health among urban African-Americans. She has written 50 articles and chapters and edited a book on qualitative research strategies about ethno-cultural populations. Dr. Kohn-Wood received her Ph.D. in clinical psychology from the University of Virginia and completed an internship at the University of California, San Francisco Medical School, followed by a postdoctoral fellowship at Georgetown University School of Medicine. She served as an assistant, then associate professor in the Department of Psychology at the University of Michigan. She lives at Pearson Residential College, where she is Senior Resident Faculty, with her husband and son.
Presenter & Discussant Biographical Sketches

**Dr. Hong Liu** is Associate Professor at the International Center for Tropical Botany and the Department of Earth and Environment at Florida International University, and a Research Associate at the Fairchild Tropical Botanic Garden. Her main research interests are plant conservation ecology. Dr. Liu’s current research, carried out both in Florida, and tropical China, addresses important environmental issues such as what are the impacts of climate change on rare and threatened species, how to conserve heavily exploited plant species, the role of biotic interactions in population persistence and expansion. She is also interested in rare plant restoration, including endangered orchids. Dr. Liu has served as a member of the IUCN SSC Orchid Specialist Group since 2012 and the wild orchid trade subgroup since 2016. She has published more than 60 peer-reviewed papers and her research in wild orchid conservation has been recognized by academic peers world-wide. The journal *Science* prominently featured her work in China in 2010. She is currently serving on the editorial board of *Conservation Biology*, a flagship journal in the field of biodiversity conservation.

**Dr. Darlene Lott** is Adjunct Physics Instructor at Hillsborough Community College, Plant City, and a former McKnight Dissertation Fellow at the University of South Florida, where she earned her Ph.D. in geology/hydrogeology. Her dissertation was entitled The Utility of the Conductivity Mass Balance Method for Base Flow Separation in Rivers and Streams. Her research interests encompass water management, determining the availability of water in an area, and quantifying fresh water. She has worked for the USGS Water Science Center and as a field scientist for Cardno ENTRIX, an environmental consulting firm in Riverview, Florida. Prior to relocating to the Tampa area, Dr. Lott earned her M.S. in geology/environmental science from the University of Missouri, Kansas City.

**Dr. Elizabeth Metzger** is Associate Professor in the Department of English at the University of South Florida, with a concentration and interests in composition pedagogy, writing program administration, and writing assessment. She teaches both undergraduate and graduate courses. Serving on a myriad of departmental and university committees, she has worked closely with many outreach, mentoring and diversity initiatives associated with USF to help students achieve, through such programs as the McNair Scholars Program, the Area Health Education Center, the Pre-Medical Summer Enrichment Program, the Minority Access to Research Careers Program, and the McKnight Doctoral Fellowship Program. In addition, she has been involved actively at the state level in test development and essay scoring for the College Level Academic Skills Test and the Florida Teacher Certification Exam. For these efforts, she has received, among others, two Outstanding Undergraduate Teaching Awards, a McKnight Most Valuable Mentor Award, the Florida Education Fund President’s Award and several certificates for distinguished service.

**Dr. Sonja Montas-Hunter** is Assistant Vice Provost, Office of Student Access & Success at Florida International University and previously served as Associate Dean of the FIU Graduate School. As Associate Dean, she oversaw the Graduate Student Professional Development Program in the areas of recruitment, diversity and outreach and served as liaison to programs such as the McKnight Doctoral Fellowship, Bridge to the Doctorate, McNair Scholars and the National GEM Consortium. Additionally, Dr. Montas-Hunter coordinated the implementation of procedures ensuring compliance with University and external policies, regulations and laws. Her previous positions include Assistant Dean, Academic and Student Affairs, Miami Dade College-Hialeah Campus, and Executive Director, Barry University’s Office of Migrant Education, overseeing an annual $1.5 million budget. Dr. Montas-Hunter’s awards include the American Association of Hispanics in Higher Education Fellowship (2012), the 2013 FEF President’s Award, and the 2014 GEM Consortium Representative of the Year. Her most recent article, “Self-Efficacy and Latina Leaders in Higher Education,” appeared in the *Journal of Hispanics in Higher Education*. Dr. Montas-Hunter earned bachelor’s and master’s degrees in English from Hunter College and Radford University, respectively, and a Ph.D. in higher education leadership from Barry University.
Presenter & Discussant Biographical Sketches

**Dr. Marisa Omori** is Assistant Professor of Sociology at the University of Miami. She received her Ph.D. from the University of California, Irvine in criminology, law & society. Her research focuses on the racialization of crime control, including racial inequality within criminal justice institutions, and drug use and punishment. Specifically, her work investigates questions of how racial inequality is created and maintained within the criminal justice system, and how context and place matters for this inequality.

**Dr. Marianne Porter** is Assistant Professor in the Department of Biological Sciences at Florida Atlantic University. Her research is crosscutting (biology–engineering) and focuses on biological materials and mechanical systems underlying movement in animals. Her research interests are in three key areas of inquiry: marine biological materials, mechanical tuning of springs, and swimming kinematics in the lab and field. Systems she works in include: cartilaginous fishes, teleost fishes, marine mammals, and bio-inspired robotics. She obtained her B.S. in zoology and M.S. in plant ecology at Northern Arizona University, and she completed her Ph.D. research with Adam Summers at the University of California, Irvine. Dr. Porter worked with Dr. John Long at Vassar College for her postdoctoral research and joined the faculty at Florida Atlantic University in 2014.

**Dr. Bernd Reiter** is Professor of Comparative Politics at the University of South Florida, with research interests in democracy, citizenship, participation, civil society, and education and a regional focus on Latin America, especially Brazil and Colombia. He has more than 15 years of professional experience in research and as a development practitioner in several Latin American countries. Since 1992, he has spent considerable time working in northeastern Brazil as a consultant, educator, and trainer. He has worked for “Projeto POMMAR,” a Partners of the Americas project dedicated to urban youth at risk in the three major metropolitan centers of northeastern Brazil, Fortaleza, Recife, and Salvador. During that time, he helped create a vocational school (Escola Pracatum), participated in organizing and structuring a youth initiative in the Alagados slum-neighborhood, and was responsible for the participatory planning of a slum urbanization project (Ta Rebocado). Dr. Reiter holds a Ph.D. in political science from the City University of New York.

**Dr. Joseph Ryan** is Assistant Professor of Biology at the University of Florida’s Whitney Laboratory for Marine Bioscience. He is an evolutionary biologist with expertise in genomics (DNA research) and phylogenetics (building evolutionary trees). He integrates genomics and phylogenetics with a wide array of other disciplines (e.g., physiology, developmental biology, behavior, neurobiology), which he applies to a variety of marine invertebrate animals (e.g., ctenophores, cnidarians, sea cucumbers) to better understand the evolutionary processes underlying the wonderful diversity of life on Earth. He has an associate’s from Essex Community College (Baltimore, MD), a bachelor’s from the University of Maryland University College, (Adelphi, MD), and a Ph.D. from Boston University (Boston, MA). He performed postdoctoral studies at the National Human Genome Research Institute at the National Institutes of Health (Bethesda, MD) and the Sars International Centre for Marine Molecular Biology (Bergen, Norway).

**Dr. Arif Sarwat** is Associate Professor and Director, FPL-FIU Solar Research Facility in the Department of Electrical and Computer Engineering at Florida International University, where he leads the Energy Power & Sustainability group. Before joining FIU as Assistant Professor, he was Research Assistant Professor of Electrical Engineering, State University of New York (SUNY) at Buffalo. His research interests include smart grids, plug in hybrid and electric vehicle systems, high penetration renewable systems, grid resiliency, large scale data analysis, advance metering infrastructure, smart city infrastructure and cyber security. Dr. Sarwat is the recipient of an NSF CAREER award as well as numerous other awards from the federal government and industry; from conferences and a journal, Modern Power Systems and Clean Energy, for best papers; and from FIU. Since 2012, he has been chair of IEEE Miami Section VT and Communication. Dr. Sarwat has worked at Siemens, where he executed many multi-million dollar projects and won three recognition awards, for more than nine years.
Presenter & Discussant Biographical Sketches

**Dr. Daphne Simmonds** is Assistant Professor in the Department of Computer Information Systems and Business Analytics at the Metropolitan State University of Denver. She holds a Ph.D. in business administration (management information systems) from the University of South Florida and bachelor’s and master’s in computer science from the University of the West Indies, Jamaica. Dr. Simmonds conducts research on the use of information systems to reduce the negative natural environmental impact of organizations. Her research has been presented in the top conferences on information systems, including the Conference on Information Systems and the American Conference on Information Systems. She is currently engaged in new studies and in submitting previous work for journal publication. Dr. Simmonds teaches Foundations of Information Systems and Business Analytics. She is passionate about mentoring students and serves as faculty mentor for the Student Chapter of the Association of Information Technology Professionals. She also is an active member of the Women in STEM at her university as well as the Association for Information Systems Women’s Network (AISWN) and Special Interest Group on Green Technologies (SIGGrn).

**Dr. Eric Stewart** is Ronald Simons Professor of Criminology, College of Criminology and Criminal Justice at Florida State University. Prior to joining FSU in 2007, he was Assistant and Associate Professor at the University of Missouri-St. Louis (2004-2007) and Assistant Professor in the Department of Sociology at Georgia State University (2000-2004). He earned his bachelor’s in criminal justice from Fort Valley State University, his master’s in Sociology from Auburn University, and his Ph.D. in sociology from Iowa State University. His numerous awards include being named fellow of the American Society of Criminology and the W.E.B. DuBois Fellowship National Institute of Justice, the FEF Jones Outstanding Mentor Award, membership in Gamma Sigma Delta Honor Society, Fort Valley State’s Distinguished Alumni Award, and many academic excellence and research awards. Dr. Stewart is a member of Racial Democracy, Crime and Justice – Network and past member, National Consortium on Violence Research. He studies neighborhoods and crime, life course criminology, youth violence, contextual effects, adolescent outcomes, and social control/punishment. His recent research has found that neighborhood ecological characteristics influence recidivism, aspirations, and violence.

**Dr. Brian Stults** is Associate Professor, College of Criminology & Criminal Justice at Florida State University. He earned his bachelor’s in sociology from Western Michigan University and his Ph.D. in sociology from State University of New York Albany. His research focuses largely on discrimination in the application of social control, and his most recent work, published in *Criminology* and the *American Journal of Sociology*, addressed racial differences in arrest rates and variation in police force size as a result of perceived threat, fear, and prejudice. Generally, his research interests are race and crime, neighborhoods and crime, and residential segregation.

**Dr. Saeid Taheri** received his Ph.D. in electrical engineering from the University of New Mexico in 2004, during which time he developed special interest in biological systems and *in vivo* imaging. He completed his postdoctoral fellowship in the BRAIN Center at University of New Mexico with special focus on perfusion/diffusion imaging and stroke and managed the 4.7T animal imaging lab. In 2007, he became Research Assistant Professor at the Neurology Department, where he was part of the research team working on Stroke, MS and VCI. In 2010, he joined the Department of Radiology and Radiological Sciences at MUSC as Assistant Professor. His special interests and expertise are imaging and modeling dementia, stroke and degenerative neurological disorders.

**Dr. Sylvia Thomas** has served as Assistant Dean in the College of Engineering at the University of South Florida and is currently an Associate Professor in Electrical Engineering. She holds B.S. and M.S. degrees in electrical engineering from Vanderbilt University, where she was a Patricia Roberts Harris Fellow, and received her Ph.D. in electrical engineering from Howard University, as an NSF Materials Research Center of Excellence Fellow. She holds two patents and has over twelve years of industry experience at such companies and organizations as Agere Systems (formerly Lucent Bell Labs), the GEM Program, ITT Technical Institute, Kimberly Clark Corp., IBM, and Procter & Gamble. Dr. Thomas’ research and teaching endeavors are in the areas of advanced materials for applications in alternative energy sources, sustainable environments, and bio-applications for nano-electro mechanical system (NEMS) devices – nanowires and nanoparticles. Her research is interdisciplinary in nature and fosters collaborations with chemical, biomedical, and mechanical engineering, physics, chemistry, public health, and medicine. Dr. Thomas was awarded a McKnight Junior Faculty Development Fellowship in 2011.
Presenter & Discussant Biographical Sketches

Dr. Seneshaw Tsegaye is Assistant Professor in the Department of Environmental and Civil Engineering at Florida Gulf Coast University and has served as the Director of Climate Change and Sustainability Concentration at the Patel College of Global Sustainability at the University of South Florida. With a passion for building sustainable communities, Dr. Tsegaye focused his research efforts on resilient and smart city strategies, specifically, sustainable water resources management, GIS for sustainable development, climate-land-energy-water (integrated analysis), water sensitive urban design, and decentralized and adaptive urban water systems. In the past, Dr. Tsegaye has worked for the University of Birmingham, United Kingdom, and been involved in numerous research projects including one of the largest EU funded projects titled “SWITCH-Managing Water for the Cities of the Future.” Dr. Tsegaye’s latest projects are focused on Integrated Urban Water Management (funded by the Global Water Partnership), and a Decision Support Tool for Transitioning to Vegetation-based Stormwater Management (funded by U.S. Forest Services). Dr. Tsegaye has a successful track record in directing applied research and development and curriculum development and in building strong collaboration with international organizations.

Dr. Ghanim Ullah is Assistant Professor of Physics at the University of South Florida. He earned his Ph.D. in biophysics from Ohio University, followed by his first postdoc from the Pennsylvania State University and second postdoc from Los Alamos National Laboratory. Before moving to USF, Dr. Ullah spent a year at the Ohio State University as an early career visitor. His expertise lies in computational biophysics, specifically computer and mathematical modeling to understand the role of ion channels, misfolded proteins, protein aggregation, ion concentrations dynamics, and other intra- and inter-cellular signaling pathways in neuronal disorders such as epilepsy, Alzheimer’s disease, migraines, stroke, and traumatic brain injury. He also models calcium signaling leading to sexual fertilization to elucidate the molecular pathways leading to fertilization-specific calcium signals in eggs versus immature oocytes where such signals are not observed. Furthermore, his lab is also involved in modeling the aggregation of misfolded proteins and developing more robust and reliable algorithms for radiomics features extraction from images acquired through CT scans and other imaging modalities for cancer patients.

Dr. Claude Villiers is Associate Professor in the Whitaker College of Engineering at Florida Gulf Coast University. He earned his Ph.D. in civil engineering from the University of Florida and previously worked as Assistant Professor at City College of New York. His principal research interests are civil engineering, materials and asphalt technology, highway and pavement design, transportation, pavement materials, and statistics related to pavement materials. Dr. Villiers has worked on projects sponsored by the Florida Department of Transportation, Federal Highway Administration, and University Transportation Research Center Region-II. His most recent work includes the use of a driving simulator to investigate driving behavior patterns during rainfall events using different roadway geometries. Dr. Villiers is the founding faculty advisor for the American Society of Civil Engineers at FGCU and devotes considerable time and expertise to increasing the representation of minority populations in STEM areas. Most recently, he was co-principal investigator for an NSF grant which allowed FGCU to participate in the Florida-Georgia Louis Stokes Alliance for Minority Participation.

Dr. Chante Washington-Oates is a Postdoctoral Associate at the University of Miami School of Nursing and Health Studies and Dr. Edward A. Bouchet Graduate Honor Society member. She concentrates on eliminating minority health disparities. Specifically, her interests include culturally-tailored, multi-level protective factors among vulnerable populations. She plans to use her research to inform the development of community agencies that provide efficacious, protective-focused, evidence-based interventions. Her research, awarded the Beta Tau Chapter Sigma Theta Tau International Graduate Research Award informed her first-place award winning 2018 Southern Nursing Research Society conference presentation. Additionally, she presented at the Minority Health and Health Disparities Grantees Conference and Council for the Advancement of Nursing Science State of the Science Congress on Nursing Research. Previously, she was involved in two studies aimed at improving the wellbeing of vulnerable families and served as Clinical Instructor of nursing students after practicing as a Registered Nurse. Currently, she is working on publications and a grant proposal. She earned her Ph.D. and B.S. in nursing from the University of Miami School of Nursing and Health Studies.
Presenter & Discussant Biographical Sketches

Dr. Vernetta Williams earned her Ph.D. in English with a specialization in African American literature from the University of South Florida, M.A. in English from North Carolina Agricultural and Technical State University, and B.A. in journalism and mass communication from the University of North Carolina at Chapel Hill. Dr. Williams has worked as instructor and administrator at the college level for over 10 years. During this time, she has taught American literature, business writing, composition, and college acclimation courses, residentially and online. Through Chrysalis Consulting LLC, Dr. Williams works with schools, educational entities and non-profit organizations to develop and improve educational and writing services, serves as a writing coach and editor for authors, and strengthens students’ writing abilities and confidence.

Dr. Alina Zare is Associate Professor in the Department of Electrical and Computer Engineering at the University of Florida. She earned her bachelor’s and Ph.D. degrees at the University of Florida and held prior appointments as Assistant Professor, University of Missouri, and as an Office of Naval Research Faculty Fellow in the summers of 2012 and 2013. Dr. Zare received an NSF CAREER award for her research on “Supervised Learning with Incomplete and Uncertain Data,” an NGA New Investigator Award, Best Reviewer Recognition from IEEE Geoscience and Remote Sensing Letters, University of Missouri Engineering Junior Faculty Research Excellence Award, and Outstanding Reviewer Recognition from IEEE Journal of Oceanic Engineering. She heads the Machine Learning and Sensing laboratory and researches machine learning, pattern recognition and computational intelligence, concentrating on developing machine learning algorithms for processing and understanding non-visual sensor data.

Dr. Qiong (Jane) Zhang is Associate Professor in Civil and Environmental Engineering at the University of South Florida (USF). She received her Ph.D. in environmental engineering from Michigan Technological University. Prior to joining the faculty at USF in 2009, she served as the operations manager of the Sustainable Future Institute at Michigan Tech. Dr. Zhang’s research focuses on sustainability assessment, process modeling and system modeling. Her research strongly emphasizes life cycle thinking, systems thinking and bio-inspired thinking with intent to transform how we design our infrastructures with discovery and application of the universal principles across human and natural systems. Her research has been supported by the Water Reuse Foundation, Florida Energy Systems Consortium, National Science Foundation’s various programs, and the Environmental Protection Agency Science to Achieve Results (STAR) program. The projects she is involved include the development of treatment process models and decision support tools with active collaboration with partnering utilities for integrated water/wastewater systems for resource recovery, interdependent water, transportation and cyber infrastructures for resilience improvement, and watershed level green infrastructure implementation for stormwater management.