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# GURC

GEORGIA UNDERGRADUATE RESEARCH CONFERENCE

November 6-7, 2015

## SCHEDULE AT A GLANCE

### FRIDAY, NOVEMBER 6, 2015

6:00 - 8:00 P.M.	Welcome Reception	Nessmith-Lane Conference Center
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### SATURDAY, NOVEMBER 7, 2015

8:00 - 9:00 A.M.	Check-In & Registration	Concourse and Atrium
9:00 - 10:00 A.M.	Paper Session 1	Refer to detailed schedule
10:10 - 11:20 A.M.	Poster Session A	Concourse and Atrium
10:30 - 11:20 A.M.	Steering Committee Meeting	Dean's Conference Room
11:30 - 12:45 P.M.	Luncheon	Ballroom
1:00 - 2:00 P.M.	Paper Session 2	Refer to detailed schedule
2:10 - 3:20 P.M.	Poster Session B	Concourse and Atrium
3:30 - 4:00 P.M.	Awards	Ballroom

HOSTED BY:



CONTINUING EDUCATION



# KEYNOTE SPEAKER



Dr. Jacob Warren is the Rufus Harris Endowed Chair and Director of the Center for Rural Health and Health Disparities in the Mercer University School of Medicine. He is a behavioral epidemiologist, studying the cause, impact, and spread of behaviorally-linked health outcomes among groups impacted by health disparities. He has published three books, dozens of scientific articles, and received \$10 million in grants to support his research. He began his research career through participating in an NSF Research Experience for Undergraduates (REU) program.

Dr. Warren will deliver the keynote address during the Luncheon.

# STEERING COMMITTEE

**Samuel Abegaz**, *Chemistry, Columbus State University*

**Koushik Banerjee**, *Chemistry, Georgia College & State University*

**Kymberly Harris**, *Committee Chair, Special Education, Georgia Southern University*

**Steven Engel**, *Director, University Honors Program, Georgia Southern University*

**Monica Frazier**, *Biology, Columbus State University*

**Steve Jones**, *Marketing, Georgia College & State University*

**Shamim Khan**, *Computer Science, Columbus State University*

**Christopher McCollough**, *Communication, Columbus State University*

**Stacey L. Rowland**, *Manager of Undergraduate Research, Honors College Advisor, University of West Georgia*

**Tim Sadenwasser**, *English, Georgia Regents University*

**Doreen Sams**, *Marketing, Georgia College & State University*

**Marina G. Smitherman**, *Biology, Dalton State College*

**Cindy Ticknor**, *Mathematics Education, Columbus State University*

**Anastasia Turner**, *Assistant Dean of Student Research and Scholarship, University of North Georgia*

## 9:00 - 10:00 A.M. - PAPER SESSION 1

### ***Fluorescent Labeling of NanoLuc***

Author: Holly DuPlain, North Georgia College

Mentor: Angie Spencer

### ***Escape Velocity Problem***

Author: Authors: Richard Fields, Vinh Bui; University of North Georgia

Mentor: Dr. Think Kieu

### ***Using a Mathematical Model to Determine the Flame Propagation of Aluminum-Polytetrafluoroethylene Mechanically Activated Composites***

Author: Cristin Lynch, Savannah State University

Mentor: Dr. Travis Sippel

Room 1909

### ***Undergraduate Research at 2-year Campuses: Challenges and Opportunities***

Author: Katherine Kipp

Mentor: None

Room 2901

### ***Beyond the Stigma: Exploring the Relationship between Victimized Mothers and Their Children***

Author: V. Michelle Michael, University of West Georgia

Mentor: Joshua Masters

Room 2903

### ***Human Trafficking: Exploration of Best Practices for Restoration and Integration for Survivors in the Southeastern United States***

Author: Joel Shafer, Georgia Southern University

Mentor: Dr. Think Kieu

### ***Integrating Reading into Mathematics Instruction***

Author: Meredith Eby, Georgia Southern University

Mentor: Meca Williams-Johnson

Room 2904

### ***Apology Strategies of Native and Nonnative Speakers of English***

Author: Kyla Harris, Columbus State University

Mentor: Dr. K. Jeon

### ***Elementary school teachers' influence on student engagement in STEM***

Author: Courtney Hartman, Georgia Southern University

Mentor: Meca Williams-Johnson

### ***The Effects of Alcohol on Interpersonal Relationships of College Students***

Author: Kacey Glidewell, Marian Tabi; Georgia Southern University

Mentor: Dr. Marian Tabi

Room 2905

### ***The Prevalence of Sleep Deprivation Among College Students and the Effects it Has On Physiological and Psychological Health***

Author: Elizabeth Mercer, Sierra Palmer, Taylor Cox, Reyna Walker; Georgia Southern University

Mentor: Dr. Marian Tabi

### ***The Effects Of Mental Disorders On College Students Academic Performance***

Author: Megan Richards, Georgia Southern University

Mentor: Dr. Marian Tabi

***Understanding Multiculturalism through Lucille Clifton's "Wednesday"***

Author: Madeline Millard, University of North Georgia & State University

Mentor: Dr. Anastasia Lin

Room 2908

***Familiar Versus Formal Language in Merle Hodge's Crick Crack Monkey***

Author: Crystal Payne, Claflin University

Mentor: Dr. Donald Pardlow

***Benefits of Relationships and The Perks of Being a Wallflower***

Author: Calabria Turner, Middle Georgia State University

Mentor: Dr. Clay Morton

***Multi-Sensor Integration for Self-Driving Vehicle***

Author: Imani Augusma, Mary Thomas; Georgia Southern University

Mentors: Dr. Rocio Alba-Flores and Dr. Valentin Soloiu

Room 2911

***Implementation of Parallel Computation for Fast Optimization with the Genetic Algorithm in Numerical Electromagnetics***

Author: Deon Lucien, Georgia Southern University

Mentor: Faculty Mentor: Dr. Sungkyun Lim

***Artificial Magnetic Conductor Measurement Techniques***

Author: Joshua Roper, William LePain; Georgia Southern University

Mentor: Dr. Sungkyun Lim

**10:10 - 11:20 A.M. - POSTER SESSION A - CONCOURSE AND ATRIUM**

**Author:** Isaac Cushman, Danda Rawat;  
Georgia Southern University

**Mentor:** Dr. Danda Rawat

***Adaptive Threshold Based Sensing for Cognitive Wireless Mobile Network***

1

**Author:** Jordan Cannon, David Moore,  
Stephen Eason; Georgia Southern  
University

**Mentor:** Dr. Adel El Shahat

***Wind Power Energy Source as Intermittent Dispatchable Unit for Micro-Grid Applications***

2

**Author:** Nickolas Holcomb, Isaac  
Cushman, Danda Rawat; Georgia  
Southern University

**Mentor:** Dr. Danda Rawat

***Opportunistic Spectrum Access for Mobile Users of Cognitive Wireless Networks***

3

**Author:** Zack Floyd, Roman Coley, Clifford  
Saggus; Georgia Southern University

**Mentor:** Dr. Adel El Shahat

***Electrical System associated with Small Scale Hydro Power Generator Design & Modeling***

4

**Author:** Joshua Stroud, Imani Augusma;  
Georgia Southern University

**Mentor:** Dr. Fernando Rios-Gutierrez

***Robotic Arm for Mimicking Human Arm Movements***

5

**Author:** Collin Daly; Georgia Southern  
University

**Mentor:** Dr. Rami Haddad

***Novel H.265 Video Traffic Prediction Models Using Artificial Neural Networks***

6

## 10:10 - 11:20 A.M. - POSTER SESSION A - CONCOURSE AND ATRIUM

<b>Author:</b> Isaac Wright; Savannah State University <b>Mentor:</b> Dr. Janet Best	<i>Exploring Reaction Times of Children Using Psychomotor Vigilance Test</i>	7
<b>Author:</b> Rachel Neuhauser, Joel Shafer, Harrison Tennant; Georgia Southern University <b>Mentor:</b> Dr. Trina Smith	<i>Counteracting Deference to the City: Exploring Rural Persistent Poverty</i>	8
<b>Author:</b> Cali Chacon; University of North Georgia <b>Mentor:</b> Dr. Katherine Kipp	<i>Compartmentalization of Information Literacy Skills: Across Disciplines &amp; Across Tasks</i>	9
<b>Author:</b> Andrea Kunze, Maggie Renken, Melanie Pepper; Georgia State University <b>Mentor:</b> Dr. Maggie Renken	<i>Is there greater understanding on genetics misconceptions items in elementary aged children participating in collaborative illustrations with evidence-based adaptations?</i>	10
<b>Author:</b> Walter Quiller, Taylohr Brown, Diamon Jenkins; Georgia Regents University <b>Mentor:</b> Dr. Seretha D. Williams	<i>Text Mining and Digital Humanities: Quantitative Analysis of African American Poetry</i>	11
<b>Author:</b> DeMichael Winfield; Georgia College & State University <b>Mentor:</b> Koushik Banerjee	<i>Synthesis of Cyclobutanes Utilizing Green Chemistry</i>	12
<b>Author:</b> Brittany Smith; Georgia Southern University <b>Mentor:</b> Vinoth Sittaramane	<i>Role of molecular motor protein myosin 10 in building the vertebrate eye</i>	13
<b>Author:</b> Diamond Jenkins, Walter Quiller, Taylohr Brown; Georgia Regents University <b>Mentor:</b> Dr. Seretha D. Williams	<i>Text Mining and Digital Humanities: Quantitative Analysis of African American Poetry</i>	14
<b>Author:</b> Brianna Smith, C. Michele Davis McGibony; Georgia Southern University <b>Mentor:</b> C. Michele Davis McGibony	<i>Investigation of the relationship between Calcium Binding Proteins and Proapoptotic Proteins with Programmed Cell Death</i>	15
<b>Author:</b> Dynisty Everette; Savannah State University <b>Mentor:</b> Yuhua Song	<i>CaM-DR5 binding regulates DR5-mediated caspase signaling in TN and ER+ breast cancer cells.</i>	16
<b>Author:</b> Ashley Williams; Georgia Southern University <b>Mentor:</b> Dr. Vinoth Sittaramane	<i>The Cellular Role of Integrin Alpha 6 in Tumor Development</i>	17
<b>Author:</b> Steven Slack <b>Mentor:</b> Koushik Banerjee	<i>A Green, Microwave Knoevenagel Condensation Reaction and Photodimerization of 4-fluorocinnamic acid</i>	18

## 10:10 - 11:20 A.M. - POSTER SESSION A - CONCOURSE AND ATRIUM

<b>Author:</b> Sarah Smith, Hannah Herman, Melissa Montcalvo, Sayde Smith; Georgia Southern University <b>Mentor:</b> Dr. Marian Tabi	<i>Emergency and Urgent Care Services and the Effect on People in Rural Areas</i>	19
<b>Author:</b> Kurt Shuman, Dalton Hunter, Alex Prichard, Brittany Mitchell; Georgia Southern University <b>Mentor:</b> Dr. Marian Tabi	<i>Rural Community Resources and Effects on Preventable Disease</i>	20
<b>Author:</b> Anunay Bhattacharya, Marian Tabi; Georgia Southern University <b>Mentor:</b> Dr. Marian Tabi	<i>Influential factors in Undergraduate Nursing Research Analysis</i>	21
<b>Author:</b> Patsy Perry; Columbus State University <b>Mentor:</b> Dr. Clinton I. Barineau	<i>Cracking a Geologic Cold Case: A 500-470 Million Year Old Missing Volcanic Arc in Central-Eastern Alabama</i>	22
<b>Author:</b> Spencer Cruz; University of North Georgia <b>Mentor:</b> Dr. N. L. Hyslop	<i>Field Surveys for detection of Chytridiomycosis in North Georgia Amphibian Populations</i>	23
<b>Author:</b> Zach Bell; University of West Georgia <b>Mentor:</b> Andrew J. Edelman	<i>Small Mammal Communities of Riparian Areas of the Talladega National Forest</i>	24
<b>Author:</b> Elizabeth Ashwood; Georgia Southern University <b>Mentor:</b> Dr. Mark Edwards	<i>Atom Interferometry on the International Space Station</i>	25
<b>Author:</b> Kayla Anderson, Daniel Hunter, Christopher Mays, Dhruvil Patel, Ji Wu, Worlanyo Gato; Georgia Southern University <b>Mentor:</b> Dr. Worlanyo Gato	<i>Examining the Hepatic Effect of TiO<sub>2</sub> Nano Fiber Ingestion in Sprague Dawley Rats</i>	26
<b>Author:</b> Brennan Coheleach, Adam Smith; Georgia Southern University <b>Mentor:</b> Dr. Li Ma	<i>Superconductor in RLC Circuit</i>	27
<b>Author:</b> Anne DeLua, Maxim Durach; Georgia Southern University <b>Mentor:</b> Dr. Maxim Durach	<i>Photonic Surface Waves in All-Dielectric Metamaterials</i>	28



## 1:00 - 2:00 P.M. - PAPER SESSION 2

***Latin in the elementary classroom***

Author: Kirsten Brodman; Georgia Southern University  
Mentor: Dr. Meca Williams-Johnson

***Co-Teaching: Creating differences in teachers professional identities***

Author: Jessica Davis; Georgia Southern University  
Mentor: Dr. Meca Williams-Johnson

***An Assessment of Undergraduate Teaching Assistant Programs: Implementation, Benefits, and Recommendations***

Author: Kylie Mims; Middle Georgia State University  
Mentor: Dr. Clay Morton

Room 1909

***Honors Programs and Undergraduate Research: Fundraising and National Scholarships***

Author: Clay Morton, Middle Georgia State University; Anna Whiteside, Georgia College and State University; Hilary Gibbs, Valdosta State University

Room 2901

***The Use of Pre-Correction by Pre-Service Teachers***

Author: Brook Heard; Georgia Southern University  
Mentor: Dr. Kymberly Harris

Room 2904

***A Measure of Student Engagement***

Author: Chloe Troutman, Tianna Quiller; Georgia Southern University  
Mentor: Dr. Kymberly Harris

***Mapping Joaquín: How Literary Cartography Opens New Perspectives on the Western Novel***

Author: Reinhild Kokula; University of North Georgia  
Mentor: Dr. Anastasia Lin

***West Georgia Heritage Textile Trail***

Author: Heather Rodriguez; University of West Georgia  
Mentor: Dr. Ann McCleary

Room 2905

***Investigation of the Properties of Stem Loop DNA***

Author: Delphine Baumert; Georgia Regents University  
Mentor: Angela Spencer

***Korea's Transition from K-GAAP to K-IFRS***

Author: Rebecca Henderson; Georgia Southern University  
Mentor: Dr. Leslie Fletcher

***Traditional Chinese Medicine***

Author: Rachel Maddox; Middle Georgia State University  
Mentor: Dr. Clay Morton

Room 2908

***Making Sense of the Distrust of the Chinese Government in Light of China's Successes in Economic Modernization***

Author: Rachel Neuhauser; Georgia Southern University  
Mentor: Dr. Pidi Zhang

## 1:00 - 2:00 P.M. - PAPER SESSION 2

### *From Sensor to Street - Intelligent Vehicle Control Systems*

Author: Zachariah Coles, Thomas Beyerl, Imani Augusma, Valentin Soloiu; Georgia Southern University

Mentor: Dr. Valentin Soloiu

Room 2911

### *Development of an Advanced Fuel Injection System for Enhanced Combustion Control Strategies*

Author: Remi Gaubert, Shichao Huo, Chris Gleiter; Georgia Southern University

Mentor: Dr. Valentin Soloiu

### *New Carinata Biofuel Combustion Technology in an Indirect Injection Diesel Engine*

Author: Jose Moncada, Tyler Naes, Martin Muinos, Valentin Soloiu; Georgia Southern University

Mentor: Dr. Valentin Soloiu

## 2:10 - 3:20 P.M. - POSTER SESSION B - CONCOURSE AND ATRIUM

**Author:** Stephanie Hulse, Mujibur Khan, Sakib Iqbal; Georgia Southern University

**Mentor:** Mujibur Khan

*Surface Functionalization of Carbon Nanotubes with Surfactant Polymer for Enhanced Dispersion in Nanocomposites*

1

**Author:** Reed Hodges, Cleon Dean, Maxim Durach; Georgia Southern University

**Mentor:** Dr. Maxim Durach

*Photonic Nanojets Produced by All-Dielectric and Hyperbolic Meta-Microspheres*

2

**Author:** Kyle Mahoney, Madison Campbell; Georgia Southern University

**Mentor:** Dr. Li Ma

*An Expansion on Fabry-Perot Interference Over the Visible Light Spectrum Using Thin Film Deposition*

3

**Author:** Kyle Mahoney; Georgia Southern University

**Mentor:** Dr. Li Ma

*Synthesis and Characterization of Nanoparticle-Coupled Proteins in Human Serum Albumin*

4

**Author:** Hannah Smith, Krista Valetutto, Bianca Gedeon; University of North Georgia

**Mentor:** Dr. N. L. Hyslop

*Home Range and Habitat use of the Eastern Box Turtle (*Terrapene carolina*) in the Northern Georgia Piedmont*

5

**Author:** Donna McCullough, Ellen Tomlin, Kimberly Wright, Jill Schulze, Nancy Dalman; University of North Georgia

**Mentor:** Jill Schulze

*The Influence of Reef Depth on Parrotfish Sex Ratio, Abundance, and Diversity near Calabash Caye, Belize*

6

**Author:** Emily Hodges; Georgia Southern University

**Mentor:** Dr. Marian Tabi

*Aspects of Physical Activity and Its Relationship to the Health of College-aged Students Among Rural and Urban Communities*

7

**Author:** Tiffany Busby, Janita Kovach, Holley Allen; Georgia Southern University

**Mentor:** Dr. Marian Tabi

*The effects of caregiver strain related to raising a child with ASD*

8

## 2:10 - 3:20 P.M. - POSTER SESSION B - CONCOURSE AND ATRIUM

**Author:** Rebekah Lee, Emmie Sanders, Katheryn Chumley, Shelbie Conley; Georgia Southern University  
**Mentor:** Dr. Marian Tabi

*Prevalence of Chronic Diseases in Rural Areas versus Urban Areas in the College Population*

9

**Author:** Ansley Ewing, Danielle Joyner, Emily McGuire, Katie Pfeffer; Georgia Southern University  
**Mentor:** Dr. Marian Tabi

*Uncontrolled Diabetes in Rural Communities Related to Decreased Socioeconomic Status*

10

**Author:** Lakenya Lee, Ayana Green, Keily Mitchell, Jasmine Skyes; Georgia Southern University  
**Mentor:** Dr. Marian Tabi

*The Gaps in Health Care of the LGBT Community: Perspectives of Nursing Students and Faculty*

11

**Author:** Brittany McDaniel, Casey Stovall, Samuel Herrington; Georgia Southern University  
**Mentor:** Dr. Marian Tabi

*A disparity in knowledge, access, or utilization of available healthcare for treatment of depression and substance abuse in college students.*

12

**Author:** Neil Doyle, Emily Simonavice, Laura Childs; Georgia College and State University  
**Mentor:** Dr. Emily Simonavice

*The Efficacy of a Six-Week Cognitive Training Program to Offset Chemotherapy-Induced Cognitive Impairments in Cancer Survivors*

13

**Author:** Shauntell Luke; Georgia Southern University  
**Mentor:** Dr. Vinoth Sittaramane

*The Role of ITGA6 in Tumor Development*

14

**Author:** Kyndra Thompson; Georgia Southern University  
**Mentor:** John Schenk

*A Genetic Approach to Speciation in *Synthyris Reniformis* and *Synthyris Cordata**

15

**Author:** Sydney Doolittle; Georgia Southern University  
**Mentor:** Dr. Vinoth Sittaramane

*The Role of Topoisomerase 3B (*top3b*) in Autism Spectrum Disorder through Neural Development of Zebrafish Embryos*

16

**Author:** Blia Lor; Georgia College and State University  
**Mentor:** Dr. Koushik Banerjee

*Microwave Assisted-Knoevenagel Condensation and Photodimerization of *trans*-2-Chlorocinnamic Acid*

17

**Author:** Karlton Green; Georgia College and State University  
**Mentor:** Dr. Koushik Banerjee

*Cyanide derivative of truxillic acid*

18

**Author:** Iarina Devos; Georgia Regents University  
**Mentor:** Dr. Rick Kenney

*Communicating Culture Through a Zumba Class*

19

## 2:10 - 3:20 P.M. - POSTER SESSION B - CONCOURSE AND ATRIUM

**Author:** Adam Judy, Georgia Regents University; Nilabhra Sanyal, Ohio State University; Sean Mongan, Georgia Regents University

**Mentor:** Dr. Soma Mukhopadhyay

*Development of an Interactive Course-Module: "Understanding the Molecular Basis of Human Evolution and its use in Personalized Health Care"*

20

**Author:** Chandler Puhly, Erin McFry; Georgia State University

**Mentor:** Dr. Daniel Whitaker

*Investigation of Child Maltreatment Risk and SafeCare Outcomes*

21

**Author:** Stephen Radford, Michael Moore

**Mentor:** Dr. Adel Shahat

*Universal Power Converter with Wireless Distribution*

22

**Author:** David Ames, Danda Rawat;

Georgia Southern University

**Mentor:** Dr. Danda Rawat

*Crowd Sourcing for Smart Transportation Systems*

23

**Author:** Aliyah Knowles, Emerald Simons, Valentin Soloiu; Georgia Southern University

**Mentor:** Dr. Valentin Soloiu

*Research of a Plant-based Sound Insulating Material in Noise and Harshness*

24

**Author:** Adam Carver, Anthony Moore;

Georgia Southern University

**Mentor:** Dr. Adel El Shahat

*Single-Phase Cascaded Inverter for Photovoltaic System*

25

**Author:** Joseph Courson, Austin Martenson, Aaron Mosley; Georgia Southern University

**Mentor:** Dr. Adel El Shahat

*Residential Solar Photovoltaic System Design*

26

**Author:** Matthew Cobb; Georgia Southern University

**Mentor:** Dr. Adel El Shahat

*Energy Efficient Electrical Design for a Higher Education Building*

27

**Author:** Jovan Johnson; University of West Georgia

**Mentor:** Stacey Rowland

*Sustainable Development in the Banking Sector*

28

**Author:** Anitra Bosley; Savannah State University

**Mentor:** Dr. Paramasivam Sivapatham & Harsha Kenche

*Comparative Study of Health-Hazardous Waterborne Microbes in Water Samples Collected from Savannah Water Bodies*

29



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