

# INTERDISCIPLINARY TRANSPORTATION STUDIES (TIP-ITS)



## ACCOMPLISHMENTS AND ACTIVITIES

Fall 2016/Spring 2017

### Greetings from the Directors

**Dr. Jonathan Lambright and Dr. Suman Niranjana**

We thank you all for reading our 2016-17 edition of Interdisciplinary Transportation Studies (ITS) newsletter. We come to end of another very exciting year of activities and achievements which were conducted as part of NSF funded ITS grant. This issue highlights on the update related to Transportation Certificate program, faculty involved in the certificate program, high school bridge program in transportation, Eisenhower fellowship, student internships and applied research, faculty-student research and presentations, guest speaker sessions, state-of-the art equipment and software's available, faculty publications and work in progress, faculty development workshops, and exciting other developments. We would like to acknowledge our faculty who have worked hard and diligently with various students to conduct research. Kudos to our students who have presented their research at various university level events as well as regional and national conferences. There is so more in this newsletter that I hope you will enjoy reading!

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### Summer Bridge Program

As planned in the year 2016, a bridge program was conducted for high school students. This included civil engineering, urban planning and supply chain and logistics. The students engaged in both hands on and hands off activities that will improve students' technical knowledge as well as support development of problem solving skills which is required to pursue a career in transportation and STEM disciplines.

The theory classes of the program were conducted in Groves High School and the hands-on experience was located at Savannah State University. The Students had a tour of the campus and had the opportunity to use the high-end transportation equipment which will eventually help them in their career.

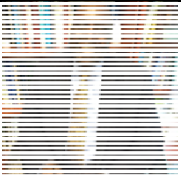







High School students had a wonderful time at Savannah State University during hands on experience with the softwares


## GUEST LECTURES

We had 8 guest speakers come to the university to speak to our students and Faculty. We had a blend of people from industry and from academia which helped students to get two different perspectives of transportation

Speaker	Name	Designation	Industry	Date
<b>Fall 2016</b>				
	<b>Dr. Kofi Obeng</b>	Professor of Transportation	A&T State University North Carolina	September 15, 2016
	<b>Mr. Thomas L. Thomson</b>	Executive director	Chatham County	October 19, 2016
	<b>Dr. Maranda McBride</b>	Director of Transportation Institute and Associate Professor of Management	North Carolina A&T State University	October 24, 2016
	<b>Mr. Grady Smith</b>	Transportation Systems Director	VHB	November 4 2016



Fall 2016: Dr. Maranda McBride lecture on "The impact of individual differences on teenager texting while driving behavior"

Speaker	Name	Designation	Industry	Date
<b>Spring 2017</b>				
	<b>Dr. Sunil Chopra</b>	IBM Professor of Operations Management and Information Systems	Kellogg School of Management at Northwestern University	February 24, 2017
	<b>Mr. David Pickworth</b>	Transportation Planner and Engineer	VHB, Atlanta	March 23, 2017
	<b>Ms. Lara Hall</b>	Director	Savannah Area Geographic Information System(SAGIS)	March 29, 2017
	<b>Dr. Matias Valenzuela</b>	Director	Office of Equity and Social Justice, King County, WA	March 31, 2017



Spring 2017: Sunil Chopra's lecture on "Supply Chain view of the Omni channel retailing"



Spring 2017: Matias Valenzuela lecture on "Planning for equity and Social Justice"

## RESEARCH

### Savannah State University 7<sup>th</sup> Annual Research Day

Students pursuing research in the Transportation Certificate participated in the annual research poster presentation conducted on April 11<sup>th</sup> 2017. This SSU research day is conducted annually to showcase student research from across the SSU campus by both graduate and undergraduate students. The research day is conducted by “The office of sponsored Research” at SSU. We had seven students participate in the poster presentation. Corliss J Best, Niegel Middleton, Vishanya Forbes, Brandon Davis, Jamelle Jaudon, Jakari Dean, and Terrence Staten. These students were advised by Dr. Suman Niranjana, Dr. Deden Rukmana, Dr. Mehran Mazari, Dr. Bryan Knakiewicz, and Dr. Roxana Javid. Mr. Corliss J Best won the best paper award. Below we have listed the titles of the posters presented along with their respective faculty mentors:

- 1. Impact of moisture variations on the stiffness of unbound pavement layers**  
By Brandon Davis, Dr.Mehran Mazari, Dr.Roxana Javid  
Research Mentors: Dr. Mehran Mazari, Dr.Roxana Javid
- 2. Friction Characteristics of Savannah, GA Roads**  
By Jamelle Jordan, Jakari Dean  
Research Mentor: Dr.Bryan Knakiewicz
- 3. Moisture susceptibility of hot mix asphalt pavements in coastal region**  
By Terrence Staten, Dr.Mehran Mazari, Dr.Roxana Javid  
Research Mentor: Dr.Mehran Mazari
- 4. Multi-echelon Network Optimization of Pharmaceutical Cold Chains**  
By Niegel Middleton, Niranjana S Kulkarni, Niegel Middleton  
Research Mentor: Dr.Suman Niranjana
- 5. Flow optimization at a Distribution center: A Case study**  
By Corliss Best, Niegel Middleton  
Research Mentor: Dr. Suman Niranjana
- 6. Optimal Queue Length based server sharing decisions in field services**  
By Christopher Sieberer-Kefer, Suman Niranjana, Sal Agnihotri  
Research Mentor: Dr.Suman Niranjana
- 7. Transportation and Social Equity as a way to Alleviate Poverty The case of low-income neighborhoods in Savannah GA**  
By Vishanya Forbes, Dr.Deden Rukmana  
Research Mentor: Dr.Deden Rukmana



*Corliss Best , Janeth Gabeldon and Niegel Middleton with their mentor Dr.Suman Niranjana at the SSU Research Day*



## Savannah State University 4<sup>th</sup> Annual COBA Research Day

Students pursuing research in Transportation Certificate participated in the annual research poster presentation conducted on February 3<sup>rd</sup> 2017. SSU's COBA research day is conducted annually to showcase both graduate and undergraduate student research from College of Business Administration students. The research day is conducted by office of Business Administration at SSU. We had three students participate in the poster presentation: Corliss J Best, Niegel Middleton, and Phuong Mata. These students were advised by Dr. Suman Niranjana. Mr. Niegel Middleton won the best presentation award. Below we have listed the titles of the posters presented along with their respective faculty mentors:

**1. Determining Optimal Capacity Utilization and Inventory levels for a Distribution center: A Case Study**

By Phuong Mata, Dr. Suman Niranjana

Research Mentor: Dr.Suman Niranjana

**2. Optimal Inventory Levels in Presence of Information Loss: Multi- Echelon Pharmaceutical Cold Chain**

By Niegel Middleton, Dr.Suman Niranjana

Research Mentor: Dr.Suman Niranjana

**3. Antecedents of Distracted Driving: Role of Cognitive Failures**

By Corliss Best, Dr.Suman Niranjana

Research Mentor: Dr.Suman Niranjana



*Niegel Middleton presenting on COBA Research Day*

## TRB 96<sup>th</sup> Annual Research Day

The Transportation Research Board (TRB) provides innovative, research-based solutions to improve transportation. Part of the National Academies of Sciences, Engineering, and Medicine, TRB is a non-profit organization that provides independent, objective, and interdisciplinary solutions. One of the students Brandon Davis pursuing research in transportation certificate participated in the annual research poster presentation conducted between January 8 – 12, 2017. Below are the title of the poster presented along with their respective faculty mentor.

**Impact of Moisture Variation on stiffness of unbound pavement layers in Coastal Regions**

By Brandon Davis

Faculty Mentor: Dr.Roxana Javid

## ERN Conference

The Emerging Researchers National Conference in STEM is an annual national conference hosted by the American Association for the Advancement of Science (AAAS), Education and Human Resources Programs (EHR) and the National Science Foundation (NSF) Division of Human Resource Development (HRD). The conference encourages students from universities that received funding from the NSF HRD unit, which also includes underrepresented minorities and students with disabilities. Graduate and undergraduate students participate in oral as well as poster presentations over the course of 2.5 days. We had four students who are part of the TIP-ITS participate and present their research at this event. All four students received travel scholarships to present their research.



## Internships

Through the grant, three of our students have got an opportunity to do paid internships in reputed organizations and are excited to take up this opportunity.

One of our newest interns **Vishanya Forbes** stated that she is currently doing Geospatial analysis on several MTPs (metropolitan transportation plans) for cities in Georgia and North Carolina, along with local transit projects. She also provides a variety of data analysis on these transit projects. She also states that the internship also allows her to travel and meet with the stakeholders in the various cities in order to better understand what their needs and concerns are regarding transportation/ Transit development in their city. This has also offered the opportunity to interact with GDOT. She concludes by telling that her experience has been amazing thus far and she has been learning a whole lot about what it actually takes to develop, operate and maintain transportation infrastructures and systems.

**Corliss Best** states that he will be doing internship with the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Services (APHIS) Center for Animal Welfare (CAW) from Monday, June 05, 2017 to Thursday, August 10, 2017 in Kansas City, Missouri. This internship is made possible by Thurgood Marshall College Fund (TMCF), and he will be the only TMCF intern to travel to Kansas City during summer. Skills to be acquired include training and project management as he will aid the three training specialists employed with the CAW. Finally he says that he is excited about this opportunity because he has not yet traveled to the Midwest of the US, and the Center was recently established in 2010. Also he likes working with new visions and projects to assist with start-up operations, so this adventure shall be most enjoyable.

Another student Niegel Middleton has been selected to intern with Republic Services, Inc. Republic Services is the second largest handlers of non-hazardous solid waste material in the nation. The internship which is a part of Thurgood Marshall College Fund extends from June 4th - August 12th. He will be at Republic Services Headquarters in Phoenix, AZ. The position deals with Republic Services' Supply chain and data analysis.

## Eisenhower Fellowship

Dwight David Eisenhower Transportation Fellowship Program awards students pursuing a degree in transportation or related field. This fellowship is provided by US Department of Transportation (USDOT) - Federal Highway Administration (FHWA). This award encourages young students in the field of transportation to pursue a career in transportation as well as allows them to pursue a higher education in the field of transportation.



*Students of Eisenhower fellowship with their mentors Dr.Niranjan and Dr.Javid*

Dr. Mehran submitted a proposal to FHWA, and was awarded the grant for an undisclosed amount. Followed by which immediately, several interested SSU students submitted applications for the fellowship, several TIP-ITS research students also submitted applications. A review process of the applications was conducted with the help of officials designated by USDOT-FHWA and five of the SSU students received \$35,000. All five students who received fellowship were part of TIP-ITS research which is a great success for us, because this was the first time for SSU students. Two out of the five students are currently pursuing the Transportation certificate. Dr. Javid currently is the Principal Investigator of this fellowship. We are highly appreciative of what Dr. Mehran and Dr. Javid have done as part of this fellowship, and Kudos to both!

## Faculty Enrichment Workshops

Three workshops were conducted and one workshop will be conducted in May 2017 during this year as part of the faculty enrichment program. This workshop was also open for a couple of graduate students. We had a group of around 15 to 20 attendees and in that around 10 to 15 were faculty members.



**Workshop on PTV - Vissim was conducted by Mr.David Pickworth**



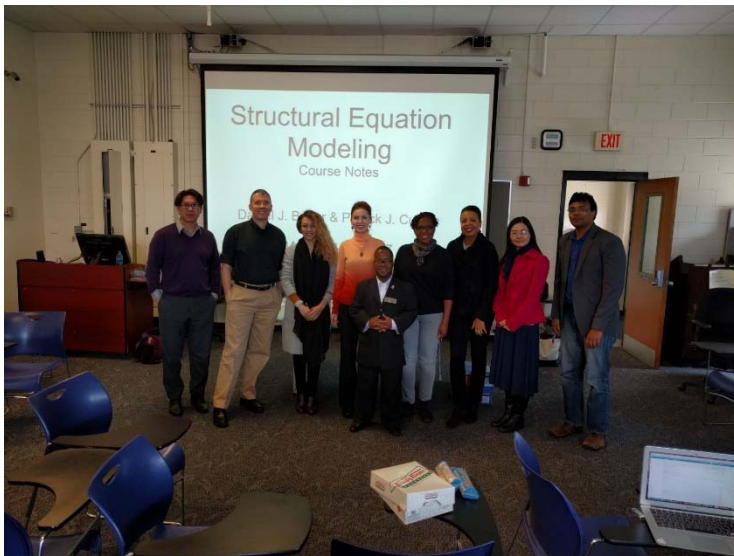
## List of workshops conducted

Name of the workshop	Name of the trainer	Designation	Dates
Geographic Information System (GIS)	Kevin McLeod	GIS programmer/Analyst, SAGIS	Feb 27-Feb 28 (2 days)
PTV Vissim	Mr. David Pickworth	Project Manager, VHB	March 24 (1 day)
Advanced Statistical Modeling (STATA)	Mr. Patrick Curran	Curran-Bauer Analytics, LLC	March 12 to March 15 (3 day)
Tableau	Ms. Rhonda Syler	President, AIS Special Interest Group on Education (SIGED)	May 10 – May 12(3 day)

**GIS:** The objective of the seminar was to introduce general concepts and capabilities of Geographic Information Systems (GIS). Examples relevant to planning and transportation were demonstrated in hands-on lab exercises. Attendees created spatial data, showing patterns, and uploaded their data to web viewers. Building footprints were traced from aerial photography and their spatial dimensions were calculated. Displaying patterns in data were demonstrated by exploring property value data with various symbology.

**PTV Vissim:** The objective of the one day workshop was to introduce the basic overview of the PTV suite and focused mainly on Vissim. Vissim Project applications and , model development were covered. Also, the trainer demonstrated the running of VISSIM simulation, processing the output and creating visual outputs.

**STATA:** This four-day workshop explored a variety of modeling approaches to the analysis of longitudinal repeated measures data. The first two days focused on the multilevel linear model (MLM) and the second two days focused on the structural equation model (SEM). Multiple examples were demonstrated for both MLM and SEM using the software package STATA.



Attendees of the workshop with the trainer Mr. Curran Bauer

**Tableau and SAS:** This three day workshop covered both Tableau and SAS. The first half of the session worked on basics of Tableau and second half covered SAS VA. The session gave the introduction to both software and also covered construction of charts in both Tableau and SAS, Use and Best Practices of Dashboards in Tableau and SAS VA .

## Upcoming Workshops

Name of the workshop	Name of the trainer	Designation	Dates
PTV Vissim, Vissum and Vistro	Dr. Roxana Javid	Assistant Professor of Civil Engineering	May 25 <sup>th</sup> -May 26 <sup>th</sup>
GIS Advanced	Dr. Deden Rukmana	Assistant Professor of Urban Planning	TBA

## Student Research Projects

In Fall 2016 and Spring of 2017, there were around 10 students who worked on research projects under the guidance of the faculty members. Also, there are students already registered for summer and Fall semesters of 2017 and some projects have also been planned.

### Logistics/Supply Chain Projects

- Project Name: Determining Optimal Capacity Utilization and Inventory Levels for a distribution center: A case Study

Student Names: Phuong Mata

Advisor Name: Dr. Suman Niranjana



**Phuong Mata**

- Project Name: Optimizing Flow at a Distribution center: A case Study

Student Names: Corliss Best, Niegel Middleton

Advisor Name: Dr. Suman Niranjana



**Corliss Best**

- Project Name: Antecedents of Distracted Driving: Role of Cognitive Failures

Student Name: Corliss Best

Advisor Name: Dr. Suman Niranjana

- Project Name: Optimal Queue Length Based Server Sharing Decisions in Field Services

Student Name: Saligrama Agnihotri, Christopher Sieberer

Advisor Name: Dr. Suman Niranjana

- Project Name: Distracted Driving and its Antecedents

Student Name: Corliss Best

Advisor Name: Dr. Suman Niranjana, Dr. Katrina Savitskie

### Geographic Information Systems Projects

- Project Name: Transportation and Social Equity as way to alleviate Poverty

Student Name: Vishanya Forbes

Advisor Name: Dr. Deden Rukmana



**Vishanya Forbes**

## Transportation Projects

1. Project Name: Friction Characteristics of Savannah, GA Roads

Student Name: Jamelle Jaudon

Advisor Name: Dr. Bryan Knakiewicz



**Jamelle Jaudon**

2. Project Name: Bike Share Systems of Savannah, GA

Student Name: Mark Thomas, Jasmine Sweet, Daniel Parker, Jimmy Swan

Advisor Name: Dr. Mehran Mazari

3. Project Name: Impact of moisture variations on the stiffness of Unbound Pavement Layers

Student Name: Brandon Davis, Terrence Staten, Jimmy Swan, Jamelle Jaudon

Advisor Name: Dr. Mehran Mazari

4. Project Name: Adapting Pavement Systems to Extreme Weather Events

Student Name: Sarah Dillard

Advisor Name: Dr. Mehran Mazari



**Sarah Dillard**

5. Project Name: Performance of Road Infrastructure under flooding conditions

Student Name: Rubin Brown

Advisor Name: Dr. Mehran Mazari

## Proposed Projects on transportation for Summer 2017

1. Project Name: Finite Element Analysis of unique pavement sections

Student Name: Patrick London

Advisor Name: Dr. Bryan Knakiewicz

2. Project Name: Friction Characteristics of Savannah, GA Road Markings

Student Name: Dakia Denegal, Tyrone King

Advisor Name: Dr. Bryan Knakiewicz

3. Project Name: Traffic Simulation using PTV software

Student Name: Marcus Givens, David Henry Williams 111

Advisor Name: Dr. Roxana Javid