# GEORGIA STATE UNIVERSITY'S PERIMETER COLLEGE **31ST** ANNUAL MATHEMATICS CONFERENCE



# FRIDAY AND SATURDAY FEBRUARY 16-17, 2018

CLARKSTON CAMPUS STUDENT CENTER.



# 31<sup>st</sup> Annual Mathematics Conference Perimeter College at Georgia State University

February 16 - 17, 2018

**Clarkston Campus** 

# 31<sup>st</sup> Annual Mathematics Conference Perimeter College at Georgia State University

## **Conference Guest Speakers**

Welcome	<b>Dr. Kevin D. Yeomans</b> Interim Associate Dean of Perimeter College - MSCE
Introduction of Speaker	<b>Joanna Richardson Wilson</b> Chairperson, Perimeter College Mathematics Conference
Keynote Address	<b>Dr. Willie Rockward</b> Associate Professor of Physics Morehouse College

### About the Keynote Speaker

Dr. Willie Rockward received a B.S. degree in Physics, **cum laude**, from Grambling State University. While completing a M.S. degree in Physics from State University of New York at Albany, he transferred into the doctoral program in the School of Physics at the Georgia Institute of Technology (Georgia Tech). After completing his doctoral studies at Georgia Tech, he served as a civilian Research Physicist for the Advanced Guidance Division of the U.S. Air Force Research Laboratory located at Eglin Air Force Base, Florida.

Currently, Dr. Rockward is an Associate Professor of Physics at Morehouse College. Also, he serves as the Chair of the Department of Physics & Dual Degree Engineering Program and the Research Director of the Materials and Optics Research & Engineering (MORE) Laboratory.



His current research interests include crossed phase optics, micro/nano optics fabrication, metamaterials, extreme ultraviolet lithography, terahertz imaging, and nanostructure characterization.

Among his professional and social organizations, he is a member of the American Association of Physics Teachers, the Society of Physics Students, the Sigma Pi Sigma Physics Honor Society (National President 2014-18), the National Society of Black Physicists, the National Technical Association, the Optical Society of America, and the Omega Psi Phi Fraternity. Among his community involvement, he actively serves as an Associate Minister at the Antioch Baptist Church North in Atlanta, GA and as the Director of Science and the Coordinator of Special STEM Projects for the Miller's Military Academy in Lithonia, GA.

### **Description of Keynote Address**

### Title: Building STEM Majors: We C.A.R.E. – An emphasis on Recruitment/Retention/Research of 1st & 2nd year students

### ABSTRACT

Building STEM majors at any undergraduate institution, especially Perimeter College – a public, diverse, two-year institution, can be very challenging. To address this challenge, several STEM departments at various institutions are applying a modified version of a pedagogical approach called "We C.A.R.E." which stands for Curriculum, Advisement, Recruitment/Retention/Research, and Extras. This approach utilizes an integrated strategy of cultural (family-orientated), collaborative (shared-governance), and career (personalized pathways) modalities to provide the framework and momentum of building STEM majors. Thus, a detailed overview of the "We C.A.R.E." approach will be presented along with an emphasis on recruitment, retention and research of 1st and 2nd year students.

### Announcements

### **Evaluation Forms**

Please complete an evaluation form for the conference, which can be found at our website, http://sites.gsu.edu/pc-gsu--mathconference/end-of-conference-survey/. We value your feedback and appreciate you taking the time to submit your comments!

### **Name Badges**

Please return your name badge to the registration table after you have attended your last conference event.

### Parking

If you receive a parking ticket, turn it in at the registration table.

### Handouts

Copies of handouts will be available online at the conference http://sites.gsu.edu/pc-gsu-mathconference/

Thank you for attending! We hope that you enjoy the conference!

Thank you! The Perimeter College Mathematics Conference and generous support of the 31st Annual Perimeter College Mathematics Conference. **Cengage Learning** 

Committee thanks the following for their contributions

**McGraw-Hill Education** Pearson Hawkes Learning **Top Hat** 

Friday, February 16, 2018			
Time	Event	Location	
8:00 AM	Registration Begins	CN building, 1 <sup>st</sup> floor	
8:30 AM	Hot Breakfast	CN-2220	
9:00 AM - 10:45 AM	Full Sessions	CC and CD buildings	
10:55 AM	Welcome & Keynote Address	LRC - 1100	
12:00 PM	Lunch	CN-2220	
1:00 PM - 2:45 PM	Full Sessions	CC and CD buildings	
2:45 PM - 3:00 PM	Snack	CN-2220	
3:00 PM - 4:15 PM	Mini Sessions	CC and CD buildings	
4:30 PM - 5:30 PM	GMATYC Meeting	CN-2240	
5:30 PM	Dinner & Raffle	CN building, 1 <sup>st</sup> floor	
Saturday, February 17, 2018			
Time	Event	Location	
8:00 AM	Registration Begins	CN building, 1 <sup>st</sup> floor	
8:30 AM	Continental Breakfast	CN-2220	
9:00 AM - 11:00 AM	Student Presentations	CD building	
11:00 AM - 12:30 PM	Lunch	CN-2220	

	Deta	iled Schedule–	-Friday, Februa	ary 16, 2018	
		Fu	Ill Sessions		
Session Time	Teaching with Technology CC-1140	Teaching Strategies CD-1100	Scholarship of Teaching CD-1120	Learning Foundations CD-1160	General Topics and Discussion CD-1130
9:00 – 9:45 AM	1. College Algebra with Support: A Total Transformation	2. Co-Req Courses Your Way	3. Service Learning in an Online Math Course	4. SESSION CANCELLED	5. AMATYC: What's the hype?!
10:00 – 10:45 AM	6. Video- conferencing and College Mathematics	7. Academic Dishonesty	8. Designing Digital Assessments for Maximum Impact	9. ALEKS for Math 1111 and Math 0999	10. Logarithms and Exponents: Heavy Lifting Not Required
10:55 AM	10:55 AM       Keynote Address: Dr. Willie Rockward       LRC - 1100				
12:00 PM			Lunch CN-2220		
		Fu	Il Sessions		
Session Time	Teaching with Technology CC-1140	Teaching Strategies CD-1100	Scholarship of Teaching CD-1120	Learning Foundations CD-1160	General Topics and Discussion CD-1130
1:00 – 1:45 PM	11. Cheater Cheater Pumpkin Eater	12. The use of Diagrams in Enhancing Understanding of Volume of Revolution	13. Models for Undergraduate Research in Mathematics in the First Two Years	14. Quantitative Literacy More Than Ever Before (For all QR courses, including a corequisite model)	15. How ALEKS Fixed our Co-Req
2:00 – 2:45 PM	16. Using Fanout Simulation Experiments to Engage Students in Critical Thinking about Sampling Distributions and Sample Sizes	17. Helping Students Learn How to Approach Problem-Solving Situations	18. Improving Student Meta- cognition	19. Creating Pathways with Corequisite Support	20. Population Dynamics and the End of the World?

2:45 - 3:00 PM	Snack , CN - 2220		
	Mini Sessions—F	riday, February 16, 2018	3
Session Time	CC-1140	CD-1100	CD-1120
3:00 - 3:15 PM	A. Journey to the Center of the Triangle	B. Course Options and Course Delivery Options in Area A	C. Some Applied Examples of Multiple Regression
3:20 – 3:35 PM	D. Please Speak Up - Using Voice-Thread for Online Discussions	E. University Online Class Resources Enhance Co- Requisite Classes	F. Fun in Teaching Mathematics
3:40 – 3:55 PM	G. Ready or not: Pretests as a predictor for success in Calc 1	H. Not Review but Preview Worksheets!	I. Picturing Imaginary Numbers
4:00 - 4:15 PM	J. A Model for Allowing Test Corrections: Implementation and Grading	K. Instructional Strategies to Develop ''Significant Learning Experiences''	
4:30 - 5:30 PM		GMATYC Meeting Room CN-2240	
5:30 PM		Dinner & Raffle CN building, 1 <sup>st</sup> floor	

Saturday, February 17, 2018					
Time	Event			Location	
8:00 AM	Registration Be	Registration Begins CN bu		uilding, 1 <sup>st</sup> floor	
8:30 AM	Continental Breakfast			CN-2220	
Student Presentations					
Session Time	CD-1100	CD-	1120	CD- 1160	
9:00 - 9:20 AM	1. The Calculus of Rainbows	2. Fundame Theorem o	ental f Calculus	3. Sustainable Energy	
9:30 - 9:50 AM	4. The History of Limits	5. Humanki Future: Sma	nd's art Cities		
10:00 - 10:20 AM	6. Invention of Calculus	7. What Doo Meter mean	es Square ?		
10:30 - 10:50 AM	8. The Simplicity in Complex Islamic Art	9. Is this cu pure or tain	p of water ted?		

### 9:00 a.m. - 9:45 a.m.

 1. College Algebra with Support: A Total Transformation
 CC – 1140

 Andrea Hendricks, Perimeter College at Georgia State University, ahendricks@gsu.edu

 <u>Co-presenter</u>: Sharon Weltlich, Perimeter College at Georgia State University, sweltlich@gsu.edu

The presenters will share how Top Hat, an innovative classroom engagement tool and course authoring platform, has transformed the way they teach and engage with their College Algebra and Support students. Top Hat has solved many of the challenges faced by the corequisite course.

2. Co-Req Courses Your Way Calandra Davis, Pearson Faculty Advisor, MyLab Math & Statistics, calandra.davis@pearson.com

### <u>Co-presenter</u>: Naomi Bahary, Pearson Mathematics and Statistics Solutions Specialist, <u>Naomi.Bahary@pearson.com</u>

Join us to learn about MyLab Math corequisite course solutions. In this session, we will cover best practices and tips for success in setting up corequisite courses designed to fit your school's needs and built to ensure successful implementation! Topics will include how to address student remediation, how to monitor student progress with course data analytics, and more.

3. Service Learning in an Online Math Course

Dr. Kimberly Bennekin, Perimeter College at Georgia State University, <u>kbennekin@gsu.edu</u> Service Learning provides opportunities of learning through servicing the community. It has quickly become an added addition to a variety of courses, but has also become a required component in some. If a Service Learning component is a required part of the course curriculum, how do you implement that within an online course? This presentation will give examples of how technology was used to implement Service Learning in an online math course for early childhood education majors. I will also allow the audience to brainstorm on how they could use technology to implement Service Learning in their courses.

- 4. Shifting Mathematical Mindsets in the Foundations Classroom SESSION CANCELLED
- 5. AMATYC: What's the hype?!

Stephanie Garofalo, Perimeter College at Georgia State University, <u>sgarofalo@gsu.edu</u> <u>Co-presenters</u>: Robert Pruvenok, Georgia State University Perimeter College, <u>rpruvenok@gsu.edu</u>

### Behnaz Rouhani, Georgia State University Perimeter College, brouhani@gsu.edu

First, hear two faculty experiences and take-aways from the last AMATYC conference in San Diego. Then receive some insider tips and suggestions on ways to get involved from a member of the national executive board.

al and accord

**CD** – 1100

**CD** – 1120

CD – 1130

**CD - 1160** 

### 10:00 a.m. - 10:45 a.m.

### 6. Videoconferencing and College Mathematics

Phillip Taylor, North Florida Community College, <u>taylorp@nfcc.edu</u>

For five years now, NFCC has connected with local high schools via videoconferencing technology, extending college classes into the high school in real time. This session will examine the program from multiple perspectives and discuss the pros and cons of this new opportunity. Questions are welcome!

### 7. Academic Dishonesty

John Fulk, Perimeter College at Georgia State University, <u>jfulk@gsu.edu</u> <u>Co-presenter</u>: Robert Pruvenok, Perimeter College at Georgia State University, <u>rpruvenok@gsu.edu</u>

The presenters will discuss what constitutes academic dishonesty and ways to reduce or prevent academic dishonesty. The presenters will also talk about consequences for academic dishonesty and the appeals process.

### 8. Designing Digital Assessments for Maximum Impact CD – 1120

### Willem Wallinga, Fisher College, <u>wwallinga@fisher.edu</u>

Why "assign homework" when you can design assessments to identify and address learning gaps? This presentation will introduce strategies to incorporate scaffolding and multiple question styles within digital learning software. Techniques will be demonstrated in several content areas ranging from developmental mathematics to multivariable calculus.

9. ALEKS for Math 1111 and Math 0999

### Ginny Powell, Perimeter College at Georgia State University, gpowell8@gsu.edu

As we prepare for the change coming Fall 2018, it is essential that we make informed choices about how best to help our new students. In this session, the presenter will describe a pilot using one ALEKS course for both Math 1111 and Math 0999, which may be chosen as the way we teach in Fall.

10. Logarithms and Exponents: Heavy Lifting Not Required

David Vogel, Middle Georgia State University, <u>david.vogel@mga.edu</u>

<u>Co-presenter</u>: Lily Wang, Middle Georgia State University, <u>lily.wang@mga.edu</u>

Students encounter difficulties solving exponential and logarithmic equations. For beginning students it takes too much mental energy to "lift" an expressions into an exponent. We teach students to reformulate logarithmic equations in exponential form and exponential equations in logarithmic form. The transcendental equation is then reduced to linear or quadratic form.

CC – 1140

**CD** – 1100

**CD** – 1130

### 1:00 p.m. - 1:45 p.m.

11.	Cheater Cheater Pumpkin Eater	CC – 1140
	<i>Keisha Brown, Perimeter College at Georgia State University, <u>klanier1@gsu.edu</u> In this session, we will discuss the most common types of cheating in a mathematic classrooms, and we will explore various strategies to alleviate it.</i>	cs
12.	The use of Diagrams in Enhancing Understanding of Volume of Revolution.	CD – 1100
	Lynwall Clarke, PhD, Georgia Gwinnett College, <u>lclarke2@ggc.edu</u>	
	Many students struggle with spatial comprehension of volume of revolution. They solely on the use of the formula and therefore may lack the understanding necessar this topic. I will demonstrate how free hand diagrams can aid used to enhance spat comprehension of volume of revolution and aid understanding.	depend y to master ial
13.	Models for Undergraduate Research in Mathematics in the First Two Years	CD – 1120
	Shinemin Lin, Savannah State University, <u>lins@savannahstate.edu</u>	
	Integrating Undergraduate Research in higher mathematics education is very useful strategy to students with different backgrounds. In this presentation, author will presearch projects that are suitable for first two year students.	l learning esent several
14.	Quantitative Literacy More Than Ever Before (For all QR courses, including a corequisite model)	CD – 1160
	Bill Briggs, University of Colorado, Denver, William.Briggs@ucdenver.edu	
	<u>Co-presenter</u> : Naomi Bahary, Pearson Mathematics and Statistics Solutions Specialist, <u>naomi.bahary@pearson.com</u>	
	Author Bill Briggs, co-author of Using and Understanding Mathematics, 7e, discuss quantitative literacy/reasoning (QL/QR) courses remain among the most important teach today. Bill shares lessons learned after years of teaching and writing about Q session will also review solutions for a QL/ QR co-requisite course structure.	sses how courses we L/QR. The
15.	How ALEKS Fixed our Co-Req	CD – 1130
	Deanne Williams, Dversburg Community College, dwillia@dscc.edu	

Deanne Williams, Dyersburg Community College, <u>dwillia@dscc.edu</u>

Come hear from program coordinator Deanne Williams on how Dyersburg Community college implemented their Co-Requisite model using ALEKS. Discussion will include:

- Why they needed to restructure
- Goals for their new model
- Course set up and grading
- Old Classroom model/New Classroom model
- Using data to drive lectures and student success

### 2:00 p.m. - 2:45 p.m.

Using Fanout Simulation Experiments to Engage Students in Critical CC - 114016. **Thinking about Sampling Distributions and Sample Sizes** 

Dr. Gerald Agbegha, Georgia Gwinnett College, gagbegha@ggc.edu Co-presenters: Anthony Thomas, Georgia Gwinnett College, athomas1@ggc.edu Adrian Heinz, Georgia Gwinnett College, aheinz@ggc.edu Junkoo Park, Georgia Gwinnett College, jpark15@ggc.edu

A major aspect of scientific studies is the determination of a sample size. The sample size arrived at balances several factors. This presentation describes how fanout simulations of sampling distributions can be used to engage the student in critical thinking about sampling, the Central Limit Theorem and sample size determination.

Helping Students Learn How to Approach Problem-Solving Situations 17. **CD** – 1100 Dr. Brooke Skelton, Perimeter College at Georgia State University, bskelton@gsu.edu Co-presenter: Dr. Margie Lewkowicz, Perimeter College at Georgia State University, mlewkowicz1@gsu.edu

Some students have difficulty applying concepts learned in one course to more advanced courses. Guiding students in the transfer of knowledge and methods is vital to helping them become self-sufficient learners. We will discuss "process guides" that alleviate student uncertainty about problem-solving while developing students' abilities to generalize learned skills.

18. **Improving Student Metacognition** 

### John J Weber III, Perimeter College at Georgia State University, jweber13@gsu.edu

This proposal focuses on the presenter's SoTL-based research on improving student learning through active learning activities. The presenter will discuss standards-based grading; and the development student reflective writing assignments and student self-assessments of their understanding of course learning objectives as methods to improve students' metacognition.

19. **Creating Pathways with Corequisite Support** Stiriling Rentz, Hawkes Learning, jvaughan@hawkeslearning.com How do you design pathways that encourage students to persist and increase gateway course completion while providing corequisite support? Join Hawkes as we discuss the questions and ideas that surround the pathways and corequisite movements with suggestions for different course implementations. Win a \$25 Amazon gift card! **Population Dynamics and the End of the World?** 20. **CD** – 1130 Robert Pruvenok, Perimeter College at Georgia State University, <u>rpruvenok@gsu.edu</u>

Mathematical models of population dynamics will be presented at various levels from College Algebra to Differential Equations. Special attention will be paid to logistic growth with harvesting of resource species, with implications for continuing human population growth in a finite and changing planetary environment.

12 | Page

**CD** – 1160

### 3:00 p.m. - 3:15 p.m.

### Journey to the Center of the Triangle A.

Xiaoyan (Shannon) Hu, Middle Georgia State University, shannon.hu@mga.edu

People have known since ancient times that the three medians of a triangle intersect at a single point, a fact that can be proved using the basic axioms of geometry. This presentation restates the geometric proof and presents three alternative proofs using, respectively, linear algebra, vector analysis, and calculus. The calculus-based proof also yields the fact that the intersection of the medians is the triangle's center of mass.

#### Β. **Course Options and Course Delivery Options in Area A**

Robert Blumenthal, Georgia College, robert.blumenthal@gcsu.edu

At Georgia College, we have explored a variety of course options well as course delivery options in Area A for our students. Students can choose from a selections of three course options and two course delivery formats. In this presentation, I will discuss the approaches we have taken and the effect these have had, positive or negative, on student success.

#### C. Some Applied Examples of Multiple Regression

Amos Darrisaw, Perimeter College at Georgia State University, adarrisaw@gsu.edu

In Elementary Statistics, the impact that one independent variable (Explanatory Variable) has on a given dependent variable (Response Variable) is explored. However, there are usually multiple independent variables that impact the dependent variable. In this talk, the presenter will discuss how Multiple Regression can be used to investigate real world examples.

CC - 1140

**CD** – 1120

### 3:20 p.m. – 3:35 p.m.

### D. Please Speak Up - Using VoiceThread for Online Discussions

Erin Church, Perimeter College at Georgia State University, <u>ecooke@gsu.edu</u>

With typical online discussion boards, students may not be able to actually feel like they are connected to the class or classmates. VoiceThread offers students the ability to interact with voice recordings, videos and text. This talk will briefly discuss the pros and cons of using VoiceThread and show an example VoiceThread.

### E. University Online Class Resources Enhance Co-Requisite Classes CD – 1100

### Nancy Henderson, University of North Georgia, nancy.henderson@ung.edu

The presenter worked together with the Math 1111 designer/professor to edit the resources in the university's online Math 1111 class for inclusion in the Co-Requisite classes. These resources provide students with the best of both worlds, the lessons from the university's totally online class along with a face-to-face instructor.

### F. Fun in Teaching Mathematics

Amir Barzegar, Ph.D., Perimeter College at Georgia State University, abarzegar1@gsu.edu

The presenter has developed instructional methodologies to introduce almost any mathematics topic in unique and interesting ways. This talk will demonstrate how one can use mathematics history and real world examples to present concepts such as logic, equations, sequences and series, to students in a fun way and help them be more engaged.

**CD** – 1120

CC - 1140

# Abstracts for Mini Sessions

## Friday, February 16, 2018

### 3:40 p.m. – 3:55 p.m.

### G. Ready or not: Pretests as a predictor for success in Calc 1

Steven Wallace, Middle Georgia State University, <u>steven.wallace@mga.edu</u>

<u>Co-Presenters</u>: Blanche Presley, Middle Georgia State University Gaston Brouwer, Middle Georgia State University

A pretest administered to Calculus 1 students at MGA is meant to gauge the student's prerequisite knowledge over ten learning outcomes from College Algebra and Trigonometry. We will discuss how these topics (with or without remediation) correlate with success in the course.

H. Not Review but Preview Worksheets!

### Chandra French, Perimeter College at Georgia State University, cbreaux@gsu.edu

What is a Preview Worksheet? A worksheet designed to show how the present mathematics content is useful at the next level. In this presentation, examples of worksheets created by the presenter will be shared with the attendees in the hope of generating ideas for more worksheets that could be created.

### I. Picturing Imaginary Numbers

Timothy Brown, Perimeter College at Georgia State University, tbrown179@gsu.edu

An artistic and creative approach to introduce the concept of imaginary numbers. Will also include an intuitive approach to modular division with regards to reducing powers of i. Artists and non-artists are welcome.

**CD** – 1120

**CD** – 1100

**CC - 1140** 

### 4:00 - 4:15 p.m.

### J. A Model for Allowing Test Corrections: Implementation and Grading CC – 1140

### Terry (Tee) L. Barron, Georgia Gwinnett College, tbarron@ggc.edu

After several semesters of researching, planning, and implementing test corrections across PreCalculus and Calculus mathematics classes, the presenter developed a satisfactory (for her) model for implementing and grading test corrections. She will discuss the model as well as lessons learned, benefits, drawbacks and future endeavors for validating the model.

### K. Instructional Strategies to Develop "Significant Learning Experiences" CD – 1100

### John D. King, Perimeter College at Georgia State University, jking22@gsu.edu

Various innovative instructional strategies such as frequent formative assessments, the flipped classroom, and new educational technologies will be discussed. These 'significant learning experiences' were demonstrated at the 2017 Governor's Teaching Fellows (GTF) program. The benefits of the GTF program will also be expounded upon.

### Abstracts for Student Presentations Saturday, February 17, 2018

### 9:00 a.m. - 9:20 a.m.

### 1. **The Calculus of Rainbows**

Christine Saw, Perimeter College at Georgia State University, <u>csaw68@gmail.com</u>

<u>Faculty Advisor</u>: Somaya Muiny, Perimeter College at Georgia State University, <u>smuiny1@gsu.edu</u>

Rainbows are one of the most beautiful spectacles nature has to offer. They have fascinated mankind since ancient times and have inspired attempts at scientific explanation since the time of Aristotle. This presentation aims to use the knowledge of calculus to explain the shape, location and colors of rainbows to further understand this physical phenomenon.

### 2. Fundamental Theorem of Calculus

Dorcelle Lotemo, Perimeter College at Georgia State University, <u>dlotemo1@student.gsu.edu</u>

The Fundamental Theorem of Calculus is what officially illustrates the relationship between integrals and derivatives. The purpose of this presentation is to explain what the fundamental theorem of calculus is and it's importance.

### 3. Sustainable Energy

Tanjil Sarker, Perimeter College at Georgia State University, neal3218@gmail.com

<u>Co-presenters</u>: Matthew Adams, Perimeter College at Georgia State University, <u>matthewcalvin86@gmail.com</u> Ana Patricia Marzoa, Perimeter College at Georgia State University, <u>apmarzoa@gmail.com</u>

### <u>Faculty Advisor</u>: Brooke P. Skelton, Perimeter College at Georgia State University, <u>bskelton@gsu.edu</u>

Energy is being consumed from mainstream sources at an unsustainable rate. The focus is on the world leaders in renewable and alternative energy, what projects are successful in the United States and how the industry is paving the way for future STEM majors nationally and locally in Georgia.

<u>....</u>

**CD** – 1160

**CD** – 1120

### **Abstracts for Students Presentations** Saturday, February 17, 2018

### 9:30 a.m. - 9:50 a.m.

### 4. The History of Limits

Patrick Brothers, Perimeter College at Georgia State University, pbrothers2@student.gsu.edu

Co-presenter: Astrid Dieguez, Perimeter College at Georgia State University, adieguez1@student.gsu.edu

Survey of the history of limits from Archimedes' Method of Exhaustion to Weierstrass' Epsilon-Delta proofs. With emphasis placed on Archimedes.

### 5. Humankind's Future: Smart Cities

**CD** – 1120

Raymond Chen, Perimeter College at Georgia State University, bchen10@student.gsu.edu **<u>Co-presenters</u>**: Charleston O'Donnell, Perimeter College at Georgia State University, codonnell5@student.gsu.edu Ulrich Charol Djouaka Tetong, Perimeter College at Georgia State University, udjouakatetong1@student.gsu.edu Aashay Nilesh Mehta, Perimeter College at Georgia State University, amehta12@student.gsu.edu

### Faculty Advisor: Dr. Brooke Skelton, Perimeter College at Georgia State University, bskelton@gsu.edu

With the rapid advancement of all aspects of society, the need for "smart" cities has become more pressing than ever before; cities that utilize advanced technology to monitor and efficiently automate practically every aspect of modern life, including transportation, healthcare, energy, communication, and the network security of these services.

### 10:00 a.m. - 10:20 a.m.

### 6. **Invention of Calculus**

### Sheng Wu, Perimeter College at Georgia State University, Fwu7@student.gsu.edu

Leibniz and Newton had very different views of calculus. This presentation investigates the development of the Fundamental Theorem of Calculus by both mathematicians and sheds light on their different perspectives and approaches in proving this theorem.

#### 7. What Does Square Meter mean?

### Shenghang Wang, Perimeter College at Georgia State University, swang48@student.gsu.edu

Our units for area are always square units, for example, the units might be square meters, square centimeters or square inches. Why could any shape be broken into squares without any loss? The same "mechanism" for volume, why could any volumes of solid, fluid or space be broken into cubes (which are "squares in three dimensions") without any loss? Does that mean that the square is a "fundamental shape" of our math system or our universe?"

**CD** – 1100

**CD** – 1100

## Abstracts for Students Presentations Saturday, February 17, 2018

### 10:30 a.m. - 10:50 a.m.

### 8. The Simplicity in Complex Islamic Art

Saadatu Umar, Perimeter College at Georgia State University, <u>saadatumk@gmail.com</u>

This presentation is about how the Islamic art came about and also how simple geometric shapes are used to create designs of symmetry to form a visual expression and beautification in Muslims acts of worships.

### 9. Is this cup of water pure or tainted?

**CD** – 1120

### Christensen Lucas, Perimeter College at Georgia State University, <u>clucas12@student.gsu.edu</u>

Almost 70 percent of the earth is covered in water. Our own bodies consist of approximately 60 percent of water. Regardless of it being prevalent across this planet and within ourselves, the quality of water particularly in America is severely detrimental such as in the crises involving Flint Michigan and likewise in West Virginia. The assumption that drinking water is purified is contradicted when inorganic chemicals taint the water. Consequently, this issue along with the infrastructure of waterways need to be vitally addressed with innovative advancements of technology for the sake of this generation and future generations in order to conserve the environment.

# Notes

	CH
(	English
	International Student and Scholar Services/Admissions
	Mathematics
	MESA
information.	Military Outreach Center
Evraim   and local	Nursing Student Health Center 😗
Mail Room	Testing Center
	TRIO – Upward Bound
Business/Social Science	5
Disability Services	Nursing
Learning & Tutoring Center	0
Student Development and	CJ Police Domethant Communications
Special Programs	
TRIO – Student Support Service	CAT (Creation and Technology)
Upward Bound	Lab/Computer Lab
CC	JCLRC – Jim Cherry Auditorium
DECA - Dekalb Early	Library DC Online
College Academy	
Move On When Ready	CM
(Dual Enrollment)	Facilities Operations
Science	Facilities Planning & Projects
CD	Surplus Warehouse
American Sign Language	CN
Interpreter Education	Admissions
DECA - Dekalb Early	Advisement Center
College Academy	Book Store
ROTC	Café
CE	Cashiering Services
English	Center for International Education/
Honors College	Study Abroad Center for Excellence in Teaching
Humanities	and Learning
CF	Deans of Academics and Students
Fine Arts and Humanities	Enrollment Services
Marvin Cole Auditorium	Financial Services
(Use south entrance.) Modio Docian Lab	Puntary Resource booth
Performance Studio	rersonal Counseing services Student Center
(Use north entrance.)	Student Government Association
	Student Life 👽
	5
	Auxiliany Services
Physical Education	D Card (PantherCard) Services
Police Department 👽	and Parking Permits
Swimming Pool	Mail Services Doubling (Dringing Society)
	רמשרוווינג (רווונוינג טמ זוכבי)



CLARKSTON CAMPL

Welcome to the

Rev: 07/16



# 31<sup>st</sup> Annual Mathematics Conference Perimeter College at Georgia State University

Chairperson	Joanna Wilson
Co-Chairperson	Diana McGinnis
Registrar	Albert Lu
Webmaster	Jeff Gutliph Stephanie Garofalo
Exhibitor Coordinators	Marcus Rhymes
Food & Drink Coordinator	Ashraful Chowdhury
Social Media Coordinator	Michele Rockward
Advertising Coordinator	Somaya Muiny

Technology Coordinator Hong Du
Program CompilerWilliam Griffin
Nametag CoordinatorChandra French
Preparedness CoordinatorStephanie Garofalo Mohammad Aslam
Budget MangerKouok Law
Presiders/Certificates Coordinator Erin Church
Parallel Sessions CoordinatorNikita Patterson
Saturday Sessions Coordinator Somaya Muiny Michelle Rockward

