

Annual Conference

Mathematical Association of America, Southeastern Section

<http://sections.maa.org/southeastern/maase/conference/>

Ninety-second Annual Meeting

Winthrop University

Rock Hill, SC

Friday—Saturday, 15—16 March 2013

Thursday, 14 March

- 1:45 – 3:00 pm Registration, DiGiorgio Campus Center Lobby
- 2:00 – 5:00 pm Project NExT-SE Activities, DiGiorgio Campus Center, Room 223
- 6:15 – 8:00 pm Registration, DiGiorgio Campus Center Lobby
- 6:30 – ? Executive Committee Dinner and Meeting:
DiGiorgio Campus Center, Gold and Evans Rooms, 3rd Floor

Student Treasure Hunt. DiGiorgio Campus Center Lobby for Check-in. Organizer: Julie Barnes

- 7:00 pm Check-in
- 7:30 pm – 9:30 Activities in Tillman Hall
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Friday, 15 March

- 7:00 – 4:30 Registration: DiGiorgio Campus Center Lobby
- 8:00 – 11:30 Refreshments available, DiGiorgio Campus Center Lobby
- 8:00 – 11:30 Project NExT-SE Activities, DiGiorgio Campus Center Room 223
- 8:00 – 11:00 Math Jeopardy Preliminary Rounds, West Center Rooms 212, 217, and 219
These rounds begin at 8:00, 9:00, and 10:00.
- 11:00 - 11:45 Semifinals: West Center Rooms 212, 217, and 219
Organizers: Ron Taylor (Berry College), Mike Berry (UT Knoxville), Jeffrey Powell
(Samford University) and Brian Wagner (UT Martin).
Moderators: Mike Berry (UT Knoxville), Brian O'Connor (Tennessee Tech).

8:30 – 11:30 Short Courses and Workshops

- **WC 210:** *The use of classroom response systems in teaching Mathematics*, Shemi Alhaddad, University of South Carolina Lancaster
- **DG 221:** *Calculus in Banach Spaces*, Jeffrey Ehme (Spelman College)
- **DG 220:** *Risk Measures*, Wayne Tarrant (Wingate University)

Owens Hall G01. Distinguished Lectures for Students. Session Chair: Laurie Heyer, Davidson College.

- ☼ 9-9:45 DSL.1 *Global Warming and the Tragedy of the Commons*, Rick Gillman, Valparaiso University
- ☼ 10-10:45 DSL.2 *Fusing Dots, Representations, and Dynamic One-Pile Nim*, Harold Reiter, UNC Charlotte

Owens Hall 102. Contributed Session on General Math Education, Part 1 (Curriculum).

- 9:00 GME1.1 *Flipping the Classroom - A Math Instructor's Perspective*, Tonya Adkins, Johnson & Wales University - Charlotte
- 9:20 GME1.2 *Improving Learning Outcomes with Backward Course Design*, Janine M. Haugh, UNC-Asheville
- ☼ 9:40 GME1.3 *Liberal Arts Mathematics: "One and Three Chairs"*, Steven Zides, Wofford College
- 10:00 GME1.4 *A First Year Seminar on Cryptography*, Laurie Zack, High Point University
- ☼ 10:20 GME1.5 *Wikiversity in teaching: an attempted online supplement to traditional education*, Jeffrey Beyerl, Furman University
- ☼ 10:40 GME1.6 *Teaching Calculus to Students who have already seen Calculus*, Charlotte Knotts-Zides, Wofford College

Owens Hall 104. Contributed Session on General Research, Part 1.

- ☼ 9:00 RES1.1 *A higher order method for boundary layer to problems in Engineering*, Ramanjit Sahi, Austin Peay State University, Samuel Jator
- ☼ 9:20 RES1.2 *Ascending Subgraph Decompositions in Oriented Complete Balanced Tripartite Graphs*, Brian Wagner, UT Martin
- ☼ 9:40 RES1.3 *A Mathematical Model Studying Mosquito-stage Transmission-blocking Vaccines*, Jemal Mohammed-Awel, Valdosta State University, Ruijun Zhao, Minnesota State University, Mankato, Mankato, MN
- ☼ 10:00 RES1.4 *Counting dihedral p -adic fields*, Chad Awtrey, Elon University, Trevor Edwards
- ☼ 10:20 RES1.5 *Interesting Trig Identity*, Paul L Baker, Catawba College, Identity posed by Mohammed Almasalmeh of Al Buraimy University, Oman

9:30 – 4:00 Exhibits, DiGiorgio Campus Center Lobby

11:45 – 12:30 Graduate School and Career Fair: McBryde Hall, Tuttle Dining Room.
Networking, professional development, career planning and free pizza for undergraduates.

11:30 – 12:30 Lunch available at Markley's Food Court, DiGiorgio Campus Center lower level

11:30 – 12:30 Liaisons' Lunch. DiGiorgio Campus Center Room 114

12:45 – 1:45 General Session I, DiGiorgio Campus Center Richardson Ballroom, Jeff Knisley, MAA-SE Chair, presiding.

Welcome from Winthrop University: Dr. Peter Judge, Dean of the College of Arts and Sciences

Invited address: *Forming the Borromean Rings from Random Curves*, Section Lecturer Hugh Howards, Wake Forest University

2:00 – 4:00 Refreshments available,

2:00 – 4:00 Concurrent Special and Contributed Sessions

West Center 210. 2:00—3:50 Publisher Presentations.

PUB.1 2:00 - 2:50 *Mastering Math, Not the System*, Emily Jones, Hawkes Learning Systems

You know the scenario: Students seem to be doing well on homework, yet are performing poorly on exams. With Hawkes, students cannot “cheat the system” to get through assignments. Instead, they are held accountable for mastering the material without relying on learning aids. Discover how Hawkes motivates students to succeed! We will end the presentation with a little fun and raffle off a \$50 Amazon Gift Card!

PUB.2 3:00 - 3:50 McGraw-Hill, Eliza Gallagher, Clemson University presenting

From Misery to Mastery: Restructuring Precalculus at Clemson University

With a historical course pass rate under 50 percent, high student dissatisfaction, and high faculty dissatisfaction as driving forces, Clemson University embarked on a major course redesign for our Precalculus course for STEM majors. Using ALEKS as a stand-alone instructional product, we have significantly increased the course pass rate, reduced the faculty workload, and increased student satisfaction.

One year out from the initial full-scale implementation, students under the new model have gone on to higher performance levels in subsequent courses than students under the model. We will present logistical, instructional, and institutional aspects of the new implementation as well as some lessons learned along the way.

Owens Hall G01. Special Session on Math for Planet Earth. Session Chair: Suzanne Lenhart, University of Tennessee, Knoxville.

- ✿ 2:00 MPE.1 *Simulating the Evolution of Regulatory Networks*, William Garrett Mitchener, College of Charleston
- ✿ 2:20 MPE.2 *Diffusive logistic equation with negative density dependent emigration on the boundary*, Jerome Goddard II, Auburn University Montgomery, R. Shivaji, University of North Carolina Greensboro
- ✿ 2:40 MPE.3 *Meaningful Modeling: Connecting Computational Science, Student Interests, and the Mathematics of Planet Earth 2013*, Erin McNelis, Western Carolina University
- ✿ 3:00 MPE.4 *The effect of the cost on the fighting behavior*, Jan Rychtar, University of North Carolina Greensboro
- ✿ 3:20 MPE.5 *Modeling the Spread and Control of Pseudo-rabies Virus in Feral Hogs in Great Smoky Mountains National Park*, Rene A. Salinas, Appalachian State University
- ✿ 3:40 MPE.6 *Beyond the MPE year*, Suzanne Lenhart, University of Tennessee and NIMBioS

Owens Hall 102. Special Session on Inquiry-based Mathematics at all Levels. Organizers Bernadette Mullins and John Mayer, Birmingham Southern College.

- ☼ 2:00 INQ.1,2 *Resources for University-level IBL Instruction*, W. Ted Mahavier, Lamar University
- ☼ 2:40 INQ.3 *Can you teach calculus using the Moore Method and still cover the material?*, Cornelius Stallman, Georgia Regents University Augusta
- ☼ 3:00 INQ.4 *An IBL algebraic geometry course for undergraduates*, Ryan Brown, Georgia College
- ☼ 3:20 INQ.5 *The Development of Digital Manipulatives on Multiple Platforms for Enhanced Student Explorations*, Jill Cochran, Berry College, Zane Cochran (undergraduate student)
- ☼ 3:40 INQ.6 *Hexagon Numbers: An Open-Ended Problem*, John Mayer, University of Alabama at Birmingham

Owens Hall 103. Special Session on Teaching and Learning via Problems Sections in Journals I. Organizers David Stone, Georgia Southern University and Brian Beasley, Presbyterian College.

- ☼ 2:00 PRO1.1 *Solve This! Mathematics Problems as Challenges*, David Stone, Georgia Southern University, Brian Beasley, Presbyterian College
- ☼ 2:20 PRO1.2 *Fibonacci Fallout*, Steven Edwards, Southern Polytechnic State University
- ☼ 2:40 PRO1.3 *Independent Study with Problem Solving Approach*, Wei-Kai Lai, University of South Carolina Salkehatchie
- ☼ 3:00 PRO1.4 *From Newton to Nim: inviting journal problems to class*, Andrew Simoson, King College
- ☼ 3:20 PRO1.5 *Problems, Solutions, Students and Other anecdotes*, Richard Stephens, Columbus State University

Owens Hall G02. Contributed Session on General Math Education, Part 2 (Research on Effectiveness and Preparedness).

- 2:00 GME2.1 *Improving Student Evaluations in a Freshman Level Gen. Ed. Math Course – One Example*, Robin Lovgren, Belmont University
- 2:20 GME2.2 *Does gender affect mathematics teaching efficacy?*, Dohyoung Ryang, University of North Carolina at Greensboro
- 2:40 GME2.3 *Analyzing the Effects of Predictors on Student Performance in the Historically Black College and University in the Calculus*, M Hanif Talukder, Elizabeth City State University
- 3:00 GME2.4 *A Look at University Preparedness of Incoming Freshmen*, Josie Ryan, Lander University
- 3:20 GME2.5 *Concurrent skill review in College Algebra - Does It Help?*, Allison Wolf, Georgia Perimeter College, Ashraful Chowdhury, Patricia Jayne
- 3:40 GME2.6 *An NSF S-STEMS Scholarship Program at Meredith College*, Jennifer Hontz, Meredith College

Owens Hall 104. Contributed Session on Research, Part 2.

- ☼ 2:00 RES2.1 *Newly Structured Programming*, Damon Scott, Francis Marion University
- ☼ 2:20 RES2.2 *Trinity Matrices: Properties and Applications*, Ken Keating, Kennesaw State University, Joshua Du
- ☼ 2:40 RES2.3 *Optimal Strategy in Mat-Rix-Toe*, Adam Graham-Squire, High Point University
- 3:00 RES2.4 *Search for the Optimal Omega of the Successive Over Relaxation Method in Multi-layer Grid Refinement Theme*, Leina Wu, Queens University of Charlotte, Tsun-zee Mai (University of Alabama)
- ☼ 3:20 RES2.5 *Derivative Sign Patterns*, Jeffrey Clark, Elon University
- 3:40 RES2.6 *Interplay between disease and economic growth*, Calistus N. Ngonghala, University of Tennessee - Knoxville

Owens Hall 201. Graduate Student Papers, Part 1: Algebra, Number Theory and Topology.

- 2:00 GT1.1 *The Orbit Structure of the Power Sequence in Z_{100}* , April Jones, Albany State University, Renu Angira (Graduate Student), Li Feng (Faculty Mentor)
- 2:20 GT1.2 *Non-Unique Factorizations of Polynomials*, Ashley Rand, University of Tennessee, Knoxville
- 2:40 GT1.3 *Solutions of the cubic Fermat equation in quadratic fields*, Marvin Jones, University of South Carolina, Dr Jeremy Rouse (Wake Forest University)
- 3:00 GT1.4 *Group Covers: Covering and Partition Numbers*, Nicholas Sizemore, Western Carolina University
- 3:20 GT1.5 *On the Intersection Algebra of Principal Ideals*, Sara Malec, Georgia State University
- 3:40 GT1.6 *The Default of Contraction and Regularity*, Will Trott, Georgia Southern University

Owens Hall 202. Graduate Student Papers, Part 2: Graph Theory, Probability, and Statistics.

- 2:00 GT2.1 *On the spectral moment of quasi-unicyclic graphs*, Shuai Yuan, Georgia Southern University, Huiqing Liu (Hubei University)
- 2:20 GT2.2 *Knots and Links in the Complete Directed Graph on Six Vertices*, Natalie Rose Rich, Wake Forest University
- 2:40 GT2.3 *A new class of exponentiated generalized Dagum Distributions*, Shujiao Huang, Georgia Southern University, Broderick O. Oluyede
- 3:00 GT2.4 *Statistical Properties of Beta and Kumaraswamy Generalized Lindley Distributions*, Tiantian Yang, Georgia Southern University, Broderick O. Oluyede
- 3:20 GT2.5 *Disclosure Risk of the Hybrid Method of the microdata protection*, Valeriia Sherina, Georgia Southern University
- 3:40 GT2.6 *The Stability and Chaos of the Games We Play: Monopoly and Beyond!!*, Christopher Miglino, Western Carolina University

Owens Hall 203. Undergraduate Papers Session A. Algebra, Number Theory, and History of Math. Organizer Laurie Heyer, Davidson College.

- 2:00 UGA.1 *Galois 2-adic Fields of Degree 12.*, Christopher Shill, Elon University, Chad Awtrey
- 2:20 UGA.2 *A New Proof of the Lecture Hall Theorem*, Meredith Harris, Clemson University, Laura Bradford (Bard College); Brant Jones (James Madison University), Alex Komarinski (Arizona State University), Carly Matson (University of Virginia), and Edwin O'Shea (James Madison University)
- 2:40 UGA.3 *Permutations and Weyl Groups*, Noah Hughes, Appalachian State University, Bill Cook
- 3:00 UGA.4 *Symmetries of n-tone pitch systems*, Ashley AsKew, Appalachian State University
- 3:20 UGA.5 *Polynomials Over Finite Fields*, John Hull, Georgia State University
- 3:40 UGA.6 *Approximating Pi*, Ethan Colazzi, Coastal Carolina University, Andrew Incognito

Owens Hall 204. Undergraduate Papers Session B. Analysis and Geometry. Organizer Laurie Heyer, Davidson College.

- 2:00 UGB.1 *The Second Derivative Test and Its Applications*, Abdoulie Ceesay, Methodist University, Shivappa Palled
- 2:20 UGB.2 *Solving a parabolic PDE using the Laplace transform throught the method of lines(MOL)*, Dodji Kuwonu, Austin Peay State University
- 2:40 UGB.3 *Diffusive logistic equation with nonlinear boundary conditions and Sigma-shaped bifurcation curves*, Kev Johnson, Auburn University Montgomery, Daniel McElveen, and Katelyn Sanders
- 3:00 UGB.4 *Einstein Notation for Tensor Calculus*, Kevin Kern, Coastal Carolina University
- 3:20 UGB.5 *Proof (Almost) Without Words: Conic Sections*, Philip Kearse, University of South Carolina Salkehatchie
- 3:40 UGB.6 *The Geometry of the Narayana Numbers*, Stella Watson, Furman University, Rahul Isaac, and Jack Farnsworth

Owens Hall 207. Undergraduate Papers Session C. Applications of Mathematics, Part I. Organizer Laurie Heyer, Davidson College.

- 2:00 UGC.1 *On Simplex Methods in Linear Programming that Guarantee Termination of the Algorithm*, Evan Elmore, Samford University, Bruce Atkinson
- 2:20 UGC.2 *Making Musical Serialism From Mass Spectrometry and Nuclear Magnetic Resonance*, Lain Tomlinson, Cumberland University, Chris Fuller, and Sarah Pierce
- 2:40 UGC.3 *Mathematical Words in the Form of Knots*, Liliana Alvarez, Austin Peay State University, Ramanjit K. Sahi
- 3:00 UGC.4 *Artificial Neural Networks: My computer can do WHAT?!*, Christian Weigandt, High Point University, Alex Palmer
- 3:20 UGC.5 *On finding the optimal trail up a mountain with the energy expenditure cost function*, Vanda Johnson, Savannah State University, Juhi Brahmhatt
- 3:40 UGC.6 *Combinatorial Aspects of Quantum Chromodynamics*, Aaron Ostrander, Berry College, Dr. Chris White (University of Glasgow)

Owens Hall 208. Undergraduate Papers Session D. Graph Theory and Combinatorics. Organizer Laurie Heyer, Davidson College.

- 2:00 UGD.1 *Counting LOGs and GIGs*, Jonah Galeota-Sprung, Davidson College, Joshua Chester, Linnea Edlin, Bradley Isom, Andrew Lantz, Alexander Moore, Virginia Perkins, E. Tucker Whitesides, Laurie J. Heyer, and Jeffrey L. Poet
- 2:20 UGD.2 *Small Pattern Gallai Ramsey Numbers*, Michael Ngo, Clayton State University, Elliot Krop, Thuhong Nguyen, Petra President, and Marcus Bartlett
- 2:40 UGD.3 *Wide-Diameter, Hypercubes, and Network Design*, Nick Dzugan, Samford University
- 3:00 UGD.4 *The Edge-Balanced Index Sets of $K_{13,7}$* , Pritul Patel, Clayton State University, Elliot Krop, Sarah Minion, and Christopher Raridan
- 3:20 UGD.5 *On the Edge-Balanced Index Sets of Complete Odd Bipartite Graphs*, Sarah Minion, Clayton State University, Elliot Krop, Pritul Patel, and Christopher Raridan

4:15 – 5:20 General Session II, DiGiorgio Campus Center Richardson Ballroom, Martha Abell, Section Governor, presiding. Awards.

Invited addresses:

Colonel Blotto's Winning Ways, Hua Wang, Georgia Southern University, 2012 MAA-SE Section Teaching Award for Beginning Faculty

Math Ambassador, Sam Kaplan, UNC – Asheville, 2012 MAA-SE Section Teaching Award

5:30 – 6:15 Kappa Mu Epsilon Meet & Greet, DiGiorgio Campus Center, 2nd Floor Lobby

5:30 – 6:15 Special Panel: “Graduate School and Beyond” DiGiorgio Campus Center, Rm 114

6:30 pm Conference Dinner, McBryde Hall, Vera Gruber Batten Dining Room

8:15 pm “Flatland” and “Flatland2: Sphereland” DiGiorgio Campus Center, Dina’s Place

Saturday, 16 March

7:30 – 10:30 Registration, DiGiorgio Campus Center Lobby

7:50 – 8:35 MAA Business Meeting, DiGiorgio Campus Center Room 114

Important Vote on By-Laws Changes to be made! These were e-mailed to members in February; additional copies will be available at the meeting.

8:45 – 9:45 General Session III, DiGiorgio Campus Center Richardson Ballroom, Patricia Humphrey, Vice Chair for Programs, presiding.

Invited Address: *Why do Left-handed People Survive?*, Rick Gillman, MAA Chair of the Committee on Sections, Valparaiso University

8:00 – 1:00 Exhibits, DiGiorgio Campus Center Lobby

9:30 – 12:00 Refreshments available

10:00 – 11:30 Department Chairs' Meeting, DiGiorgio Campus Center Room 114

7:30 – 10:10 Undergraduate Poster setup, DiGiorgio Campus Center, Lower Level

10:10 – 10:45 Undergraduate Poster judging,

10:45 – 12:00 Undergraduate Poster Session, Organizers: Catherine Matos, Clayton State University and Sarah K. Mason, Wake Forest University.

- UGP.1 *Optimizing the area bounded between two tangent curves over a closed interval.*, Max Daniel Emory, University of South Carolina Lancaster, Shemsi Alhaddad
- UGP.2 *A Closer Look at a Robert Hearn Sliding Coin Game*, Benjamin E Scranton, Emmanuel College, Ashley Zenisek
- UGP.3 *A Misere Nim Game*, Ibrahima Seck, University of South Carolina Salkehatchie, Robbie Bacon
- UGP.4 *Mancala as Nim*, Rhianna Fillers, King College
- UGP.5 *Mapping Distance Over Time: An Engaging Mathematics Education Activity Utilizing Image-Based 3D Reconstruction*, Zane Cochran, Berry College
- UGP.6 *Animating Remy*, Kevin Meadows, Coastal Carolina University
- UGP.7 *Scavenger Hunting on Networks*, Darius Luchian, Furman University, Haris Khan
- UGP.8 *Edge Colorings, Tutte, and Shuffling*, Joshua Harrelson, Middle Georgia State College
- UGP.9 *Monochromatic Reachability in Edge-Colored Tournaments*, Rebecca Holliday, Middle Georgia State College
- UGP.10 *Islamic Mathematics during the Islamic Golden Age*, Lee Houston, Newberry College, Joshua Moseley
- UGP.11 *What is the Smallest Prime Number?*, Yeng Xiong, University of TN--Martin
- UGP.12 *Deblurring Image Using Singular Value Decomposition*, Wei-Fang Liu, The Citadel
- UGP.13 *Modeling Emergency Room Wait Times*, Anna Chan, Berry College
- UGP.14 *Prediction of Temperature Change in the Savannah Area II: Nonlinear Regression Approaches*, Blessing Enya, Savannah State University, Daniel Heslop
- UGP.15 *Using Invariants for Quartet Puzzling*, Danielle Couture, Winthrop University, Jessica Turek, and Joe Ruskino
- UGP.16 *Odd Abundant Numbers and Perfect Numbers*, Jason Thead, King College
- UGP.17 *The Shape of Data*, Jordan Yanagiya, Piedmont College, Joshua Roberts
- UGP.18 *The Bollobás-Riordan-Whitney-Tutte polynomial and ribbon graph operation*, Timothy Scott Spencer, Elon University

West Center 210. 10:00—11:50 Publisher Presentations.

PUB.3 10:00 - 10:50 *Imagine if your students came to class prepared?*, Tracy Landrum, Thinkwell
Research supports that students who take part of their instruction online perform better. Students like the flexibility and control of studying how, when, and where they chose. Professors enjoy the use of personalized quizzes, integrated lecture videos and course management tools so that they can focus on a more interactive, individualized approach to teaching in class. Enhance your course instruction by joining the wave to an interactive online video and textbook learning experience.

PUB.4 11:00 - 11:50 *Student Engagement and Success in Math - It IS possible!*, Susan Barbitta, Pearson
Guilford Technical Community College is part of a national effort to redesign the Developmental Math curriculum. GTCC has redesigned three semester long traditional courses into eight 4- week long flexibly paced modules. A flexibly paced modularized curriculum, along with a mastery-based learning strategy (rather than “you get it or you don’t and, if you don’t, you start over”) promotes more active learning, greater student engagement, and is critical to increasing student success.

In these flexibly paced modules, learning occurs in specific increments and the time required to master each increment varies from person to person. The modularized curriculum offered in an Emporium model allows for both acceleration and remediation within a single course. It gives students credit for competencies they have already mastered, and provides multiple exit points based on a student’s program of study.

The data shows a significant cost savings per student for the college, and an increase in success rates, subsequent course pass rates, and repeater pass rates.

Both the benefits and challenges of the Emporium model will be addressed. Come see a 2 minute snapshot of a 150 seat Emporium in action!

10:00 – 12:00 Concurrent Special and Contributed Sessions

Owens Hall G01. Special Session on the International Year of Statistics.

- ☼ 10:00 IYS.1 *Lotteries through time and Space*, Patricia Humphrey, Georgia Southern University
- ☼ 10:20 IYS.2 *Boxing in Basketball: What factors affect the outcome in a college basketball game?*, Carl Yerger, Davidson College, Paul Britton '12, Davidson College
- ☼ 10:40 IYS.3 *The Advantage of the Coin Toss for the New Overtime System in the National Football League*, Nicholas Pritchard, Coastal Carolina University, Jacqueline Leake (undergraduate student)
- ☼ 11:00 IYS.4 *Why is the U.S. Congress Deadlocked? A Game Theory Primer*, Lothar A Dohse, UNC Asheville
- ☼ 11:20 IYS.5 *How much does a five pound bag of potatoes weigh?*, Queen Harris, Georgia Perimeter College
- ☼ 11:40 IYS.6 *Exploring Ecological Systems with Statistical Models; and Vice Versa*, Jeff Knisley, East Tennessee State University

Owens Hall G02. Special Session on Mathematics and Statistics for Economics and Finance. Organizer Wayne Tarrant, Wingate University.

- ☼ 10:00 MSF.1 *A New Perspective on Risk Measures*, Cole Arendt, University of North Carolina at Chapel Hill, Wayne Tarrant, Wingate University
- 10:20 MSF.2 *Measuring Risk in Various Markets*, Heather Gaddy, Wake Forest University, Cole Arendt (UNC Chapel Hill), and Wayne Tarrant (Wingate University)
- ☼ 10:40 MSF.3 *Estimating the Rate of Interest For An Ordinary Annuity Certain*, Richard Stephens, Columbus State University
- ☼ 11:00 MSF.4 *Credit Cards: A Simple(?) Application of Difference Equations*, Andrew J. Miller, Belmont University
- 11:20 MSF.5 *Does the adoption of a flat tax lead to greater income inequality?*, Wayne Tarrant, Wingate University

Owens Hall 102. Special Session on Presentations by Beginning Faculty. Organizer Ron Taylor, Berry College.

- 10:00 BEG.1 *Dynamics of mated quadratics through tile subdivision*, Mary Wilkerson, Coastal Carolina University
10:20 BEG.2 *Reverse L_p Fractional Integral Inequalities*, Razvan Alexandru Mezei, Lander University, George A. Anastassiou, University of Memphis

Owens Hall 102. Special Session on Teaching and Learning via Problems Sections in Journals II. Organizers David Stone, Georgia Southern University and Brian Beasley, Presbyterian College.

- * 11:00 PRO2.1 *The Pedagogical and Research Value of Problems Sections*, Brian Beasley, Presbyterian College, David Stone, Georgia Southern University
* 11:20 PRO2.2 *Using a Journal Problem to Explore Tetrahedra in a Multivariable Calculus Class*, James Brawner, Armstrong Atlantic University
* 11:40 PRO2.3 *Remembrance of Problems Past*, Ben Klein, Davidson College

Owens Hall 103. Special Session on Alternative Assessments. Organizer Eleanor Abernethy, University of Tennessee, Knoxville

- 10:00 ALT.1 *Minute Papers*, Eleanor Abernethy, University of Tennessee
* 10:20 ALT.2 *Practical formative assessment strategies suitable for a hybrid business calculus course.*, Ben Ntatin, Austin Peay State University
* 10:40 ALT.3 *Web 2.0 for Math Learning*, Charles Collins, University of Tennessee
* 11:00 ALT.4 *Self-assessment and reflection through writing*, Emily Braley, Duke University, Jack Bookman, Duke University
11:20 ALT.5 *Assessing Scientific Writing in a Mathematical Modeling Course*, Erin Bodine, Rhodes College
11:40 ALT.6 *Using POGIL in a Calculus Classroom*, Katherine Pinzon, Georgia Gwinnett College

Owens Hall 104. Contributed Session on General Math Education: Class Activities and History.

- * 10:00 CLH.1 *Undergraduates, Sudoku, and Groebner Bases*, Vicky Klima, Appalachian State University
* 10:20 CLH.2 *Pringles, Icing, and Multivariable Calculus: A hands-on way to explore calculus on a saddle surface*, Julie Barnes, Western Carolina University
* 10:40 CLH.3 *Project Infinity*, Ray E. Collings, Georgia Perimeter College
* 11:00 CLH.4 *Statistics and Service Learning in the Campus Garden: A Preliminary Report*, John Wagaman, Western Carolina University
* 11:20 CLH.5 *The Day the Scientific Revolution Began*, Leigh Atkinson, UNC-Asheville
* 11:40 CLH.6 *Tennebaum's New(?) Proof that the Square Root of 2 is Irrational*, Curtis Herink, Mercer University

Owens Hall 202. Contributed Session on Mathematical Research, Part 3.

- * 10:00 RES3.1 *Using Hosoya's Triangle to Count Some Dyck Paths*, Rigoberto Florez, The Citadel, Eva Czabarka (University of South Carolina), and Leandro Junes (California University, California, PA)
* 10:20 RES3.2 *Mean Labelings of Outerplanar Graphs*, Christopher Raridan, Clayton State University, Christian Barrientos
* 10:40 RES3.3 *A Metaheuristic Search Technique for Graceful Labels of Graphs*, Jon Ernstberger, LaGrange College, A. D. Perkins, Mississippi State University
11:00 RES3.4 *On the Upper Bound for the Number of Spanning Trees of a Connected Graph*, Rao Li, University of South Carolina Aiken

- ✿ 11:20 RES3.5 *The place shift problem – a generalization of the problem of $3n + 1$* , Tieling Chen, University of South Carolina Aiken
- ✿ 11:40 RES3.6 *Ranking College Football Teams*, John Harris, Furman University, Maria Barrell, Charldon Dennis, and Kristina Pardo (Undergraduates)

Owens Hall 201. Graduate Student Papers, Part 3: Algebra, Number Theory, Topology, and Analysis.

- 10:00 GT3.1 *Adaptive control of Lorenz system to non-trivial equilibrium points*, Anh Tran, Georgia Southern University, Yan Wu
- 10:20 GT3.2 *A Landesman-Lazer Condition for the Boundary Value Problem $-u'' = au^+ - bu^- + g(u)$ with Periodic Boundary Conditions.*, Quinn A. Morris, The University of North Carolina at Greensboro, Dr. Stephen B. Robinson (Wake Forest University)
- 10:40 GT3.3 *Zeros of the Derivatives of the Riemann Zeta Function on the Left Half Plane*, Ricky E. Farr, University of North Carolina at Greensboro, Dr. Sebastian Pauli
- 11:00 GT3.4 *On a Relationship Between a Generalization of Pascal's Matrices and Arbitrary Square Matrices Over the Complex Numbers*, Joshua Hiller, Western Carolina University
- 11:20 GT3.5 *On Infinite Families of Ramanujan Type Congruences for Restricted Compositions*, James Diffenderfer, Georgia Southern University

Owens Hall 203. Undergraduate Papers Session E. Applications of Mathematics, Part II. Organizer Laurie Heyer, Davidson College.

- 10:00 UGE.1 *A multi-scale model of polyp growth*, Matthew Neal, Winthrop University, Whitney Taylor
- 10:20 UGE.2 *Agent-based modeling of malaria transmission: investigating the Ross-Macdonald model*, Alyse Keim, Elon University, Todd Lee, and Crista Arangala
- 10:40 UGE.3 *Agent-Based Fabric Modeling Using Differential Equations*, Hannah Swan, Winthrop University
- 11:00 UGE.4 *Implementation of 3D Visualization of a Brain Tumor*, Daniel Heslop, Savannah State University
- 11:20 UGE.5 *The Firefighter Problem - A Continuous Approach*, Rahul Isaac, Furman University, Jack Farnsworth, and Stella Watson
- 11:40 UGE.6 *An Application of the Binomial Theorem in Computer Science*, Christopher A. Corriere, Southern Polytechnic State University

Owens Hall 204. Undergraduate Papers Session F. Applied Analysis. Organizer Laurie Heyer, Davidson College.

- 10:00 UGF.1 *A Strictly Increasing Function with Derivative Zero Almost Everywhere*, Daniel Bernstein, Davidson College
- 10:20 UGF.2 *Self-Starting Improved Euler for Solving the Heat Equation*, Elizabeth A. Juelfs, Austin Peay State University
- 10:40 UGF.3 *Interpolation Of Data Using the Fast Fourier Transform*, Jacob Mullins, Samford University
- 11:00 UGF.4 *Arc Length as a Function of Sag for Catenary Curves*, Jeffrey Dzugan, Samford University
- 11:20 UGF.5 *Extended Backwards Differentiation using Trig Basis for oscillatory problems*, Jordan Taylor, Austin Peay State University, Robert French
- 11:40 UGF.6 *Numerical Solutions to Ordinary Differential Equations*, T. Conrad Clevenger, LaGrange College, Steven A. Porrello

**Owens Hall 207. Undergraduate Papers Session G. Combinatorics, Probability, and Statistics.
Organizer Laurie Heyer, Davidson College.**

- 10:00 UGG.1 *On Constructing Binary Polynomials to Represent Perceptrons*, Joshua Brandl, Samford University
- 10:20 UGG.2 *Tilings and combinatorial identities – more proofs that count*, Joshua Klingel, Georgia Southern University, Hua Wang
- 10:40 UGG.3 *How many mates can a latin square have?*, Megan Bryant, Clemson University, Carl Mummert (Clemson University), Roger Garcia (Kean University), James Figler, and Yudhishtir Singh
- 11:00 UGG.4 *The Mathematics of Bayesian Learning Models and Text Classification*, Anne French, Austin Peay State University, John Nicholson
- 11:20 UGG.5 *An Analysis of Vehicular Collisions in the Myrtle Beach Area*, Robert Pickus, Coastal Carolina University, Lindsey Bell, John Marcis, and Nicholas Pritchard
- 11:40 UGG.6 *Applications to Generalized Distributions*, Kristen Knight, Austin Peay State University, Ayman Alzaatreh

**Owens Hall 208. Undergraduate Papers Session H. Applications of Mathematics, Part III.
Organizer Laurie Heyer, Davidson College.**

- 10:00 UGH.2 *Modifying The NFL's Quarterback Passer Rating*, Lucy Findley, High Point University
- 10:20 UGH.3 *From 'Final 3' to 'Final n': Popular Card Trick Explained and Generalized for Any Size Deck*, Jim Bertagnolli, Auburn University Montgomery
- 10:40 UGH.4 *Rock Paper Scissors Lizard Spock*, Robbie Bacon, University of South Carolina Salkehatchie, Ibrahima Seck
- 11:00 UGH.5 *Modeling the Tacoma Narrows Bridge*, Kayla S. Cline, LaGrange College
- 11:20 UGH.6 *Famous Bridges and Mathematics: Is there a connection between Mathematics and Bridges?*, Moses Chandiga, Methodist University, Shivappa Palled

12:15—1:15 Math Jeopardy Final Round: DiGiorgio Campus Center Richardson Ballroom

Announcement of Student Prize Winners

Index of Speakers

Last	First	Email Address	TalkNum
Abernethy	Eleanor	abernethy at math.utk.edu	ALT.1
Adkins	Tonya	tonya.adkins at jwu.edu	GME1.1
Alvarez	Liliana	LALVAREZ2 at MY.APSU.EDU	UGC.3
Arendt	Cole	arendt at live.unc.edu	MSF.1
AsKew	Ashley	askewat at appstate.edu	UGA.4
Atkinson	Leigh	atkinson at unca.edu	CLH.5
Awtrey	Chad	cawtrej at elon.edu	RES1.4
Bacon	Robbie	robbiebacon_04 at yahoo.com	UGH.4
Baker	Paul L.	pbaker at catawba.edu	RES1.5
Barnes	Julie	jbarnes at email.wcu.edu	CLH.2
Beasley	Brian	bbeasley at mail.presby.edu	PRO2.1
Bernstein	Daniel	dabernstein at davidson.edu	UGF.1
Bertagnolli	Jim	abertagn at aum.edu	UGH.3
Beyerl	Jeffrey	Jeff.beyerl at furman.edu	GME1.5
Bodine	Erin	bodinee at rhodes.edu	ALT.5
Braley	Emily	braley at math.duke.edu	ALT.4
Brandl	Joshua	jbrandl at samford.edu	UGG.1
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Clark	Jeffrey	clarkj at elon.edu	RES2.5
Clevenger	T. Conrad	tclevenger at student.lagrange.edu	UGF.6
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Cochran	Zane	zrcochran at gmail.com	UGP.5
Colazzi	Ethan	aincogni at coastal.edu	UGA.6
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Collins	Charles	collins at utk.edu	ALT.3
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Couture	Danielle	coutured2 at winthrop.edu	UGP.15
Diffenderfer	James	jdiffer1 at georgiasouthern.edu	GT3.5
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Dzugan	Jeffrey	jdzugan at samford.edu	UGF.04
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Farr	Ricky E.	refarr at uncg.edu	GT3.3

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Harris	Queen	Queen.Harris at gpc.edu	IYS.5
Harris	John	John.Harris at Furman.edu	RES3.6
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Slate of Nominees for Offices
Southeastern Section of the Mathematical Association of America

Election of officers to open positions shall be at a business meeting held at the Annual Meeting of the Section. A person nominated and seconded from the floor by any Section member shall be added to the Nominating Committee's slate providing the person nominated has agreed to serve if elected. Election shall be by majority vote of the members of the Section present and voting at the business meeting. Terms of newly elected officers shall begin at the adjournment of the Annual Meeting in which they are elected. (Southeastern Section Bylaws, Article III.4)

The Nominating Committee (Jim Gleason (AL), Patricia Humphrey (Chair, GA), Ellen Kirkman (NC), Antara Mukherjee (SC), Jeff Knisley (TN)) has prepared a slate of candidates for offices to be elected at the Annual Meeting. The persons nominated below have all agreed to serve if elected to their respective positions.

<u>Office:</u>	<u>Nominee</u>
Vice Chair for Two Year Colleges:	Alice Pierce, Georgia Perimeter College (TN)
Vice Chair for Programs	Sarah Raynor, Wake Forest University (NC)
Newsletter Editor:	Kristen Abernathy, Winthrop University (SC)
Section Lecturer:	TBA
NC State Director:	Patrick Bahls, UNC-Asheville
SC State Director:	James Solazzo, Coastal Carolina University
AL State Director:	Bernadette Mullins, Birmingham Southern College
GA State Director:	Karen Briggs, North Georgia
TN State Director:	Andy Miller, Belmont University
Student Activities Coordinator:	Joe Rusinko, Winthrop University
Project NExT Co-director:	Karen O'Hara, Highpoint University

All other officers continue see: <http://sections.maa.org/southeastern/maase/section/officers.php>