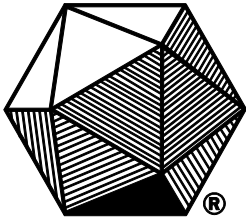
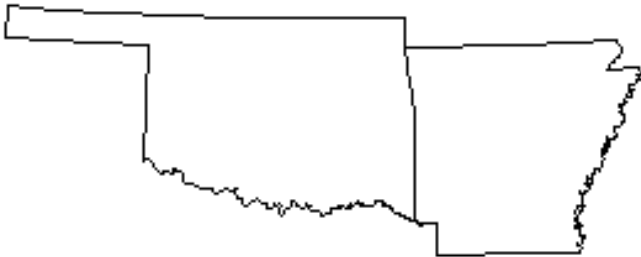


# *NEWSLETTER*



# MAA

**MATHEMATICAL ASSOCIATION OF AMERICA**



**OKLAHOMA/ARKANSAS SECTION**

Volume 38, April 2017

# ***Table of Contents***

Section Governance .....	1
Newsletter Sponsors.....	3
There are no sponsors this year....	3
Distinguished College/University Teacher of 2016.....	3
Campus News .....	4
Hendrix College .....	4
Henderson State University .....	5
Cameron University .....	5
Southern Nazarene University .....	8

Email your presented paper in pdf form to [lloyd@m@hsu.edu](mailto:lloyd@m@hsu.edu) for inclusion in the online proceedings.

## ***Section Governance***

### **Officers**

Amy Schachle, Past-Chair  
Ramesh Garimella, Chair  
vacant, 1st Vice-Chair  
Jeanine Myers, 2<sup>nd</sup> Vice-Chair  
Anita Walker, Secretary  
Kristi Karber, Treasurer  
Michael Lloyd, Communications

### **Governor**

Lisa Mantini (July 2014–June 2017)

### **Arkansas Teacher Award Committee**

John Watson, Chair  
Darlene Butler  
Steve Butcher

### **Department Chairs Committee**

Carolyn Eoff

### **Distinguished Teacher of the Year Award Committee**

Amy Schachle, Chair  
Max Forester  
Charles Watson  
John Watson

## **Faculty Workshop Committee**

Sepideh Stewart

Charles Watson

Matt Donahue

## **Liaison Coordinators**

Doug Aichele, Oklahoma

Steve Hennagin, Arkansas

## **N.A. Court Committee**

Ramesh Garimella, Chair 2016-2017

Thomas McNamara, 2017-2018

Lisa Mantini, 2018-2019

## **Nominating Committee**

Ron Smith, Chair

Britney Hopkins

Lakeshia Legette Jones

Nikola Petrov

## **Oklahoma Teacher Award Committee**

Andrew Wells, Chair

Betsy Showalter

## **R.B. Deal Committee**

Lisa Mantini, Chair

Charles Cooper

## **Resolutions Committee**

Anita Walker

## **Section NExT Coordinator**

Kristi Karber

## **Site Selection Committee**

Darryl Linde, Chair

Sarah Marsh

Myron Rigsby

## **Student Competition Committee**

Scott McClendon, Chair

John Diamantopoulos

Cherith Tucker

Lee Kennard

## **Student Contributed Talks Committee**

Kristi Karber, Chair

Ravi Shanker

Jeanine Myers

Nick Zoller

## **Student Workshop Committee**

Designee from OU

Amy Schachle

Alejandro Chavez-Dominguez

## ***Newsletter Sponsors***

The Section extends its appreciation to the following entities who paid a sponsorship fee to help offset the cost of publishing the newsletter and mailing the postcards. These advertisements are displayed in an order which minimizes printing costs.

### **There are no sponsors this year...**

Please contact Michael Lloyd ([lloydm@hsu.edu](mailto:lloydm@hsu.edu)) if you are interested in advertising in our newsletter.

## ***Distinguished College/University Teacher of 2016***

Congratulations to **Chris Francisco** of Oklahoma State University in Stillwater! This award honors college or university professors who have been widely recognized as extraordinarily successful and whose teaching effectiveness has been shown to have had influence beyond their own institutions. Here are a few of the things that peers and students had to say about Dr. Francisco.

“[Dr. Francisco] deserves recognition for his selfless service to the students of OSU, the Department of Mathematics, and Oklahoma State University.”

“His teaching style is highly engaging and motivational”

“...Taught in a way that helped us truly learn the material.”

“He shines as a research mentor.”

“His work for student success has benefited not only the department but also the university as a whole.”

“[He] betters the people around him by being a man of great character, knowledge, and compassion.”

“...Pivotal in my decision to continue my career in mathematics”

“OSU is very lucky indeed to count him as one of ours.”

Source: <https://math.okstate.edu/2-uncategorised/388-dr-francisco-2016-regents-distinguished-teaching-award-recipient>

## **Campus News**

The following appear in the order in which they were submitted with the earliest submission appearing first.

### **Hendrix College**

*Duff Campbell*

At Hendrix College, we have a combined Mathematics and Computer Science department, and, in recent years, we have had several personnel changes: **Dwayne Collins** retired, **Carl Burch** left to join Google, and **Ze'ev Barel** is on phased retirement for the next three years. We have thus hired **Mark Goadrich** and **Brent Yorgey** as computer scientists in the last two years. Also, **John Reynolds** (Ph.D. University of Kansas 2016) and **Drew Tomlin** (Ph. D. University of North Texas 2016) have joined us as mathematicians this year; we are conducting a tenure-track search to get a long-term replacement for Ze'ev.

In the last few years, we have started an applied mathematics minor, offered a new course in mathematical modeling, and **Chris Camfield** was awarded an NSF grant titled *Data-Driven Applications Inspiring Upper-Division Mathematics*. This past summer, the students **Nicholas Heiner** and **Ollie Kwizera** gave talks at MathFest; Nicholas won a Pi Mu Epsilon Student Speaker Award for his talk An Amazing Array. **Travis Howk** attended the annual SIAM meeting and presented a poster session for the Preparation for Industrial Careers in Mathematical Sciences. In addition to interviewing job candidates, **Duff Campbell** and **Chris Camfield** both gave talks at the January Joint Mathematics Meetings in Atlanta, and Chris presented a poster in the NSF poster session. We continue to enjoy having students take part in the Virginia Tech Regional Mathematics Contest, the Putnam competition, the Mathematical Contest in Modeling, and Arkansas Undergraduate Competition in Mathematics.

This April, we will host the 40th annual Hendrix-Rhodes-Sewanee Mathematics and Computer Science Symposium, which we have hosted every four years. Emeritus Professor **Bob Eslinger**, who started this symposium forty years ago, will be the keynote speaker on Friday, April 21.

## **Henderson State University**

*Carolyn Eoff*

2016 was an eventful year for the Henderson State University (HSU) Department of Mathematics, Computer Science, & Statistics.

We were fortunate to welcome Ms. **Sharon Paredes** as an instructor of mathematics last fall. An alumnus of HSU and our department, Sharon had taught secondary mathematics for many years before coming back as a colleague. Thanks to **Debra Coventry** (mathematics education leader in the department), our licensure track received national CAEP recognition, one of only a few nationwide.

Both our mathematics (including statistics) and computer science programs underwent program reviews, with very positive evaluations from external consultants on the strength of curricula and faculty and student attitudes.

Our new chapter of Kappa Mu Epsilon continued its growth with six outstanding students being inducted last fall. Both the HSU Computer Science Club and Math Club had active years. For the thirteenth consecutive year, HSU fielded a team for the Arkansas Undergraduate Mathematics Competition.

## **Cameron University**

*Narayan Thapa*

The Department of Mathematical Sciences at Cameron University has actively been involved in numerous activities during 2016–2017 academic year. This report highlights and documents accomplishments of our faculty and students.

**Undergraduate Research:** In 2016, a number of undergraduates actively involved in several undergraduate research projects and showcased their research outcomes at the Joint Mathematics Meeting in Atlanta, Georgia. The student researchers, topics of their research, and their advisors are listed below:

**Nirjal Shrestha**, mathematics and computer science major, presented “Convergence of iterative methods under weak conditions.” Shrestha’s research focuses on convergence of iterative methods using only hypotheses on the first derivative in order to expand the applicability of these methods. He was supervised by **Dr. Ioannis Argyros**.

**Jashmon Rana**, mathematics and computer science major, presented “Comparison of numerical solutions of Advection-Reaction-Dispersion

Model.” Rana’s research focused on the Advection-Reaction-Dispersion model that is instrumental in the study of the transportation of chemical or biological contaminants through subsurface aquifer systems. Rana was supervised by **Dr. Gokul Kadel**.

**Samundra Regmi**, mathematics and computer science major, presented “Diffie-Hellman key exchange protocol and its software implementation.” The Diffie-Hellman key exchange protocol is widely used in cryptographic algorithms. Regmi’s research focused on software implementation of the Diffie-Hellman key exchange protocol using Python. Regmi was supervised by **Dr. Parshuram Budhathoki**.

**Mariama Abramson**, biology major, presented “Disparities in Cutaneous Melanoma hazard rates between whites and Black/African Americans in the USA from 1973 through 2014.” Existing research indicates that African-Americans have higher survival rates from melanoma than Caucasians and that women have higher survival rates than men in both racial groups. This research sought to determine if the results are also true of hazard rates and was supervised by **Dr. Jean-Jacques Kengwoung-Keumo**.

**Melvin Lipka**, mathematics and computer science major, presented “Identification of time dependent control parameter through finite difference method in parabolic partial differential equation.” This research project focuses on computational inverse problems, which are key elements in medical imaging, underground prospecting, nondestructive testing, astronomical imaging, image processing, remote sensing, data mining and more. Lipka was supervised by **Dr. Narayan Thapa**.

**Seminar for Undergraduate Mathematics (SUM):** This similar undergraduates is designed to provide a platform for students to share their research outcomes. Seven student researchers presented their research outcomes at SUM in 2016.

**Faculty Research Activities:** Year 2016 was very productive for our faculty members. Some of their accomplishments are listed below:

**Dr. Ioannis Argyros** coauthored in following books and book chapters: **George A. Anastassiou and Ioannis Argyros**, Intelligent Numerical Methods: Applications to Fractional Calculus, Studies in Computational Intelligence 624, Springer Verlag, (2016).

**George A. Anastassiou and Ioannis K. Argyros**. Intelligent Numerical Methods II: Applications to Multivariate Fractional Calculus, Studies in Computational Intelligence 649, Springer Verlag, (2016).

**Ioannis K. Argyros and Alberto Magrenan:** Iterative Algorithms I, Nova Science Publishers, (2016).

**Ioannis K. Argyros and Alberto Magrenan:** Iterative Algorithms II, Nova Science Publishers, (2017).

**Ioannis K. Argyros and Alberto Magrenan,** Iterative Methods and their Dynamics with Applications, CRC Press, (2017).

**Ioannis K. Argyros and Daniel Gonzalez,** Newton's method for Convex Optimization, 23-65, (2016).

**Ioannis K. Argyros and Alberto Magrenan,** Inexact Newton Methods on Riemannian manifolds, 57-78, (2016).

The last two book chapters will appear in Advances in iterative methods for nonlinear equations, Editors **Sergio Amat** and **Sonia Busquier**, SEMA SIMAI, Springer Series 10, Springer, (2016). In addition to these books and book chapters, Dr. Argyros also published eight papers in national and international refereed journals. Similarly, a number of faculty members presented their research outcomes at the Joint Mathematics Meeting in Atlanta, Georgia as listed below:

**Dr. Parshuram Budhathoki**, Assistant Professor presented on "Elliptic Curve based RFID authentication scheme and its software implementation."

**Dr. Jean-Jacques Kengwoung-Keumo**, Assistant Professor presented on "Competition between a nonallelopathic phytoplankton and an allelopathic phytoplankton species under predation." and "Racial and Gender Disparities in Incidence of Lung and Bronchus Cancer in the United States: A Longitudinal Analysis."

**Dr. Gokul Kadel**, Assistant Professor: "Spectrum of hypercyclic operators."

**Dr. Narayan Thapa**, Chair, Department of Mathematical Sciences presented on "On the numerical solution of second order hyperbolic partial differential equations."

**Research Funding:** In 2016, the department of mathematical sciences was awarded a variety of funds which are listed below.

1. **Bill G. Taylor** Endowed Lectureship in the Mathematical Sciences - \$ 3,500
2. **Gerald Paul Laursen and Kay Anne Davis Laursen** Endowed Lectureship - \$ 3,500



3. **James Eddie Phillips** Endowed Lectureship in the mathematical Sciences - \$ 4,800
4. Undergraduate Research Funding - \$6, 018
5. Student Activity Fee Allocation (SAFAC) - \$2,000

**MathCom:** Our student organization, MathCom, with faculty advisor **Dr. Gregory Herring** were involved in the following activities:

During the Halloween week, MathCom participated in an October Halloween carnival where a game booth was set up for children. Also, on the MLK day, MathCom volunteered for a “Day in the Park” event. Furthermore, MathCom launched a Math Jeopardy competition for an algebra edition.

**Dr. Parshuram Budhathoki** joined the department of mathematical sciences as Assistant Professor of mathematics in 2016. Dr. Budhathoki came to Cameron from Salt Lake College, where he served as Assistant Professor. He received his Ph.D. in 2014 from Florida Atlantic University. Dr. Budhathoki’s research interests include implementation of cryptographic protocols. In addition, **Dr. James Dover**, Assistant Professor of mathematics, received his tenure in 2016. The department continues to run the Cameron University Mathematics Seminar Series (CUMSS). In addition, the department of mathematical sciences is hosting Texas Oklahoma Regional Undergraduate Symposium (TORUS) on February 25, 2017.

## **Southern Nazarene University**

*Nicholas Zoller*

The Southern Nazarene University (SNU) Mathematics Department said goodbye to long time faculty member Dr. **V. Lee Turner** in May 2016. Dr. Turner was a professor at SNU for 38 years and previously served as Section secretary. He and his wife Marilyn moved to Illinois, where Dr. Turner now teaches as an adjunct faculty member at Olivet Nazarene University.

Dr. **Nicholas Zoller** assumed the duties of department chair following the departure of Dr. Turner. He attended a Council of Independent Colleges workshop for department chairs in June 2016 that helped to prepare him for his new responsibilities. Dr. Zoller also served as the director of the 2016 SNU Summer Research Experience for first- and second-year mathematics and science majors.

The SNU Math Department welcomed Dr. **Nathan Drake** as a new faculty member in August 2016. Dr. Drake earned his bachelor's degree in mathematics from Mid-America Nazarene University and master's degree and Ph.D. in math from Clemson University. Prior to taking the position at SNU, Dr. Drake was a full-time faculty member at North Greenville University in South Carolina. Dr. Drake's interests include coding theory, graph theory, and other combinatorics as well as mentoring undergraduate research projects.

Dr. Zoller supervised a senior research project for SNU math major **Rebecca Vernier** in fall 2016. Rebecca studied a vote-sharing scheme that uses perpendicular bisectors to encrypt votes. In spring 2017, Dr. Zoller is supervising a senior research project for SNU math education major **Ivan Maysonet** about extensions of a number theory problem involving square-sum pairs.

In January, four SNU students competed in the 2017 Mathematical Contest in Modeling (MCM) sponsored by the Consortium for Mathematics and its Applications (COMAP). **Aaron Couch, Amanda Kinnamon, Mark Lawrence,** and **Kyler Ross** spent four days working on the most efficient designs for a tollbooth plaza on a limited-access highway with multiple lanes. They eagerly await the results of the contest judging in April, and they encourage other students to compete in future editions of the MCM.

Also in January, the SNU Math, Computer Science, and Physics Departments sponsored a trip to a local movie theater to see Hidden Figures. Over two dozen students and faculty were inspired by the dramatic depiction of the contributions of African American women mathematicians at NASA that led to John Glenn's orbit around the Earth in the Friendship 7 mission.