

Fall 2015, Volume 18, Number 2

Upcoming Meeting

Hope to see you at Bemidji State University!

Bemidji State University will host the MAA-NCS Fall meeting, October 23-24 2015.

Our three invited speakers for the fall meeting are Marth Gregg (Augustana University, NexT), Jason Rosenhouse (James Madison University), and Francois Neville (Bemidji State University).

A program for the Fall 2015 meeting will be posted approximately one to two weeks on the MAA-NCS website prior to the meeting.

Invited Speakers and Biographies

Marth Gregg, Augustana University, Sioux Falls, SD

Martha Gregg joined Augustana University in 2008 and is currently Department Chair and Associate Professor. Her graduate studies – in Munich, Tucson, and Lincoln -- were interspersed with nine years of teaching both at the secondary level, and as an adjunct instructor at the college level. She earned her PhD at University of Nebraska-Lincoln in 2008 and is a 2009 Project NExT Fellow. Project NExT has been a continual source of support and good ideas, including a contribution to one of the projects to be described in today's talk. Her first teaching position was at Tuba City High School, on the Navajo and Hopi reservations in Northern Arizona. The experience had a strong impact, and has informed her teaching style and philosophy, as well as many other aspects of her life, both personal and professional.

Talk Title: Promoting Success for Native American Students.

Abstract: In this talk she will describe a number of projects with which she has been involved which have particularly targeted Native American Students.

Francois Neville, Bemidji State University, Bemidji, MN

François Neville received his doctorate in the interdisciplinary field of Spatial Information Science and Engineering at the University of Maine, with a focus on neural network models, and real-time approximation of sensor readings within natural environments. He has taught Computer Science and developmental Math courses for six years within the Minnesota State College and University system.

Talk Title: The Perceptron: Introducing Artificial Intelligence into the Developmental Math Classroom

Abstract: The Perceptron model -- a simple and surprisingly effective technique -- has been used as a project in recent developmental math classes to illustrate the relevance of math in providing intuitive answers to everyday questions. This presentation demonstrates the basic mechanics of the model, its accessibility to developmental math students, and the teaching objectives that it fulfills.

Jason Rosenhouse , James Madison University, Harrisonburg, VA

Jason Rosenhouse is a professor of mathematics at James Madison University in Harrisonburg, VA. He received his PhD in 2000 from Dartmouth College, and his research focuses on algebraic graph theory. He is the author of two books: *The Monty Hall Problem: The Remarkable Story of Math's Most Contentious Brainteaser*, and *Among the Creationists: Dispatches From the Anti-Evolutionist Front Line*. With Laura Taalman he is the author of *Taking Sudoku Seriously: The Math Behind the World's Most Popular Pencil Puzzle*. All three books were published by Oxford University Press. He is also the editor of *Four Lives: A Celebration of Raymond Smullyan*, published by Dover. With Jennifer Beineke, he is the editor of *The Mathematics of Various Entertaining Subjects: Research in Recreational Math*, forthcoming from Princeton University Press. When not doing math he enjoys chess, cooking, and reading locked-room mysteries.

Talk Title: The Monty Hall Problem, Reconsidered

Abstract: The Monty Hall problem is a classic brainteaser in probability. In its canonical form, it asks you to imagine that you are a game show contestant confronted with three doors. Behind one of the doors is a car, behind the other two are goats. Monty Hall, the host of the show, asks you to choose a door but not open it. After you make your choice, Monty then opens one of the remaining two doors, showing you that it contains a goat. He then gives you the options either of sticking with your original door, or switching to the one remaining option. You then win whatever is behind your final choice. What should you do, assuming you want to maximize your chances of winning the car? This problem routinely causes controversy, since the intuitively obvious answer turns out to be wrong. We shall discuss the mathematics underlying the problem, explain how to think clearly about problems in conditional probability, and discuss a series of increasingly complex variations on the basic scheme. The talk assumes very little mathematics and will be readily accessible to undergraduates.

Offier Reports

Governor's Report

Tom Sibley, College of St. Benedict/St. John's University

The MAA continues to provide wonderful resources and opportunities to the entire mathematical community. The Centennial celebration at Mathfest, in particular, was a wonderful time—great talks and special events. Even so, the MAA faces challenges. We need to find ways to build membership since the members provide the bodies, ideas and financial foundation enabling the MAA to provide so much to so many. Also, we need to find creative ways to benefit from the digital revolution and provide new benefits for membership. The national organization is also considering revamping its governance structure to enable the MAA to be more effective. I should have more concrete things to say after the January 2016 board meeting, but I expect that the role of governor will be changing.

Our section will be celebrating our own centennial next year, which explains why we will have the fall meeting at the University of Minnesota, rather than “outstate.” Our first section meeting was at the U of M in 1916. Come help us celebrate in 2016.

President's Report

Donna Flint, South Dakota State University

The MAA celebrated its centennial in Washington DC this summer (ask Jennifer Galovich to sing a song for you if you missed her on stage with a feather boa belting it out!) and we look forward to celebrating the *NCS centennial in the Fall of 2016*. Be sure to pick up your *Centennial T-shirt* at one of the next two meetings! Speaking of meetings, we have some terrific meetings coming up- I encourage you to consider attending both the Fall meeting in Bemidji and the Spring meeting in St. Paul. This is a fairly inexpensive opportunity to gather with mathematicians and math/stat educators to share your research, your teaching joys and woes, and your efforts to make a difference in the mathematical experiences of those around you. If you are new to the profession, this is a chance to get up close and personal with some of the great minds in our section to talk math, teaching, and outreach. This would be a great time for you to present on your mathematical research, an interesting teaching technique, a project you've done with students, or an outreach activity. I don't think I've ever attended an NCS meeting when I didn't go home with at least one great idea!

Secretary's Report

Shawn Chiappetta, University of Sioux Falls

Nothing to report.

Information Officer's Report

Kris Nairn, College of St. Benedict/St. John's University

First, I wanted to thank Joel Iiams (President), and Namyong Lee (Secretary) for their excellent work during their terms for the NCS. Secondly, please welcome Donna Flint as the new President, and Shawn Chiappetta as the new Secretary. The new academic year has also brought a change in Section NExT coordinators: Shawn Chiappetta and Kris Nairn have handed the baton to Su Doree and Jody Sorensen of Augsburg College. They have organized two informational gathering dinners for this fall. The first is on Friday, October 23 in Bemidji and the second is in the Twin Cities on Wednesday, November 18. If you have questions and/or would like to participate, please contact Su or Jody directly.

Jill Fisher, Academic Administrative Assistant – Physics Department, and Program Administrator for Budapest Semesters in Mathematics Education (BSME), has asked me to share information on the program. BSME is a semester-long program in Budapest, Hungary, designed for undergraduates and recent graduates interested in teaching secondary mathematics. Participants will study the Hungarian approach to learning and teaching, in which a strong and explicit emphasis is placed on problem solving, mathematics creativity,

and communication. BSME is specifically intended for students who are not only passionate about mathematics, but also the teaching of mathematics. Applications are currently being accepted for Fall 2016 and Spring 2017 semesters. You can find the online application at : www.bsmeducation.com.

Campus News

Augsburg College

The department had a successful program review in 2014-15.

Matt Haines was on sabbatical last spring. He studied old mathematics manuscripts and texts in the Vatican Library in Vatican City. There were no emergency calls for a pure mathematician while he was out of the country.

Our resident statistician, Miles Ott, is part of a team that received a new NIH grant. Dr. Ott says, "In this research we will collect and analyze longitudinal social network data to measure the efficacy of using a health intervention on a selected group of college students to improve health behaviors in their peers. In other words, the main goal of this research is to learn how we can use social influence to improve health." (submitted by Jody Sorensen)

Bemidji State University

In April 2015 The North Central Section of the Mathematical Association of America presented its 2015 Meritorious Service Award to Dr. Randall F. Westhoff. In the summer of 2015 Dr. Westhoff took a position as the Interim Assistant Vice President of Academic Affairs at Bemidji State University.

Dr. Heidi Hansen received tenure and was promoted to associate professor of mathematics.

Bemidji State University will be hosting the fall meetings of the North Central Section of the Mathematical Association of America on October 23 and 24.

Our department hired Thomas Dunn into a fixed term position of mathematics for the 2015-16 academic year. Thomas comes from North Dakota State University where he is completing his PhD in commutative algebra.

In September, 2014 Dr. Todd Frauenholtz and Dr. Heidi Hansen presented at The Future of Mathematics Education in a Connected World conference in Montenegro. (submitted by Derek Webb)

College of St. Benedict/St. John's University

We had four students do summer research and three of them were able to present their research results at Mathfest. The MAA published Tom Sibley's text *Thinking Geometrically: A Survey of Geometries* this summer. Jennifer Galovich debuted as a soloist in *MAA: The Musical* at Mathfest this summer. (submitted by Tom Sibley)

Concordia University, St. Paul

Derek Wise, previously of the University of Erlangen, Germany, has recently joined Concordia University St. Paul. His research is in the interaction between algebra and geometry, especially in applications to physics. Particular interests include the Erlangen Program and two of its important extensions: higher category theory and Cartan geometry. He is also fascinated by the relationship between mathematics and the natural sciences. His recent essay on this topic, "How not to factor a miracle," took 3rd Prize in the international FQXi competition, and is available from his website at <http://math.ucdavis.edu/~derek/>.

Before coming to Minnesota, Derek was a researcher for five years in both Mathematics and Theoretical Physics departments in Erlangen. He has also held an NSF VIGRE fellowship at UC Davis; his Ph.D. in Mathematics (2007) is from UC Riverside.

In other news, the previously named Department of Mathematics has become the Department of Mathematics and Computer Science in the newly minted College of Business and Technology. We look forward to this new relationship as we prepare students for the modern business world. (submitted by Rob Krueger)

Minnesota State University, Mankato

Minnesota State University, Mankato, Mathematics & Statistics department has two new faculty members from this Fall 2015: Wook Kim (Number Theory) and Michael Haskins (Developmental Math). Three faculty members, Namyong Lee, In-Jae Kim, and Mark Zuiker are returned from their sabbatical leave last academic year, and Han Wu was awarded tenure. Brian Martensen becomes the Dean of CSET (College of Science, Engineering and Technology), and Namyong Lee becomes Research Director of Minnesota Modeling & Simulation Center. (submitted by Namyong Lee)

St. Cloud State University

Department of Mathematics and Statistics at St. Cloud State University celebrated the career of Professor Mohammed Bahauddin in May, 2015. After 45 years of service, he retired at the end of 2014-15 academic year.

In 2015-16, we welcome back Professor Jeff Chen, who spent the past spring semester as a visiting scholar at the Institute of Modern History, Academia Sinica in Taiwan, working on a project titled "The Rise of Reasoning in Mathematical Treatises in Late Imperial China"; and Professor Leonard Onyiah, who was named one of the first 33 Carnegie African Diaspora Fellows, and spent his sabbatical last year at the Federal University of Oye-Ekiti in Nigeria to help set up a statistics program.

Also on board this year are three statistics faculty members: Nadeesha Arachchige, Karl D'Silva and Diane Lovett. Dr. Shiju Zhang is on Sabbatical this year.

During the past academic year, we went through an internal program review, and completed a revision of our statistics program. One of our focuses this year is the external review of all our major programs. (submitted from Peiyi Zhao)

South Dakota State University

The Mathematics and Statistics department is excited to begin the new school year in our new building. Wide, well-lit hallways, bright offices (all on the same floor), three classrooms (two of them active learning classrooms) and beautiful student spaces have made this year a terrific new year! SDSU is continuing to develop a strong research group in statistics and applied mathematics.

Assistant Professors Cedric Neumann and Chris Saunders were recently awarded an National Institute of Justice grant in the amount of \$780,301 to conduct foundational research in the quantification of the value of forensic evidence.

Assistant Professor Yunpeng Pan was awarded a grant in the amount of \$62,038 to investigate decision analytics as applied to sustainable cloud computing. Associate Professor Xijin Ge was awarded a grant in the amount of \$87,349 to create statistical models of weight loss processes to facilitate individualized intervention.

Associate Professor Tom Brandenburger continues to receive substantial funding from the private sector to support his work in predictive analytics. He is currently in the third year of his \$250,000 CAPITAL Services Scholar in Analytics funding, and is receiving funding for graduate student fellowships from other private sector sources.

Associate Professor Matt Biesecker is receiving private sector funding from the POET to optimize ethanol production processes. These grants and private sector resources are particularly valuable to the institution because the grants include funding for faculty along with undergraduate and graduate research assistants.

For Fall 2015, the department welcomes new Assistant Professor Semhar Michael, whose specialty is computational statistics and new Lecturer Diego Ramirez. We also said goodbye to Assistant Professor Don Struck (retiring after 51 years of service at SDSU) and Professor Ross Kindermann, (retiring after 27 years of service at SDSU); they will not be easily replaced! (submitted by Donna Flint)

University of Minnesota – Morris

We are happy to welcome a new faculty, Dr. Hannah Altmann, in August 2015. Hannah earned her PhD from North Dakota State University in June 2015; and her area of interests are in Homological Algebra, and Semidualizing Modules and Complexes (submitted by Peh Ng)

University of North Dakota, Grand Forks

We offer congratulations to the following individuals and wish them good luck: After 46 years of service Professor Jerry Metzger has announced that he will retire effective May 2016. Professor Ryan Zerr is stepping down as associate chair of the mathematics department to take up the position of Director of Essential Studies at UND. New co-associate chairs are Professors Michele Iams, and Richard Millspaugh. It will be Millspaugh's second time on this merry-go-round. Timothy Prescott was promoted to Associate Professor effective August 2015. (submitted by Joel Iams)
