Fall 2018 Newsletter

Fall Section Meeting at the University of Mary Washington

The Fall 2018 Meeting of the MD-DC-VA section of the MAA will be held at the University of Mary Washington on November 2-3, 2018.

Friday: The afternoon workshop on Friday will be run by Ryan Gantner of St. John Fisher College entitled *Developing Classroom Culture with IBL*. The banquet address, *A Mathematical Art Gallery Tour*, will be given by Eve Torrence of Randolph-Macon College.

Saturday: The morning address *How Much is Too Much? Axiom Systems and Reverse Mathematics*, will be given by Kira Hamman of Penn State, Mont Alto. The afternoon address *Unexpected Zetas!*, will be given by Dominic Lanphier of Western Kentucky University.

See pages 4 and 5 for more information.

INSIDE THIS ISSUE

UPCOMING MEETINGS

- **Joint Mathematics Meetings**
  January 16-19, 2019 in Baltimore, MD
- **MD-DC-VA Section Spring Meeting**
  April 12—13, 2019 at Hood College and Frederick County Community College
- **MAA MathFest**
  July 31—August 3, 2019 in Cincinnati, OH

JOHN M. SMITH DISTINGUISHED TEACHING AWARD

Nominations for the 2019 MAA Section Awards for Distinguished College or University Teaching of Mathematics are now being accepted. The Award Selection Committee will determine the recipient of the John M. Smith Teaching Award and the awardee will be honored at the Spring 2019 Sectional meeting and will be widely recognized and acknowledged within the Section. The awardee will also be the official Section nominee for the 2020 MAA Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics.

Anyone may make a nomination, but nominations from chairs or MAA liaisons in departments of mathematical sciences are especially solicited. An outline of the nomination process can be found on the web site: http://sections.maa.org/mddcva/smith_award.php

SISTER HELEN CHRISTENSEN SERVICE AWARD

Congratulations to **David Kung** of St. Mary's College, the 2017 recipient!

The Sister Helen Christensen Service Award is given each fall for outstanding service to the profession. The award is given at the MD-DC-VA Fall Sectional meeting and comes with a certificate and citation published in MAA on-line, the section website and the MD-DC-VA section newsletter. The award is named after Sister Helen Christensen, in honor of her lifetime of service to mathematics education and the section.

Who will get the award at this Fall Meeting??

SECTION REPRESENTATIVE'S REPORT

The Fall weather has finally arrived. That means our Fall meetings, this year at the University of Mary Washington on November 2-3, are just around the corner.

See http://sections.maa.org/mddcva/Fall2018Meeting_Registration.php for registration.

The mile-high city, Denver, hosted MathFest and it was filled with great speakers, good talks, and a lot of fun. Two of our section members gave invited addresses at MathFest. Laura Taalman from James Madison University shared *FAIL: A Mathematician's Apology* as the MAA Chan Stanek Lecture for Students invited speaker. The MAA James R.C. Leitzel Lecture was given by Talitha Washington, from Howard University and the National Science Foundation. Her talk was entitled, *The Relationship between Culture and the Learning of Mathematics*. The MAA has made the videos of conference lectures available to members.

To find the videos, go to

https://www.maa.org.

From there, click the login button and log in. Then, scroll down to "Member Benefits"; at the bottom of Member Benefits is "The MAA Video Library". In the library, you'll see many (perhaps all) of the large lecture sessions from Mathfest in Denver, including Laura Taalman's Chan-Stanek lecture for students, Talitha Washington's Leitzel Lecture, and Eugenia Cheng's invited address on inclusion and exclusion in mathematics. Happy watching!

2017 was a year full of substantial and important changes for the MAA with a focus on running a sustainable organization and 2018 finds us with another big change. It has been announced that the MAA will no longer co-manage the Joint Mathematics Meetings with the AMS. The AMS and the MAA have shared management, as well as contributed equally to the programming, of the Joint Mathematics Meetings under an agreement that has been in place since 1998. Through extensive discussions over the last 5 years, AMS and MAA have agreed that the 1998 agreement no longer meets the needs of either organization and will end following the Joint Mathematics Meetings in 2021.

Beginning in 2022, MAA national meeting activities will occur at MAA MathFest in the summer. There has been much discussion since this announcement as to what "national meeting activities" belong to the MAA. Michael Pearson, MAA Executive Director, has shared that the AMS and MAA agree that certain joint activities will continue, such as the Porter Public lecture, honoring the recipients of the AMS-MAA-SIAM Morgan Prize for Research by Undergraduates, and the JPBM Communications Award. The first impact of this change will be felt by the MAA Congress as there are no obligations or activity of the Congress at the 2019 JMM. Congress will assemble only at MathFest starting in 2019. Discussion is to continue to determine what this exactly means to MAA members. There is a short article about this change in the October/November issue of FOCUS.

In the same FOCUS issue you can find the article, *Faculty Writing Groups for Mathematicians*, by some colleagues in our section. This short piece shares the collaborative writing group they developed and the experiences they shared. Check it out online at maa.org. While you are there, you can check out the new MAA *Career Center*.

Visit it at https://mathcareers.maa.org/.

There are resources for students such as job postings and alerts, salary standards and statistics, and career advice.

The outreach of the MAA is extensive and includes the invitational competitions and the Math Olympiad Program which lead to the selection of teams that represent the U.S. at the International Mathematical Olympiad (IMO) and the European Girls Mathematical Olympiad. The US teams consistently win medals, and our USA team came in first at the IMO in 2018. The team included a middle school student, Joshua Lee (FCAG-Middle School, VA). Congratulations to them!

JMM is close to many of us this year as it is in Baltimore. I hope to see you there, and at our Fall section meetings.

Jennifer Bergner
MD-DC-VA Section Representative
jabergner@salisbury.edu

FOUND MATH

The MAA website features math-related photos submitted by members.

This MAA Found Math photo features the rings of parabolic arches in the design of the Priory Chapel of Saint Louis Abbey in Creve Coeur, Missouri.

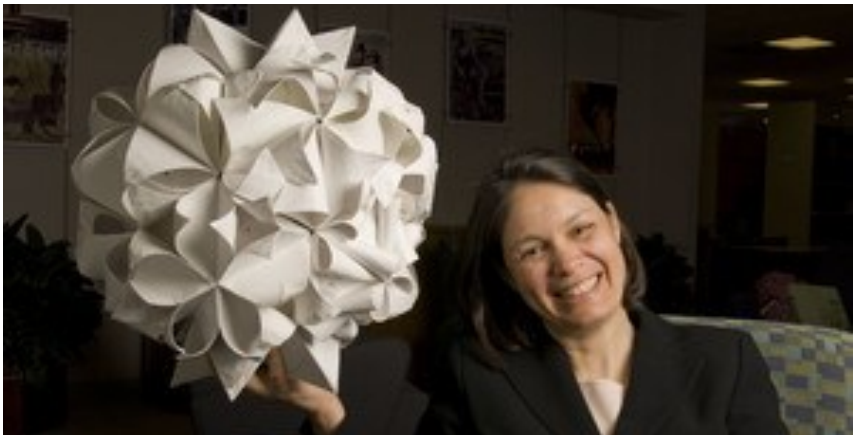
Submitted & taken by Jane Barnard.

FRIDAY WORKSHOP: DEVELOPING CLASSROOM CULTURE WITH IBL

In this two-hour workshop, we will explore ways to help foster a culture of learning in your course. We do this through an inquiry-based learning (IBL) approach. Acknowledging that each instructor has a different style, different goals (both stated and unstated) for the course, and a different set of physical and environmental constraints, we will discuss a variety of IBL approaches and when they might be most appropriate. Through these approaches, we will determine the aspects of classroom culture we seek to bring out and develop a strategy for doing so. All are welcome to attend this workshop: those who are experienced practitioners of IBL methods, those who are curious about what this means, and anywhere in between.

Ryan Gantner *received a Ph.D. from the University of Minnesota in 2006 and has been a professor at St. John Fisher College in Rochester, NY ever since. In 2014, he was a co-founder of the Greater Upstate New York Inquiry-Based Learning Consortium (UNY IBL). This group has sought to promote inquiry-based learning in the region through workshops, mentoring, informal meetings, and other connections. After a few years, he has assumed the role of director of this group. More recently, he has been involved in advancing inquiry-based teaching methods into the K-12 community. In 2018, he co-led a Math Teachers' Circle series targeting inquiry teaching and the Common Core. Currently he is a PI on a project titled "Math Circles of Inquiry" through which middle and high school teachers are developing inquiry-based modules for their classrooms. Together with his involvement with the NSF PRODUCT project, which produces IBL summer workshops (among other things), and his day job, he keeps himself fairly busy. But sometimes he would rather be at home playing with his two daughters, or hiking, or riding a bicycle.*

FRIDAY BANQUET ADDRESS: A MATHEMATICAL ART GALLERY TOUR



Over the past several decades there has been a revolution in using the arts to express, display and explain mathematical concepts. The international Bridges Organization organizes annual conferences that celebrate connections between mathematics, art, music, architecture, education and culture. There are wonderful exhibits of mathematical art at these conferences and at the Joint Mathematics Meetings every year. We will take a tour of some of my favorite pieces from these shows and see the incredibly creative ways mathematicians and artists are making mathematics visible.

Eve Torrence *is a professor of mathematics at Randolph-Macon College. She has served as chair of the Maryland-DC-Virginia Section of the MAA and as President of Pi Mu Epsilon National Mathematics Honor Society. She is a member of the Board of the Bridges Organization and has served as Program Co-chair and Proceedings Co-editor for the 2016 and 2018 Bridges Conferences. Eve's sculpture "Day" was awarded the People's Choice Award at the 2015 Bridges Conference Mathematical Art Exhibition.*

SATURDAY MORNING ADDRESS: HOW MUCH IS TOO MUCH? AXIOM SYSTEMS AND REVERSE MATHEMATICS

What are we assuming when we do mathematics? This is the foundational question that underlies mathematical logic and is at the root of its many crises and schisms. At least as far back as Euclid, mathematicians have sought to identify and justify the precise axiomatic foundation upon which they are building; their success has been, shall we say, mixed. From Russell's Paradox to Gödel's theorems to the Axiom of Choice, the question has taken on increasing complexity over time. But not every proof requires a full complement of set-theoretic axioms. Some require just a few, while others are more demanding. A relatively new area of research, Reverse Mathematics, seeks to calibrate the axiomatic needs of individual theorems and compare them to those of other theorems. The result is a hierarchy of proof-theoretic strength that can be thought of as a partial solution to Hilbert's Program. We will introduce that project and discuss a few of its more surprising results.

Kira Hamman *teaches mathematics and directs the honors program at the Mont Alto campus of Penn State. In addition to set theory and logic, she is interested in the intersections between quantitative literacy, social justice, and democracy, and in bringing mathematicians and their expertise into the public discourse.*

Fall 2018 Section Meeting Highlights

SATURDAY AFTERNOON ADDRESS: UNEXPECTED ZETAS!

Zeta functions, such as the Riemann zeta function, are subjects of some of the most difficult problems in mathematics. Indeed, two of the seven millennium problems (the Riemann Hypothesis and the Birch-Swinnerton-Dyer Conjecture) involve zeta functions. Ever since Euler solved the celebrated Basel problem, values of zeta functions have seemed surprising, mysterious, and deep. Nevertheless, zeta functions and their values can and do show up naturally in undergraduate-level problems. We will review some history of zeta functions and their values. Along the way, we will become acquainted with some unexpected appearances of zeta functions.

Dominic Lanphier *is Professor of Mathematics at Western Kentucky University. He held postdoctoral positions at Oklahoma State University and Kansas State University. He was an undergraduate at the University of Michigan and received his PhD from the University of Minnesota in 2000. He studies number theory and discrete mathematics. However, he is happy to work in any branch of mathematics!*

NEWS FROM AROUND THE SECTION

◊ **David Shoenthal**, Professor of Mathematics and former Chair of the Department of Mathematics and Computer Science at Longwood University, is now Associate Provost and Vice President for Academic Affairs at Longwood University. He is a former Chair and Program Chair of the MD-DC-VA Section. **Phillip Poplin**, former Member at Large and current Treasurer of the MD-DC-VA Section, is now serving as the Chair of the Department.

◊ **Keith Mellinger** was recently named the Dean of the College of Arts and Sciences at the University of Mary Washington after serving a one-year term as Interim Dean.

◊ **Jason Rosenhouse**, faculty member at James Madison University, will be the editor-elect of *Mathematics Magazine* starting in January, and will be full editor starting in 2020.

◊ **Jennifer Magee** was promoted to the rank of Senior Lecturer at the University of Mary Washington.

◊ **Susan Goldstine**, faculty member at St. Mary's College of Maryland, was named Program Chair for the International Bridges Conference on Mathematics and the Arts.

◊ **Leigh Lunsford** has been appointed as one of six MAA Representatives on the *American Statistical Association (ASA) - MAA Joint Committee on Statistics Education*. The charge of this committee is to stimulate effective change in undergraduate statistical education, particularly in the majority of institutions where the department of mathematics bears the primary responsibility for the teaching of statistics. Her three-year term begins in February 2019.

SECTION CHAIR'S REPORT

Greetings! I hope that this report finds you, your families, and your friends well. I enjoyed seeing many of you in Denver for MathFest! And, I hope to see you all very soon at the Fall Meeting of our Section, being held at the University of Mary Washington!

I'll make this report short, and I invite all of you to find me at our Section meeting, shoot me an email, or track me down at the Joint Mathematics Meeting coming up in January in the city of Baltimore.

Speaking of the Joint Mathematics Meeting, by now many of you are aware that the AMS and the MAA have chosen not to renew their agreement from the 1990s to cohost this meeting. This was a shock to me and to many of us around the country, and it's not clear at all what the "January Meeting" and "August Meeting" may look like beyond 2021, but I know that both organizations will give a lot of thought to this; in particular, it was stressed in all of the communication that I've seen that the AMS and MAA will still have important joint ventures. Regardless of potential changes, I encourage you to attend Section meetings and stay active at the Section level; our meetings are wonderful, as are the people in our Section!

My goal for the coming year (and beyond) is to have our Section focus on inclusion; that is, we should push to have more underrepresented groups at our meetings at the undergraduate, graduate, and faculty level. While this of course includes women and minorities, two groups that have been traditionally underrepresented in mathematics, it also includes more members from two-year institutions, high schools, and BIG (business, industry, and government). For our upcoming spring meeting (in April 2019, co-hosted by Hood College and Frederick Community College), our Section will be part of a pilot to have interpreters present to encourage attendance by deaf and hard-of-hearing students and faculty from Gallaudet University! I hope that all of you will welcome our friends and colleagues from Gallaudet in the spring, and I welcome any and all ideas and suggestions about how to accomplish any piece of this!

Finally, if I don't see you soon at the fall meeting graciously hosted at the University of Mary Washington, I really hope to see you in January in Baltimore!

David Taylor
MD-DC-VA Section Chairperson
taylor@roanoke.edu

NEWS FROM AROUND THE SECTION

◊ **Kristen Boyle** and **Jeffrey Ledford** were recently hired as Assistant Professors of Mathematics and are in their first year at Longwood University. Dr. Boyle comes from North Carolina State University, where she earned her Ph.D. in 2018. Dr. Ledford comes from Virginia Commonwealth University, where he served as a full-time lecturer from 2011-2018.

◊ **Samantha Stanton** is in her first year as a lecturer at Longwood University. Ms. Stanton has her roots in Virginia, earning her undergraduate degree at VCU, and has returned home, so to speak, from a stint at the University of North Texas.

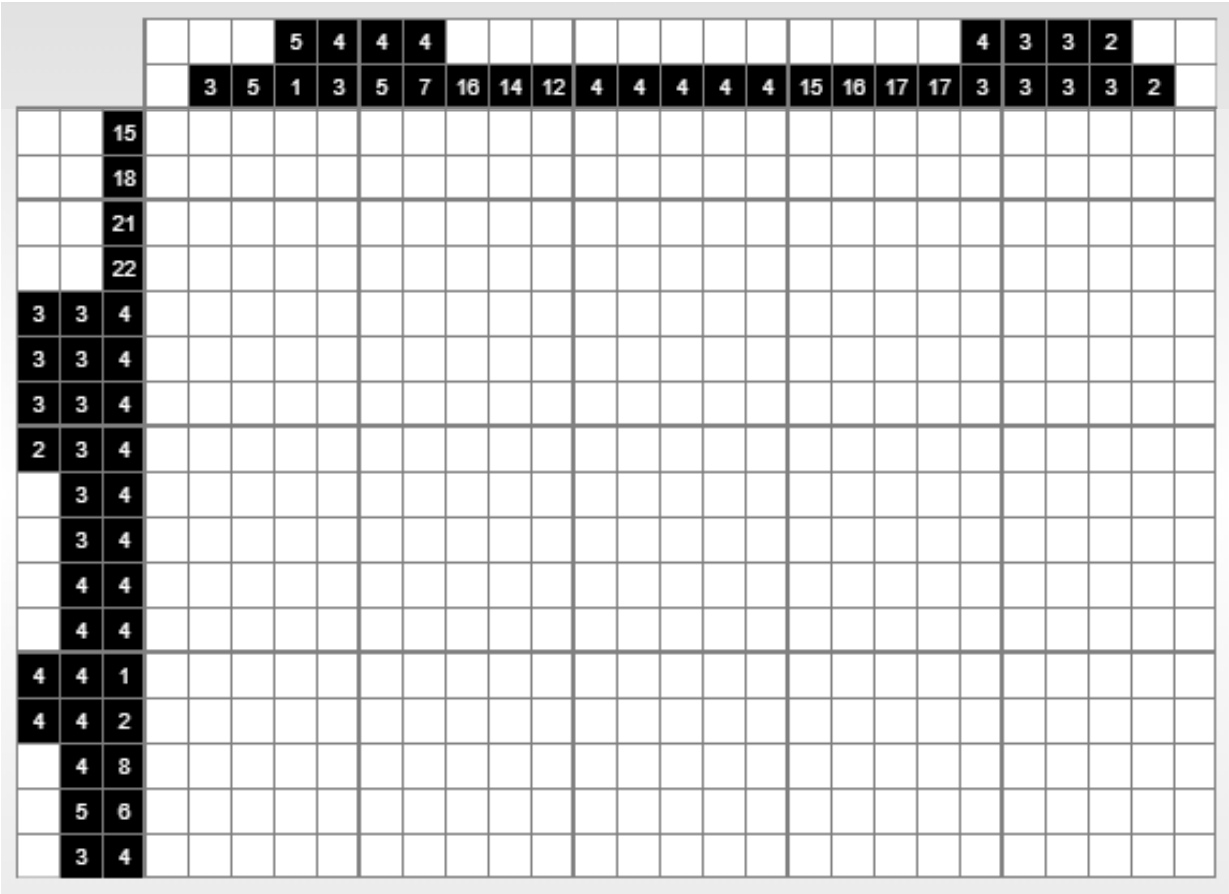
◊ **Roger Reakes** recently joined the Roanoke College faculty as a lecturer in mathematics. He previously worked at Dansville Central Schools and Genesee Community College. He's excited to be part of our section!

◊ St. Mary's College of Maryland has two new visiting hires, **Leona Sparaco** and **Stefan Doboszczak**. Dr. Sparaco specializes in Topology, and Dr. Doboszczak specializes in Numerical Analysis.

◊ **Rebecca Rebhuhn-Glanz** just joined George Mason University as a new faculty member. She recently got her PhD from Michigan, and is a Project NExT Fellow.

Nonogram Fun

Below you have a grid of squares, each of which must either be filled in black or marked with an X. Beside each row of the grid are listed the lengths of the runs of black squares on that row. Above each column are listed the lengths of the runs of black squares in that column. Your goal is to find all black squares.



Created by Maggie Rahmoeller, using nonograms.relaxpuzzles.com puzzle creator.

SAVE THE DATE

MAA meetings provide opportunities to keep up with the latest developments in mathematics, catch up with friends and colleagues, and forge new professional relationships.

Join us for the **Joint Mathematics Meetings,** the largest annual mathematics meeting in the world. More than 7,000 attendees are expected in Baltimore, Maryland **January 16–19, 2019.**

Join us for **MathFest**, the annual summer meeting of the MAA, **July 31—August 3, 2019** in Cincinnati, Ohio.

The annual summertime meeting features numerous sessions devoted to all aspects of mathematical education and the latest in mathematical research.

HOW TO RUN A SONIA KOVALEVSKY MATHEMATICS DAY: A TUTORIAL!

We at Hood College just held our 15th annual Sonia Kovalevsky Day on October 16 and the day was a great success! In case you are in the market for learning more about how to run an event like this, keep on reading!

Sonia Kovalevsky Days are math workshops that are typically designed for middle and / or high school girls with the goal of encouraging these young women to consider continuing to study mathematics at the college level and to consider mathematical careers. The days are named in honor of Russian mathematician, Sonia Kovalevsky, who, in the 19th century, became the first woman to earn a doctorate in mathematics. The first Sonia Kovalevsky Day (SK Day, for short) was held at Harvard University in 1985, funded by the Association for Women in Mathematics (AWM). AWM continued to sponsor these events at colleges and universities all over the country for many years. They have since ceased to offer such sponsorship; however, SK Days are still popular events at many institutions, including Hood!

Our event this year brought high school girls and their teachers from several Frederick, MD high schools to the Hood campus for fun math workshops, a career panel with women panelists who have careers in mathematics, a lunch, and a talk on the life of Sonia Kovalevsky. This year's SK Day was co-sponsored by PNC Bank, U.S. Silica, and Frederick County Public Schools. Math workshops this year included Math and Music, Math in Chemistry, The Math of South America, and Coding with Python Turtle. Everyone had a great day discovering some new mathematics!

Here is a step-by-step list of considerations to make when getting ready to run an SK Day, along with some more information about how we run our event!

STEP 1: WHAT KIND OF EVENT WILL YOU RUN?

The very first thing you will need to do is decide what type of event you would like to run. Some good preliminary questions to ask yourself are: will you design an event for middle school students, or high school students? Will you hold it on a weekday as a field trip event for schools? Or on the weekend so that students can attend with their parents? What size event are you comfortable hosting? The answers to these preliminary questions will determine a lot about how you structure your day.

At Hood, we invite students and their teachers from all ten Frederick County Public high schools, as well as a couple of area private high schools. Because of space considerations (we are a small liberal arts college with small classrooms), and because we want to be able to interact with the visiting students personally, we typically limit the event to 70-80 participants. We usually run our event during either Hood's Fall or Spring break, while the high schools are in session, so that we have classroom space at our disposal, and so that teachers can bring their students on a field trip to Hood for the day.

Having teachers bring their students has several benefits. The teachers can help identify and encourage students who might otherwise not consider attending an event like this. Also, we have no issues with unaccompanied minors

attending an event on campus. And finally, bringing teachers to campus helps to grow and support a positive relationship between the local school system and the college.

Step 2: How much money will it all cost, and where will the money come from?

This step is, of course, closely linked with step 1, and the answer to the money question may well determine what type of event you can afford to run!

The money to fund our event has come from various sources over the years. AWM SK Day grants and MAA Tensor Women in Mathematics Grants were two sources in the early days. The AWM no longer awards SK Day grants, but the MAA's Tensor program is still running, with applications due in February each year. As support for our event has grown, the local school system has managed to make transportation and substitute teacher costs part of their budget in recent years, and we have been fortunate, through our college's development office, to make connections with local companies who are interested in sponsoring our event. PNC Bank has been a staunch supporter since 2013, and U.S. Silica came on board this year. We are incredibly grateful for and proud of these community partnerships. I would encourage anyone trying to run an SK Day event to consider coordinating with your college's development office as ours has been incredibly helpful.

We can typically run our event for somewhere between $5000 - $6000. This amount of money pays for quite a bit: transportation for the high-schoolers and teachers, substitute teachers to cover the absence of the chaperoning teachers for the day, snack and lunch for all, event t-shirts for everyone, supplies and printing, a small honorarium for the workshop leaders, and small gifts for the career panelists. If you think you can get the audience you'd like to attend on a Saturday morning, this would have the obvious benefit of not needing to pay for substitute teachers or transportation of the students. To lower costs further, until you establish your event, at least, you could consider either asking attendees to bring a brown-bag lunch, or running an event that is short and sweet, and over long before lunchtime!

...continued on page 10

"...in honor of Russian mathematician, Sonia Kovalevsky,...first woman to earn a doctorate in mathematics"

15th Annual Sonia Kovalevsky Day at Hood College

HOW TO RUN A SONIA KOVALEVSKY MATHEMATICS DAY: A TUTORIAL! ...continued from page 9

Step 3: What will we do with these students when they get here?

Being enterprising mathematicians with an interest in running an SK Day, you may already have many ideas for activities you would like to run with your visiting students! Here is how we have been doing things at Hood.

Our day begins at 9am with some opening ice-breaker activities, followed by a welcome from the college, and from our sponsors' representatives. Then, we randomly assign the students and teachers (via color-coded folders that the students have received at sign-in) to four groups for our first math workshop session. This is followed by a short break for donuts and coffee, and then we run a second math workshop session. After that, we head to lunch, where a Hood math major gives a talk on the Life of Sonia Kovalevsky. The final event of the day is a career panel, and everything is wrapped up by 1pm or so, just in time for the students to head back to school and get ready to go home.

In recent years, we have had a total of four math workshops that each run twice for groups of approximately 17-20 students and teachers. Each student attends two of the four workshops, and we make sure that each workshop is attended by at least one student per school. Colleagues in the math department usually run one or two of the workshops, and in recent years, we have had great success with having professors from departments such as economics, business chemistry, biology, computer science, and coastal studies run workshops that highlight some applications of math in their fields.

Our career panel features women panelists from local companies and, lots of the time, being in the proximity of Washington D.C., from government agencies! To find panelists, we use any, and all, of our connections – our alumni, our college's career services office, friends, and sometimes, family! It is heartening to realize that many companies and individuals are not only willing, but enthusiastic about helping with an event like this. We have been fortunate to have panelists in recent years from government agencies such as NSA and NIST, as well as companies such as iNovex Information Systems, Nobus, MMI Direct, and Emmes Corporation, to name a few.

Pictured Above: Math and Music workshop, run by Ann Stewart (Hood College)

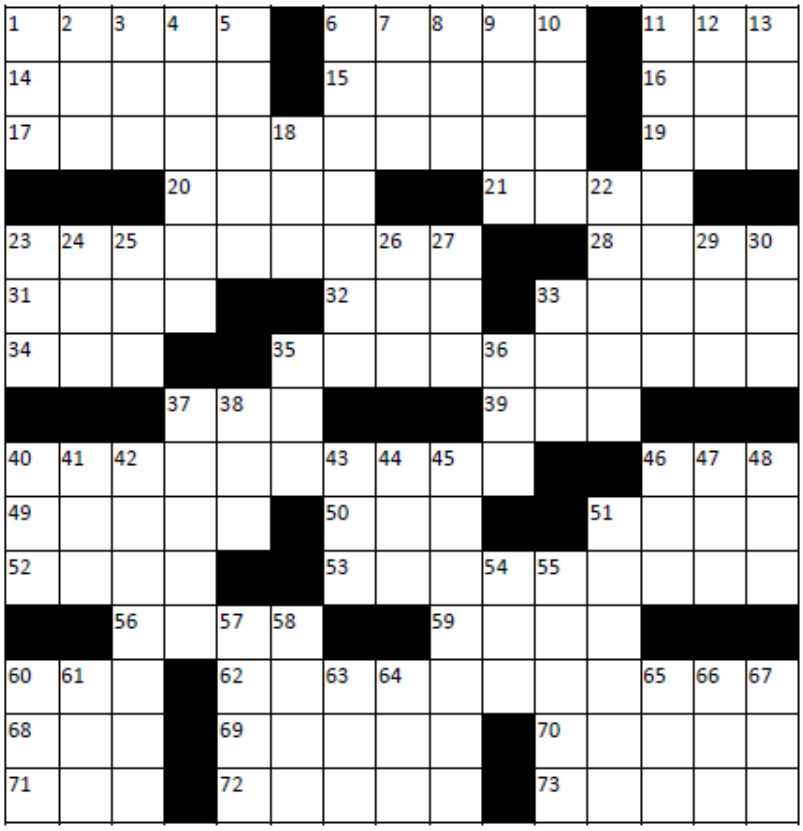
Step 4: Okay, now I have a plan, but should I really do this? Is it worth it?

Yes, a resounding YES! On post-event surveys, we regularly see that 90% or more of the high school students agree or strongly agree that attending SK Day at Hood gave them a greater appreciation for mathematics, that they enjoyed the day, and that they learned something new about how mathematics is used in "real life". This is reward enough, but what really makes it all worth it are students such as the student we heard from last year, now in the Aerospace Engineering program at the University of Maryland, and who is involved the Women in Aeronautics and Astronautics (WIAA) organization there. She wrote to her former high school math teacher and thanked him for sending her to Hood's Sonia Kovalevsky day as a high school sophomore. In her words, "That event really did have a profound impact on me and my pursuits in STEM (thank you so much for that) and so I hope WIAA Day can have the same impact on other young aspiring engineers."

So, if you have been thinking about trying to run an SK Day event, go for it! We are happy to answer any questions you still have about how we run our event: please reach out to Jill Tysse at tysse@hood.edu.

Jill Tysse *is an Assistant Professor of Mathematics at Hood College. Her research interests include applications of group theory.*

PRACTICAL MATHEMATICS



This sculpture is found in an open square in downtown Brisbane, Australia. The spheres are a form of street art by sculptor Donna Marcus.

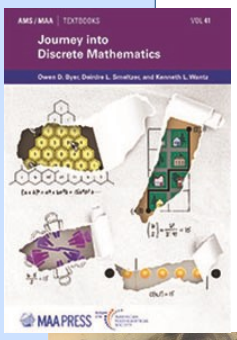
Picture taken by Jonathan Kane.

Crossword by **Benjamin Wilson**, Assistant Professor of Mathematics, Stevenson University

ACROSS
1 Office _____
6 You start with three of these in Super Mario Bros.
11 Part of WWW
14 It can be used to denote a vector
15 Former politician Spitzer
16 Donkey Kong, for example
17 Actor's off-script exclamation?
19 Rotational unit of meas.
20 Lebron's team once a year (until 2018)
21 Cover by linear combinations, as a basis does
23 Deeply sincere
28 Bean type not featured in the card game Bohnanza
31 Part of B.A.
32 Male Kardashian
33 Hyperbola, parabola, or ellipse, e.g.
34 Green eggs and ham peddler
35 Correct point of view?
37 Wages
39 "Why is six afraid of seven? Because seven _____ nine!" (classic joke)
40 Nerdy tree support?
46 Nickname of academically gifted Gallagher on Showtime's "Shameless"
49 One of five
50 Lad
51 Axiom, to a mathematician
52 Copy menu
53 Etches; Draws inside
56 Many people break it every morning
59 Instrument
60 What it takes to make a thing go right
62 Key piece of music?
68 A musician has a good one
69 _____ space
70 Ganders
71 A pitcher has a good one
72 Math class occurrences several times per semester
73 The "E" in Euler's formula V-E+F=2

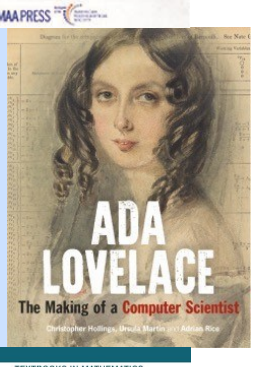
DOWN
1 Derby, e.g.
2 "A cup _____ cone?"
3 Classy vase
4 Highest Mount in Virginia
5 Exercise outcome
6 "I'd like to buy the _____, Pat!" ("Wheel of Fortune" statement)
7 Sick
8 "Star Wars: Episode _____ - The Force Awakens"
9 Ages
10 Heaviside _____ function
11 Cautioning
12 Org. concerned with pollution
13 It can be made of nails
18 Org. with much sought after grants
22 Stag
23 Owns
24 Low stat for Kershaw
25 Dough dispenser: Abbr.
26 Function that is the inverse of EXP
27 "Speaking truthfully…", online
29 Sometimes feared relative through marriage: Abbr.
30 It can be worth eleven
33 _____ scan
35 Reuben requirement
36 Ink
37 Shell, e.g.
38 fun. song "We _____ Young"
40 Dir. from D.C. to Virginia Beach
41 It indicates the end of a proof
42 Convergence of functions stronger than pointwise
43 High stat for Machado
44 Cart follower?
45 Rockefeller leader?
46 Chocolate _____
47 Vanilla _____
48 A TD is worth six
51 Caught with a camera
54 Pro's counterpart
55 Red powder
57 See
58 Exact
60 Arizona product
61 Children's card game
63 "_____ Always Sunny in Philadelphia"
64 The _____, N.Y. museum
65 Plead
66 Japan or Siam suffix
67 Lo-_____ (pixelated)

MORE NEWS FROM AROUND THE SECTION

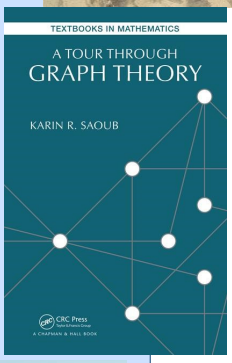


◊ **Owen Byer** and **Deirdre L.** Smeltzer of Eastern Mennonite University and **Kenny Wantz** of Regent University have written a new discrete math book, called "Journey into Discrete Mathematics," published by MAA Press. Keep an eye out for it in late November / early December! Check it out here: https://bookstore.ams.org/text-41/

◊ **Leigh Lunsford**, **Phillip Poplin**, and **JoEllen Pederson**, from Longwood University, have a recently published paper in the *Journal of Statistics Education*, titled "From Research to Practice: Using Assessment and Early Intervention to Improve Student Success in Introductory Statistics." You can access the paper here: https://www.tandfonline.com/doi/full/10.1080/10691898.2018.1483785.



◊ Randolph-Macon College professor **Adrian Rice** has written a new book, titled "Ada Lovelace: The Making of a Computer Scientist," with co-authors **Christopher Hollings** and **Ursula Martin**. The book was published through University of Chicago Press. Ada Lovelace is "sometimes called the world's first computer programmer." "But how did a young woman in the nineteenth century, without access to formal schooling or university education, acquire the knowledge and expertise to become a pioneer of computer science?" Get this book to find out!



◊ CRC Press published a graph theory book **Karin Saoub**, professor at Roanoke College, wrote titled "A Tour Through Graph Theory. Dr. Saoub's book "distinguishes itself from others covering the same topic. It strikes a balance of focusing on accessible problems for non-mathematical students while providing enough material for a semester-long course." And she already has a request for a second book!

◊ Longwood University will be hosting the Virginia Council of Teachers of Mathematics (VCTM) 2019 Conference on March 8-9. For additional information, please see http://www.vctm.org/VCTM19.

◊ The Institute of Mathematics of the Czech Academy of Sciences in Prague hosted a 4-day International Conference from September 26-29, 2018 in honor of the 70th birthday of **Lawrence Somer**, Professor Emeritus of Mathematics at The Catholic University of America. The title of the conference was "Cosmology on Small Scales 2018." The organizing committee for the conference contains participants from Russia, Israel, Germany, USA, Czech Republic, Switzerland, Columbia, and France. Over 70 people attended the conference. For more information, see: http://css2018.math.cas.cz/

◊ **Adam Childers**, Associate Professor of Mathematics and Statistics at Roanoke College, received the Roanoke College award for exemplary teaching in April 2018. "Childers' attentiveness to the success of his students makes him an outstanding educator. In the statistics concentration, he sparks the interests of students with his 'motivational moment' at the beginning of the class, flipping the classroom, and leveraging new technologies to keep students engaged. Childers has created multiple variants of his 200-level INQ/HNRS course, teaches online courses during the summer, and has helped increase math club activity. These are just a few ways in which he has inspired students and helped improve the curriculum."

MORE NEWS FROM AROUND THE SECTION

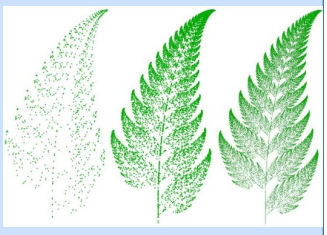
◊ University of Mary Washington math majors **Shannon Haley**, **Gail Crunkhorn**, and **Ekta Kapoor** presented at the Joint Mathematics Meetings in San Diego in January. Shannon presented on "Non-commutative Massey-Omura Encryption with Symmetric Groups," and Gail and Ekta presented on "Measuring Inter-Rater Reliability for Ordinal Data and Multiple Raters."

◊ University of Mary Washington math majors **Shannon Haley** and **Bailey Stewart** were admitted to and attended the Women and Mathematics program at the Institute for Advanced Study at Princeton University this past summer. The topic for this intensive week-long program was *The Mathematics of Modern Cryptography*. At IAS Shannon and Bailey attended short courses, seminars, and workshops on the most recent developments in the field of cryptography.

◊ This summer, **Rachel Grotheer** worked with three students (**Cara Lam**, **Thomas Mangan**, and **Riley Supple**) at Goucher College as part of Goucher's Summer Science Research Program. They worked for eight weeks on a project to find the best way to choose a basis for use with the Reduced Basis Method as applied to the forward problem of hyperspectral Diffuse Optical Tomography. Basically, the students were applying different algorithms to look for the best wavelengths at which to image tissue such that the image could be approximated at any wavelength using a linear combination of the solutions at the chosen wavelengths. The students presented their work during a poster session at the Landmark Research Conference at Juanita College in PA in July. Then, the students, Professor Phong Le, and Rachel traveled to Denver, CO to attend MathFest. While there, Thomas Mangan and Cara Lam presented their work during the MAA Student Paper Session in a talk entitled "Taste the Rainbow: Wavelength Selection in hyDOT". Riley Supple also presented her work in a talk titled "Turn Down the Lights: Basis Reduction Techniques in Hyperspectral Diffuse Optical Tomography" during the Student Paper Session for Pi Mu Epsilon.

◊ The Stevenson University section of KME math honors society organized and ran a bake sale to raise money for Hurricane Florence Relief. Students and faculty baked goods and raised over $400.

◊ In November Stevenson University will be participating Maryland STEM Festival by holding the Mathstravaganza. This event is open to the public, will be run by students, and will include several interactive math exhibits and games which will be accessible to all ages and mathematical backgrounds. Some of the interactive exhibits include a giant Tower of Hanoi mathematical puzzle, the Chaos Game fractal generator, a station to create minimal surfaces with soap bubbles, a Prisoner's Dilemma simulation, the Monty Hall Jelly Beans probability game, and Buffon's Pixy Stix.



◊ Roanoke College just started an AWM student chapter this Fall. Our first event was to host guest speaker Gretchen Matthews from Virgina Tech, a member of AWM and a mathematician studying algebraic geometry specific to coding theory and cryptography. She gave a wonderful talk titled "Polynomials and the Information Lottery: Everyone's a Winner Every Time!" and had a chance to meet some of our female students at dinner. Next goal? Using Jill Tysse's advice, run an SK Day!

MORE NEWS FROM AROUND THE SECTION

◊ **Padhu Seshaiyer**, professor at George Mason University, was featured in the AMS Notices September issue https://www.ams.org/journals/notices/201808/rnoti-p1011.pdf for his work as an International Mathematical Union (IMU) Volunteer Lecturer in Tanzania. His journey with this program began in 2011 when he was selected to give a 4-week course on numerical analysis and mathematical modeling for graduate students. He has continued working with the program since, along with leading several research and outreach initiatives, including a project concerning the issue of poaching of elephant tusks and rhino horns.

◊ George Mason University's Experimental Geometry Lab (MEGL) is part of a national group, Geometry Labs United, which was featured in AMS Notices October issue https://www.ams.org/journals/notices/201809/rnoti-p1088.pdf. The main goal of a Geometry Lab, according to this article, is "to foster a community to promote research involving all stages of academia, provide mentoring experiences to early career mathematicians, and disseminate mathematics beyond the boundaries of the university." A past student of George Mason University, **Stephanie Mui**, is featured in the article and quoted, saying "MEGL is the prime reason I am continuing my studies in math today." Her mentor in the program was **Sean Lawton**.

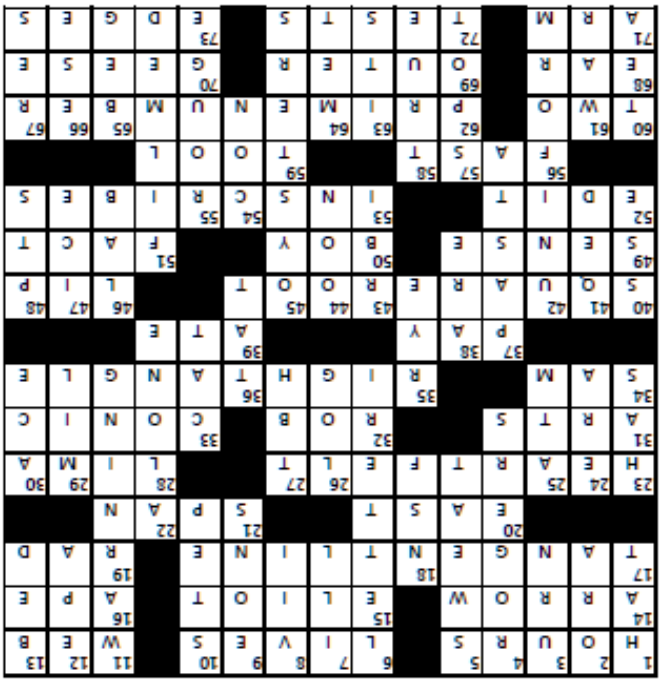
3D print of a flat torus—work by Stephanie Mui

◊ Dr. Marilyn Vazquez, recent Ph.D. graduate of George Mason University, is now a postdoctoral member of ICERM at Brown University.

◊ Former George Mason University undergraduate **Lucas Bouck** won an NSF Graduate Fellowship and is now a doctoral student at Maryland.

◊ Fairfax Math Circle, run by George Mason University, has begun its eleventh year and will be participating in JMM activities (Baltimore) and the National Math Festival (DC) during the year.

Solution to the Crossword
by Benjamin Wilson

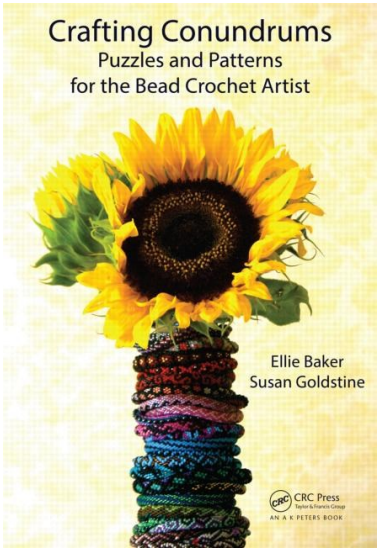


◊ George Mason University professor **Maria Emelianenko** leads the Industrial Immersion Program, which supports four doctoral students to spend part of their time in research labs and industry. According to their website, "IIP immerses these students in an environment where they develop skills and gain experience that prepare them for careers in BIG, as well as academia."

Thank you to everyone who donated to have an inscribed brick installed in the Paul R. Halmos Commemorative Walk at the MAA Carriage House in DC in memory of Caren Diefenderfer.

UNUSUAL AND EXCITING COURSES

Making Mathematics



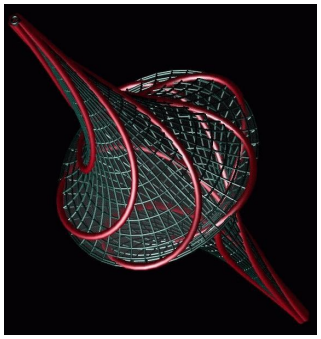
Eve Torrence, professor at Randolph-Macon College, is teaching an unusual course this semester. She's teaching an honors course as part of their general curriculum based on the book Crafting Conundrums: Puzzles and Patterns for the Bead Crochet Artist by Susan Goldstine of St. Mary's College of Maryland and Ellie Baker.

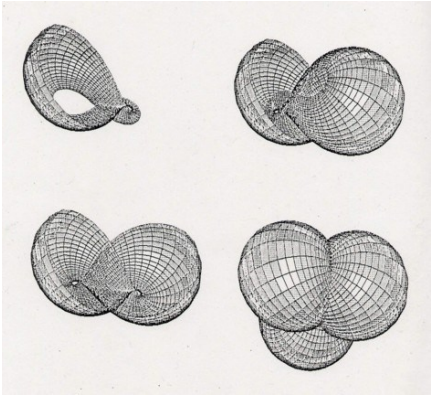
The mathematics is very interesting and delves into Graph Theory, Knot Theory, Topology, and Group Theory. In addition to learning lots of mathematics the students are learning to make bead crochet bracelets and pendants that demonstrate mathematical ideas such as the 7-color theorem for the torus, torus knots, and tessellations on the torus.

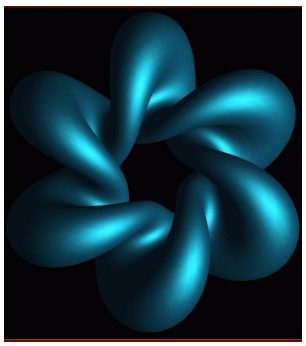
Image Left: Students in Eve Torrence's "Making Mathematics" Honors course at Randolph-Macon College wearing the bead crochet bracelets they made. This design features a (3,2) torus knot in black beads on a background of color beads which represent the torus. The design, "Trefoil Dissection," is from the textbook for the class.

3D Printing and Mathematics

Dr. Ivan Sterling, professor at St Mary's College, is teaching "3D Printing and Mathematics" for the second time this Fall.







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TREASURER'S REPORT

General Fund

Balance, March 6, 2018 $2640.75

Receipts		Expenses	
Spring 2017 Registration Fees	$5325.04	Non-Section NExT Meals	$2655.10
		Speaker Expenses	$1058.73
		Transfer to Section NExT	$940.00
		PayPal Processing Fees	$142.16
		Service Award	$94.84
		Supplies & Postage	$49.25
Total Receipts	$5325.04	Total Expenses	$4940.08

Balance, October 16, 2018 $3025.71

John G. Milcetich Student Achievement Fund

Balance, March 6, 2018 $971.05

Receipts		Expenses	
Contribution to JGM	$175.00	Student Talk Awards	$235.00
Interest	$0.54	Student Poster Awards	$150.00
		Student Activity Supplies & Trophies	$115.05
Total Receipts	$175.54	Total expenses	$500.05

Balance, October 16, 2018 $646.54

Project NExT Fund

Balance, March 6, 2018 $80.00

Receipts		Expenses	
Contributions	$95.00	Project NExT Fellowship	$2500.00
Transfer from Section NExT	$2325.00		
Total Receipts	$2420.00	Total Expenses	$2500.00

Balance, October 16, 2018 $0.00

Section NExT Fund

Balance, March 6, 2018 $3205.71

Receipts		Expenses	
Transfer from General	$940.00	Transfer to Project NExT	$2325.00
		Section NExT Meals	$344.00
Total Receipts	$940.00	Total Expenses	$2669.00

Balance, October 16, 2018 $1476.71

IBL Consortium Fund

Balance, March 6, 2018 $2000.00

Receipts	$0.00	Expenses	$0.00

Balance, October 16, 2018 $2000.00