



Ohio Focus

The MAA Ohio Section Newsletter

Volume 11

Spring 2020

Number 16.3

MAA Ohio Section Spring Meeting to be held at BGSU - April 3 – 4

Bowling Green State University is excited to host the Spring Meeting of the Ohio Section of the Mathematical Association of America on April 3 - 4, 2020. The student math competition and committee meetings begin at noon with a general welcome at 1:30 p.m. Invited talks begin on Friday afternoon first with **Jim Fowler** from The Ohio State University followed by **Gordon Swain** of Ashland University and the 2019 Ohio MAA Section



Teaching Award winner. In the evening **Judy Holdener** from Kenyon College will present the After Banquet Invited Talk and lead off on Saturday morning with the first morning talk. The final invited address on Saturday will be delivered by **Katie Cerrone** from the University of Akron as outgoing President of the Ohio Section .

Registration will be on the 2nd floor of the Bowen-Thompson Student Union (BTSU) where most of the events will take place. There will be contributed paper sessions on both Friday afternoon and Saturday morning for meeting participants (students are *especially* encouraged to give contributed 15 minute talks—see **Student Activities** on page 7.) Of course graduate and undergraduate students in mathematics, mathematics education, or related fields are especially encouraged to attend. (See **Meeting Registration** on page 10.)

As mentioned above the Leo Schneider Student Team Competition will start at 12:00 lasting until 1:20 in BSTU rooms 314, 315, and 316 with the official welcome and announcements starting at 1:30.

As a follow up to the Fall 2019 CONCUR Panel Session on Teaching Co-requisite Courses, Emily Dolsak of Young State University, Shannon Miller-Mace of Marshall University, and Najat Baji of Sinclair Community College have agreed to submit short follow up pieces (see pages 4 and 5) summarizing their panel presentations. E-mail addresses are provided if readers wished to contact them with further questions.

“A splendid time is guaranteed for all”

From Our President



Welcome back to the spring semester! I hope you all are off to a good start and staying warm. We've been lucky to have a mild winter so far in Akron although I have to say that I wouldn't mind seeing a little snow.

I hope that you enjoyed the fall conference. Thank you to Shawnee State for hosting and especially to John Whitaker and

everyone else who helped make it a successful conference. I was excited to learn more about the innovations being implemented across the state with the co-requisite model of teaching. Brian Shelburne gave a riveting talk about early computing and the ENIAC's 1949 determination of Pi. James Sellers gave two entertaining and interactive talks about Fibonacci Numbers and Compositions as well as what Euler and the Bernoullis knew about convergent infinite series. Barbara Margolius rounded out the set of speakers with her fun talk on Tinker Toys and generating functions.

I'm looking forward to our spring meeting at Bowling Green State University. I want to thank Gordon Wade and the faculty and staff at BGSU as well as Moez Ben-Azzouz and the Program Committee for all their work in planning the upcoming meeting.

In an ever changing educational environment I know we are all thinking of what the future of higher education will look like and how mathematics education fits in this new landscape. We need to be creative and innovative about getting students excited about math and how it is useful in their lives. I hope to address some of these topics during my talk and I encourage you all to have discussions with your colleagues about these issues. We can't stand still and wait for change to happen to us. We must embrace it and take strides forward in shaping the educational experience into what we know students need.

With a look toward the future math faculty in our section, I encourage you all to invite new faculty at your institutions to attend the Ohio NExT workshop. These workshops were invaluable to me as a new faculty

member. I learned much about engaging teaching methods, how to get involved in the section and made lasting friendships. I also want to remind everyone that NExT is open to all faculty in their first five years of teaching. This includes all tenure-track faculty as well as all VITAL faculty (Visiting, Instructors, TAs, Adjuncts and Lecturers). The Executive Committee of the Ohio Section realizes that there have been fewer hires of tenure-track faculty in recent years and that many courses are now taught by VITAL faculty. With that in mind we have discussed opening the workshop to graduate students. This spring we will pilot the inclusion of TA's at the NExT workshop at BGSU. Please encourage your TA's to attend. The workshop is free with conference registration.

There are so many ways to get involved with the Section and I encourage you to join one of our committees or volunteer to be a section officer. These committees are not a huge time commitment but are a valuable part of the Section. Most work is done via email and during meetings held the hour before our Section meetings. These committees include the Committee on Section Activities (CONSACT) which organizes the workshop that takes place immediately after fall section meetings; the Committee on Curriculum (CONCUR) which looks at curricular issues in undergraduate mathematics; the Committee on Teacher Education and Licensure (CONTEAL) which keeps the Section aware of significant changes to K-12 education and licensure requirements and prepares recommendations for appropriate state authorities; and last but not least, the Committee on Student Members (CONSTUM) which directs and coordinates all activities of the section which are specifically for student members including the Leo Schneider Student Mathematical Competition held before this spring's meeting. David Stuckey will be making committee appointments over the summer so please email him if you are interested in joining or chairing a committee.

Finally, I'd also like to invite you all to attend Mathfest this summer which is relatively close by in Philadelphia, PA. It's always a great time to reconnect with colleagues and reinvigorate our minds.

I can't believe my time as president is coming to a close. It's been a busy and productive two years. Thank you all for allowing me to serve and thank you to David Stuckey for stepping up next year as president.

*Katie Cerrone
The University of Akron
Section President*

From Our Section Representative

The MAA Congress has not met since my last report in these pages, so I don't have a list of items to share with you. But this doesn't mean that I have nothing to tell you. Quite a bit has been going on behind the scenes at the MAA, as well as out in the open!

First, the clock continues to tick off the minutes toward JMM 2021 in Washington, DC, the last Joint Meetings in which the MAA will be organizationally involved. Beginning next year in 2021, MathFest will be the Association's only national meeting. What that means for networking and the important social business that is the glue of any professional society remains to be seen and felt. At the same time this transition is taking place, the Association is also in the process of launching MAA Connect, its new communications platform and vehicle for hosting a new social media network for the Association. Just this week, as I write these words, the first messages by members of the Ohio Section were posted to Connect. Check it out. The more we use the platform, the more useful it will be for all of us.

The Association is at an exciting juncture at the moment. It is searching for the best ways to pursue its core mission "to advance the understanding of mathematics and its impact on our world," through (1) fostering its community of mathematicians, students and other enthusiasts; (2) promoting inclusivity and access to mathematics; (3) communicating creative discoveries and the increasingly important role that mathematics plays in society; and (4) supporting the teaching and learning of mathematics. One of the main avenues the Association is looking to invest its energies is in supporting activities at the Section level. Please come to our Section meetings and get in on this activity.

Have you dived into the new Instructional Practices Guide yet? (It's freely downloadable at maa.org.) Have you read anything in the new Math Values blog (mathvalues.org)? There are so many ways that the MAA can be of service to you. Just reach out and see!

Danny Otero - Xavier University - Section Representative



Around the Ohio Section: Campus Notes

From Sinclair Community College: Najat Baji has received the John & Suanne Roueche Excellence Award from The League for Innovation in the Community College.

From Ohio Northern University: At Ohio Northern University, it's the end of the line for the Department of Mathematics and Statistics as an academic unit. Starting from Fall 2020, Mathematics and Statistics will be two among the programs of a new 'School of Science, Technology and Mathematics' in the Getty College of Arts and Sciences. Our faculty and students are determined to continue and expand their involvement in the activities of the Ohio Section of the MAA.

From Cedarville University: New Student Math Organization: Over the years, attempts have been made to start a student org. devoted to mathematics. Last semester some of our sophomores and juniors got together and formed a math org. They called it QED after the traditional ending of a proof. Here is a description from the president, Elise VerSchneider.

"QED is a social math club that exists to provide community and promote academic, professional, and spiritual growth among math and math education majors at Cedarville University. So far, we have had the opportunity to organize biweekly meals, host panel discussions, and facilitate game nights. We also hope to partner with other clubs to promote activities that would interest the greater STEM community, such as trivia nights and guest speakers."



QED Exec: Ellie Burrows, Elise VerSchneider, Catie Riley, David Matej

Dr. Lindsey McCarty accompanied three students, Mary Collins, Ellie Burrows, Annie Luo to the Undergrad Women in Mathematics conference in Nebraska January 31—February 2, 2020. Dr. McCarty wrote, "Everyone enjoyed attending the Nebraska Conference for Undergraduate Women in Mathematics....They attended research talks by undergraduates, plenary talks, sessions on careers in math, applying to graduate schools, and other topics. Mary presented a poster on the "Algebra of ROC Functions." The students all reported that they learned so much and had a wonderful time!"

Math student Ford McElroy presented the paper "How often do two permutations meet in the minimal element?" at the Joint Meetings in Denver, CO earlier this year. He was accompanied by Dr. Adam Hammett who coauthored the paper with him.

Co-Requisite Mathematics Courses at Marshall University

Shannon Miller-Mace - miller207@marshall.edu

In my experience teaching a “co-requisite” mathematics course, I have learned that the teaching model assumes students can succeed at the college level, focuses on college level content, supports with scaffolding as needed, and incorporates best practices for increased success. At Marshall University, we have implemented three “pathways”, each with their own co-requisite model to maximize the success of each student population. We have implemented peer-reviewed OER textbooks, machine-learning course management software, and interactive “mathematical playgrounds”. This allows our curriculum to provide students with multiple representations in which to view mathematics. Faculty in our Mathematics Department have also created “communities of practice” to share experiences and research best practices in teaching and learning. In addition to working closely with the Course Committees to offer quality face-to-face courses, we work with our E-Course Committee to host online and dual-credit co-requisite courses throughout the state of West Virginia. The combination of all these elements has helped our students and faculty find success and enjoyment in these courses. We hope to continue to transition students away from “pre-requisite” course sequences and into co-requisite

Co-requisite College Algebra at Youngstown State University

Emily Dolsak – edolsak@ysu.edu

Course Details: Youngstown State University offers College Algebra with Co-requisite Support using a paired cohort model. All students enrolled in a traditional section of College Algebra (4 credits) are concurrently enrolled in a section of Co-requisite Support for College Algebra (2 credits). Both sections are led by the same instructor and the additional hours are used for extended time/just in time remediation. The class also meets once a week in a computer lab, incorporating ALEKS as an online learning platform and supplemental remediation.

Typical Class: A typical class consists of inquiry based instruction and active learning/group activities. The content presented in class is influenced by scheduled modules and ALEKS reports highlighting what most students are ready to learn. On lab days, some time is utilized for individualized work in ALEKS.

Grading: Co-requisite grades are primarily based on the student’s success in College Algebra. Quizzes, in class activities, and effort based components such as attendance and time spent in ALEKS are included as well. All students in College Algebra (whether they are enrolled in a co-requisite course or not) take the same comprehensive department final. Additionally, all College Algebra students must perform above 50% on the final exam to receive a passing grade in the course (A, B, C).

Department Final/Results: From Spring 2018 to Spring 2019, students taking Co-requisite Support for College Algebra, on average, have performed at the same (or even a slightly higher level) on the final exam compared to those students only enrolled in College Algebra.

Challenges: Some of the major challenges we have faced include students’ mindset and commitment outside of class, large class sizes, and time/content coverage. Instructor shortages, placement and registration have been ongoing issues, as well.

Conclusion: While not without its challenges, the co-requisite model seems to be an improvement over the previously structured prerequisite system. In our experience, the underprepared students enrolling in the college level course with co-requisite support are performing at the same level as their peers who have met the placement criteria and are taking the same course without the additional support.

Just in Time Remediation - My Experience Teaching a Co-Requisite Course

Najat Baji - Sinclair CC - najat.baji@sinclair.edu

Sinclair Community College has provided just in time remediation for four courses based on anticipated needs of student learners. These courses include Introductory Statistics, College Algebra, Quantitative Reasoning, and Finite Mathematics for Business Analysis. Students choosing this option enroll in a co-requisite class taught by the same instructor as their college-level course that has been custom designed from the ground up to ensure their success in the college-level course. Students are given the option of taking the co-requisite either face-to-face or online. The face-to-face option allows more tailored instruction while the online option provides more flexibility. While success is dependent on learner involvement, the co-requisite remediation option has proven to be beneficial to many students in achieving their academic goals by shortening their path to graduation. All of these courses were launched in spring 2017 except for Finite Mathematics for Business Analysis which was launched in spring 2018. In 2017 and 2018, approximately 300 additional students succeeded in college-level mathematics each year over 2016 success rates. A Bridges to Success grant from the Ohio Department of Higher Education was instrumental in successfully introducing these courses.

Nominating Committee Presents Candidate for Program Chair

Christopher N. Swanson is a native Ohioan (but don't call him a Buckeye) who is originally from the Massillon/Canton area and received his B.S. from Denison University in 1994. He received his Ph.D. from the University of Michigan (GO BLUE!) in 1999 under the direction of Thomas F. Storer and immediately joined the faculty at Ashland University where he also served as the Director of the university-wide Honors Program for 12 years. He is currently the Chair of the Department of Mathematics and Computer Science at Ashland University and the Director of Undergraduate Research and Creative Activities for the College of Arts and Sciences. Chris's research interests are combinatorics and probability. Chris is a national Project NExT Fellow (Brown Dot) and is the faculty advisor for the AU Problem Solving Group. Chris has been active in the Ohio Section, having served as President (2016-2018), having been an Ohio NExT Fellow, having served on CONCUR, CONSTUM, the Bylaws Transition Task Force, the Ohio NExT Organizing Committee and the Nominating Committee, having chaired contributed paper sessions, and having given 24 presentations at Ohio Section meetings or Ohio NExT workshops. In 2006, Chris received the national Alder Award from the MAA in recognition for distinguished teaching by a beginning mathematics faculty member. He received the Ohio Section Distinguished Teaching Award in 2014 and the MAA Meritorious Service Award (Ohio Section) in 2019. In his spare time, Chris enjoys watching movies, playing disc golf, cycling, participating in F3 Ashland workouts and participating in the applied probability seminar.



Cartesian Logic: The converse to "I think, therefore I am" : One evening Rene Descartes went to relax at a local tavern. The tender approached and said, "Ah, good evening Monsieur Descartes! Shall I serve you the usual drink?". Descartes replied, "I think not.", and promptly vanished.

Nominating Committee Presents Candidate for Secretary-Elect

Kyle Calderhead is a Professor of Mathematics at Malone University in Canton, Ohio, where he has been teaching since 2007. He received his bachelor's in mathematics from the University of Pittsburgh (1996) and his Ph.D. from the University of Minnesota (2002), which forever changed his view of the weather in Ohio. Originally his professional interests were in combinatorics, and while the field is still near and dear to his heart, many years at two small schools have taught him to enjoy continuing to diversify his background, which now includes statistics, programming, and the intersection of mathematics and art (particularly crochet).



News From Project NExT

Ohio MAA Section NExT (New Experiences in Teaching) is a program for new faculty members. Its goal is to help newer faculty to network with colleagues, to share ideas and experiences that promote professional growth, and to encourage faculty to become involved in the Ohio MAA Section.

Please note that the Ohio NExT schedule has changed significantly in the recent past. If you have attended previously then you will want to pay particular attention to the new schedule. We hope that this new schedule will fit better with attendees' travel plans.

Preceding the Ohio Section Spring Meeting on the morning of Friday, April 3rd, members of Ohio NExT at 10:30 a.m. in the Bowen-Thompson Student Union (BTSU), Room number 308 on the campus of Bowling Green State University. This is a great opportunity to meet old friends and make new ones. The NExTers will spend an hour or so discussing a topic related to the profession.

Ohio NeXT follows right after the conclusion of Ohio Section Spring meeting. On Saturday, April 4th, following the Ohio Section Spring

meeting, the Ohio NExT program will continue in the Bowen-Thompson Student Union (BTSU), Room number 316 on the campus of Bowling Green State University. The program will begin with lunch followed by the workshops from Dr. Judy Holdener (Kenyon College) and Dr. Kathryn Cerrone (University of Akron). Two contributed talks from Ohio NExTers will also be part of the program. Please consider giving a 15-minute contributed talk by emailing the title and abstract to Michael Schroeder (schroederm@marshall.edu).

The Ohio NExT program is free to Ohio NExT fellows. Ohio NExT is open to anyone in the Ohio Section who is in his/her first five years of teaching in Ohio. If this applies to you, please consider joining us this fall or next spring. Contact Chandra Dinavahi (dinavahi@findlay.edu) for membership information and details.

Ohio NExT is coordinated by committee members Chandra Dinavahi of the University of Findlay (dinavahi@findlay.edu), Michal Schroeder from Marshall University (schroederm@marshall.edu) and Elizabeth Haynes-Wiget from Wilmington College (elizabeth_haynes-wiget@wilmington.edu).

Student Activities at the Spring Meeting

Leo Schneider

Student Mathematical Competition

Undergraduate students from institutions of the Ohio section are invited to participate in the tenth annual Leo Schneider Student Mathematics Competition.

This year's competition will take place on Friday from noon until 1:20. Rules and registration information, as well as copies of previous years' problems and their solutions, can be found on the Ohio Section Student Member website, <http://constum.ohiomaa.org/>. Cash prizes (\$150 for first place, \$120 for second, and \$90 for third) will be awarded on Saturday to the top three teams. We encourage student participation in the entire meeting, including student talks, the student pizza party, and the "awards ceremony" on Saturday. Any questions about the competition or other student activities can be addressed to the chair of CONSTUM, Matthew McMullen at mmcmullen@otterbein.edu.

A Problem from the 2020 Leo Schneider Student Mathematics Competition.

Problem 1: For each $a < 0$, consider the line perpendicular to the curve $y = x^2$ at $x = a$. This line intersects the curve at another point. Find the minimum possible value of the x-coordinate of this second intersection point.

Problem 3: Three people, named A, B and C, throw a die alternately. First A throws, then B, then C, and this keeps repeating. What is the probability that A throws the first six, B the second six and C the third six?

Solutions are available at the CONSTUM website, <http://constum.ohiomaa.org/>

Talks by Students

Undergraduates and graduate students are encouraged to submit abstracts for 15 minute talks at the Spring Meeting. Topics may be drawn from any area of mathematics or a related discipline. The presentation may be an expository talk, a recounting of a mathematical internship or a co-op experience, or the results of a research project. It is expected that each talk will be delivered by a single speaker. Each student speaker will receive a certificate acknowledging their contribution to the meeting.

Contributed talks by students, faculty, and others will be given on Friday afternoon and Saturday morning. Talks will be scheduled primarily according to topic and audience level. Student talks are an integral part of the meeting and should be an enjoyable and rewarding experience for all who participate. See the Call for Contributed Papers on page 8 for submission information.

Student Pizza Party

A student pizza party will be held on Friday evening at 7:00 in McMaster 308. There is no charge but meeting registration is necessary. See the Section webpage at www.maa.org/Ohio for online registration.

A Test for Primality? By the Little Fermat Theorem if p is prime and a is not a factor of p then $a^{p-1} \equiv 1 \pmod{p}$ or $a^p \equiv a \pmod{p}$. The converse can be used as a primality test for p by checking if $2^p \equiv 2 \pmod{p}$.

However this does not always work! Can you find the smallest composite q such that $2^q \equiv 2 \pmod{q}$? Note: q is called a Carmichael Num-

Friday - 1:45

Speaker: Jim Fowler - The Ohio State University

Title: *Computer-Assisted Mathematics*

Abstract: People use computers to help with computations, but can computers also help us write proofs? This talk is a friendly introduction to proof assistants, that is, to computer programs which help humans write proofs and verify their correctness. The underlying machinery is "type theory" so we'll spend most of our time getting acquainted with "types." By the end, you will perhaps believe that writing proofs and writing programs are not so different after all. This is a "live" talk in the sense that we'll see real examples running on a real computer, specifically using Agda.

Jim Fowler, Ph.D. is an Assistant Professor of Mathematics at The Ohio State University. His research interests broadly include geometry, topology, and math education. Prior to working at The Ohio State University, he earned an undergraduate degree from Harvard University and earned a Ph.D. from the University of Chicago. Forbes magazine said he "is making calculus go viral."



Friday - 3:00

Speaker: Gordon Swain - Ashland University

Title: *What if Fibonacci had...?*

Abstract: In his *Liber Abaci*, Fibonacci gave a word problem about reproducing pairs of rabbits, which led to the ubiquitous Fibonacci sequence. We ask how things would be different had the original problem given different rules for reproduction. In this talk we will show how to derive new recursive formulas, as well as recounting how students collaborated in this exploration.

Gordon Swain, Ph.D. grew up in Peru and Ecuador, the middle of three kids in a missionary family. His siblings apparently contracted the same horrible disease, eventually acquiring doctorates in English and Romance Linguistics, respectively. Gordon received the B.S. in Physics and Mathematics from Eastern Nazarene College, an M.S. in Mathematics from the University of Vermont, and a Ph.D. in Mathematics from the University of Massachusetts – Amherst. He has been at Ashland University since 1994, teaching a wide variety of topics including statistics, linear and abstract algebra, calculus, and even operations research. He continues to dabble in noncommutative ring theory but mostly gets to explore mathematics of interest to undergraduates. His time at AU has included service as Department Chair and Faculty Senate President, and he has been honored with the AU Taylor Teaching Award, the Academic Mentor Award, and the Ohio MAA Section Teaching Award. At home he hangs out with his wonderful wife, Teresa, and enjoys running and reading. His two sons have fled Ohio to pursue their educations in Utah and New York. Gordon believes the Fibonacci numbers receive way too much attention but is nevertheless willing to give them just a bit more.

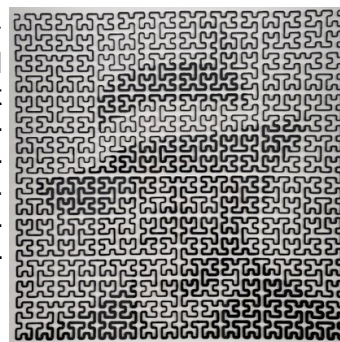


Friday After Dinner Invited Address

Speaker: Judy Holdener, Kenyon College

Title: Illustrating Mathematics at ICERM: Interesting Problems, Visualization and Mathematical Art

Abstract: In the fall of 2019, I participated in the special semester “Illustrating Mathematics” at the Institute of Computational and Experimental Research in Mathematics (ICERM) at Brown University. The program brought together mathematicians and artists who have interests in illustrating mathematical ideas using computational tools. We worked both collaboratively and individually on projects related to mathematical research, public outreach and mathematical art. In this talk, I will present some of my work from this semester, including a portrait of David Hilbert I created with a 3D printer using Hilbert’s well-known space-filling curve. I will also share some highlights from my experience, presenting interesting visualizations and open research problems.



Judy Holdener PhD, is a professor of Mathematics at Kenyon College in Gambier, OH, where she has taught for 23 years. Having grown up in Ravenna, OH, she received her B.S. in Mathematics from Kent State University, followed by her M.S. and Ph.D. degrees in Mathematics from the University of Illinois in Urbana, Illinois. Since earning these degrees, Judy has appreciated having opportunities to experience a variety of academic settings. She started her career at the U.S. Air Force Academy in Colorado Springs, CO (1994-97) where she was a Project NExT fellow, and she has twice taught a quantitative methods course in the Master of Public Policy program at the Harvard Kennedy School of Government (2012, 2015). She has been fortunate to spend sabbaticals at the University of Colorado in Boulder, CO as a visiting associate professor (2004-05), at Carnegie Mellon University in Pittsburgh PA as the Shelly Distinguished Teaching Chair (2012-13), and most recently at Brown University in Providence, RI as a participant in ICERM’s special semester on “Illustrating Mathematics” (fall, 2019).

At Kenyon Judy enjoys collaborating with students on research projects relating to algebra, number theory and dynamical systems. Their work has led to publications in research journals and presentations at conferences. In recent years, Judy has tapped into her life-long interest in art, creating artwork reflecting the nature and beauty of mathematics. She has presented her work at Bridges conferences in South Korea, Finland, and Sweden. Judy currently serves on the *PRIMUS* editorial board where she enjoys working with creative people who share her interests in teaching pedagogy. She has received several teaching awards from the institutions where she has taught, and in 2008 she was awarded the MAA Ohio Section Distinguished Teaching Award. When she isn’t teaching or thinking about mathematics, Judy enjoys art, gardening, Zumba, and spending time with her family. Her husband Eric is a geologist who also teaches at Kenyon, and they have two children, Chase (age 18) and Max (age 13), and a dog named “Pi” (age 2).

Saturday - 9:10 AM

Speaker: Judy Holdener, Kenyon College

Title: *Descartes’ Spoof Perfect Number is Not a Happenstance!*

Abstract: In a 1638 letter to Marin Mersenne, René Descartes reported his discovery of the odd “spoof perfect number” $198,585,576,189 = 3^2 7^2 11^2 13^2$ **22021** $= 3^2 7^2 11^2 13^2$ **19**² 61, which would be an odd perfect number if only 22021 were prime. A number such as this is now known as a *Descartes number*, and at first glance this perfect spin-off might appear to be a curious fluke. However, a closer look reveals that Descartes did not happen upon this number by chance. In this talk we demonstrate that Descartes’ discovery follows naturally from examining the structure of odd perfect numbers – should they exist. In the interest of full disclosure, our approach does rely on the use of a computer, which is something that Descartes did not have!

Saturday - 12:00 PM

Speaker: Katie Cerrone, University of Akron

Title: *To Lecture or Not to Lecture? Is This Really the Question?*

Abstract: There is often discussion of the efficacy of lecture and how much, or little, should be done in the modern classroom. From PBL to the Moore method to flipped classrooms there are ample ways to adjust your teaching style to engage students in learning the material, develop their critical thinking skills and improve student retention of course material. Drawing on recommendations from the MAA Instructional Practices Guide and other sources I will discuss ways to balance lecture with other active learning practices... and I promise not to lecture for the whole hour. J

Katie Cerrone is an Akron Zip through and through. She received her B.S. in Mechanical Engineering from UA in 2004 followed by her M.S. in Mathematics in 2006. After taking a short break to travel she returned to UA as a faculty member in the College of Applied Science and Technology in 2007 and began working on her Ph.D. in Curriculum and Instruction, which she received in 2012. Her research interests are student transition from high school to college and the use of technology to improve instruction. Katie first became active in the section by attending the Ohio NExT workshops, which she has always found extremely worthwhile as she enjoys meeting new section members and learning how others are improving their teaching. She has served as the OMSC Liaison, been a member of CONTEAL and as the Ohio NExT Co-coordinator.



Call for Presenters for Contributed Paper Sessions

Fifteen-minute presentations on any topic of general interest in mathematics or related areas are encouraged for the Contributed Paper Sessions on Friday afternoon and Saturday morning at the spring Ohio Section meeting. Your reports on projects, research announcements, or anything you believe would be of interest to those in attendance are welcome. Contributors should send a title and brief abstract by Friday, March 20.

Online submission with your meeting registration (at <http://sections.maa.org/ohio/>) is strongly preferred, but if necessary, you may submit your title and abstract to the chair of the Program Committee, Moez Ben-Azzouz, by e-mail at moez.ben-azzouz@sinclair.edu, or by U.S. mail at

Moez Ben-Azzouz
Sinclair Community College
Dept. of Mathematics
444 West Third St.
Dayton, OH 45402-1460

Abstracts should be between 25 and 75 words in length and should employ proper English grammar and spelling. One speaker per session is greatly preferred, but two speakers in one session can be accommodated if necessary. Please use only plain text in your title and abstract as the abstract submittal system cannot process TeX or another graphics code.

Meeting Registration

Online registration is preferred. The Section web site at www.maa.org/Ohio for one-stop registration, banquet reservation, and abstract submission will be open after March 1. The deadline for meeting pre-registration and banquet reservations is **March 29**. Abstracts for contributed papers must be submitted by **March 22**.

On-site meeting registration is always available, but last-minute banquet tickets cannot be guaranteed. Early registration helps those arranging the meeting and is always appreciated. Registration will be held beginning 12:00 p.m. on Friday on the 2nd Floor of the Bowen-Thompson Student Union and will continue Saturday morning at 8:00 a.m.

Meeting participants who are unable to register online at www.maa.org/Ohio may register by mail by sending the following information: name, affiliation, address, phone, e-mail address (if any), type of position, and banquet buffet reservation. Send with check, payable to Ohio Section MAA, for applicable fees [registration fee (\$45 ordinary registration, \$20 retired or part-time, no fee for students or first-time attendees), banquet buffet fee (\$30 per person)] to: Ohio Section MAA Fall Meeting, c/o Gordon Wade, The University of Akron, Department of Mathematics, Akron, OH 44325-4002. Phone: 330-972-6829. Registration by e-mail will be pending receipt of registration fees.

Annual Meeting Program

All events except where noted will take place in the Bower-Thompson Student Union (BTSU).

Friday, April 3

12:00-4:00	Registration	BTSU, 2nd Floor
12:00-1:20	Leo Schneider Student Team Competition	BTSU 314, 315, 316
12:00-1:00	Committee Meetings:	
	CONCUR (Curriculum)	BTSU 306
	CONSACT (Section Activities)	BTSU 307
	CONTEAL (Teacher Education & Licensure)	BTSU 308
1:00-4:00	Vendor & Book Exhibits	BTSU, 2nd floor
1:30-1:45	Welcome and Announcements	Multipurpose
1:45-2:45	Invited Address: "Computer-Assisted Mathematics" Jim Fowler	Multipurpose
2:45-3:00	Break	
3:00-4:00	Invited Address by Ohio MAA Distinguished Teaching Award recipient: "What if Fibonacci had...?" Gordon Swain	Multipurpose
4:10-5:50	Executive Committee Meeting	BTSU 309
4:15-6:30	Contributed Paper Sessions	Sky Bank A&B, BTSU 313, 315, 316, 227, 208
6:30-7:00	Social Time	
7:00-8:00	Student Pizza Party	McMaster 308
7:00-8:00	Banquet	Multipurpose
8:00-9:00	Invited Address: "Illustrating Mathematics at ICERM: Interesting Problems, Visualization and Mathematics Art" Judy Holdener	Multipurpose
9:00	Business Meeting and Presentation of Teaching Award	Multipurpose

Saturday, April 4

8:00-10:00	Registration	BTSU 2nd floor
8:00-10:00	Book Vendors and Exhibits	BTSU 2nd floor
8:00-8:50	Coffee and Pastries	BTSU 2nd floor
8:15-8:50	Committee on Local Arrangements	TBD
8:15-8:50	Executive Committee Meeting (if needed)	TBD
9:00-9:10	Welcome and Announcements; Student Competition Results	Multipurpose
9:10-10:10	Invited Address: "Descartes' Spoof Perfect Number is Not a Happenstance!" Judy Holdener	Multipurpose
10:10-10:30	Break	
10:30-11:45	Contributed Paper Session	Sky Bank A&B, BTSU 314, 315, 316, 227, 208
11:45-12:00	Break	
12:00-1:00	Invited Address: "To Lecture or Not to Lecture? Is This Really the Question?" Katie Cerone	Multipurpose
1:00-1:10	Closing Remarks	Multipurpose

Event locations are subject to change. Check the official program you receive when you register for the meeting in the 2nd Floor of BTSU. For updated meeting information, please visit Ohio MAA Section website <http://sections.maa.org/ohio/>

The highest moments in the life of a mathematician are the first few moments after one has proved the result, but before one finds the mistake. .

2020

Welcome

BGSU | Conference & Event Services
BOWLING GREEN STATE UNIVERSITY

Ohio Mathematical Association of America



Driving Directions to BGSU

From the north or south via Interstate 75: Use Exit 181 (OH 64—105 E. Wooster St). Go west

From the east or west via the Ohio Turnpike (I-80 and I-90) - Use Exit 64 (Perrysburg). Follow I-75 South to Exit 181 (OH 64—105 E. Wooster St). Go west

From the east or west via U.S. Route 6: Stay on U.S. 6. At the I-75 Interchange, follow I-75 north to the next exit - Exit 181 (OH 64—105 E. Wooster St). Go west.

Events are being held in the Bowen Thompson Student Union (BTSU), with parking in lots 7B, 7C, and 7D which are directly adjacent the BTSU.

Parking Directions: Take I-75 to Exit 181 (Wooster St / Rt 64), and head west on Wooster. After 1.3 miles on Wooster, turn right on Thurstin (there is a traffic light). Then in less than a quarter mile, look for a sign on the right indicating Lots 7 and the BTSU. Turn in there and bear left, following the signs to Lot 7B-7C (be careful to avoid lot 7A). The entrance to the BTSU is prominently located on east side of the parking lot.

Lodging Information

Best Western "Falcon Plaza" (adjacent to campus and the nearest to the conference venue). We've got 20 rooms in this block. Reservations must be made by March 6th. Price \$91.67. People should call (419) 352-4671, or use the following link: https://www.bestwestern.com/en_US/book/hotel-rooms.36052.html?groupId=H60EC5Z2

Holiday Inn Express (about 1/2 mile from campus). We've got 37 rooms in this block. The group code is "OSA". People can call (419) 353-5500, or register online at <https://www.ihg.com/holidayinnexpress/hotels/us/en/bowling-green/bwroh/hoteldetail>

Interesting Theorem: All positive integers are interesting. Proof: Assume the contrary. Then there is a low-est non-interesting positive integer. But, hey, that's pretty interesting! A contradiction!

2019-2020 Ohio Section Officers and Committees

ELECTED OFFICERS

President

Katie Cerrone-Arnold, University of Akron
kc24@uakron.edu (2020)

Past-President

Chris Swanson, Ashland University
cswanson@ashland.edu (2019)

President-Elect

David Stuckey, Defiance College
dstuckey@defiance.edu (2022)

Section Representative

Daniel Otero, Xavier University
otero@xavier.edu (2021)

Secretary

Barbara D'Ambrosia, John Carroll Univ.
bdambrosia@jcu.edu

Treasurer

Tom Wakefield, Youngstown State Univ.
tpwakefield@ysu.edu (2022)

OTHER OFFICERS

Department Liaisons Coordinator

Chris O'Connor, Shawnee State Univ.
coconnor@shawnee.edu (2020)

Webmaster

Darren Wick, Ashland University
dwick@ashland.edu (2020)
Michael Schroeder, Marshall University
schroederm@marshall.edu (2022)

On-line Registration

Zhijun Yin, University of Akron
zyin@uakron.edu (2022)

Newsletter Editor

Brian Shelburne, Wittenberg University
bshelburne@wittenberg.edu (2022)

Ohio Project NExT Co-Coordinators

Chandra Dinavahi, U. of Findlay
dinavahi@findlay.edu (2021)
Michael Schroeder, Marshall University
schroederm@marshall.edu (2022)
Liz Haynes-Wiget, Wilmington College
elizabeth_haynes-wiget@wilmington.edu (2022)

OhioMATYC Liaison to OhioMAA

Jim Anderson, University of Toledo
jim.anderson@utoledo.edu (2020)

OCTM Liaison

Liz Haynes-Wiget, Wilmington College
elizabeth_haynes-wiget@wilmington.edu (2021)

Archivist

Daniel Otero, Xavier University
otero@xavier.edu (2020)

COMMITTEES

* Denotes committee chair. Elected Officers and Committee Chairs are voting members of the Executive Committee. Terms expire at the end of the Spring meetings of the year listed. See the Bylaws.

Program Committee

*Moez Ben-Azzouz, Sinclair Comm. C. (2020)
Matt Davis, Muskingum University (2021)
Najat Baji, Sinclair Comm. C. (2022)

CONTEAL

*Aaron Blodgett, Univ of Findlay (2020)
Laurie Dunlap, University of Akron (2020)
Najat Baji, Sinclair Comm. C. (2021)
Bradford Findell, Ohio State University (2021)
Ian Hogan, Central State University (2021)
James Fitzsimmons, Wilmington Coll. (2022)

CONSTUM

*Matthew McMullen, Otterbein Univ. (2020)
Alyssa Hoofnagle, Wittenberg Univ. (2020)
Jaki Chowdhury, Ohio Northern Univ. (2021)
Matt Davis, Muskingum University (2022)
M B Rao, University of Cincinnati (2022)
Chris Swanson, Ashland University (2022)

CONSACT

*Jim Anderson, University of Toledo (2021)
Lokendra Paudel, University of Akron (2020)
Zhijun Yin, University of Akron (2020)
Ruma Dutta, Ohio State University (2021)
Won Chul Song, University of Findlay (2021)
Aurel Stan, Ohio State University (2019)

CONCUR

*Chandra Dinavahi, U. of Findlay (2022)
Kelly Bubp, Ohio University (2020)
Anup Lamichhane, Ohio Northern U. (2021)
Giorgi Shonia, Ohio Univ. Lancaster (2021)
Diana Eames, University of Akron (2022)
Glen Lobo, Sinclair Comm. C. (2022)

OTHER COMMITTEES

Nominating Committee

Barbara Margolis, Cleveland St. U. (2020)
Chris Swanson, Ashland University (2021)
Katie Cerrone-Arnold, U. Akron (President)
Barbara D'Ambrosia, John Carroll Univ. (secretary, nonvoting)

Teaching Award Committee

*David Stuckey, Defiance C. (Pres-Elect)
Adam Parker, Wittenberg Univ. (2020)
Gordon Swain, Ashland University (2021)
Barbara D'Ambrosia, John Carroll Univ. (secretary, nonvoting)

LOCAL ARRANGEMENTS FOR MEETINGS

Spring 2020: BGSU
Gordon Wade, gwade@bgsu.edu

Fall 2020: Ohio University—Lancaster
Giorgi Shonia, shonia@ohio.edu

Spring 2021: Kent State

Fall 2021: University of Toledo
Jim Anderson: jim.anderson@utoledo.edu

Please report any errors or omissions to the Newsletter Editor: Brian Shelburne at bshelburne@wittenberg.edu

The shortest math joke: let epsilon be < 0

Calendar of Up and Coming Events

Ohio Section Meetings

Spring 2020 Annual Meeting, April 3 - 4
Bowling Green State University, Bowling Green, OH

Fall 2020 Section Meeting, Oct 23, 24, 2020
Ohio University—Lancaster, Lancaster, OH

Spring 2021 Annual Meeting Mar. 26-27
Kent State University. Kent OH

Fall 2021 Section Meeting, University of Toledo

National MAA-AMS

MathFest, July 29 - August 1, 2020, Philadelphia, PA;
Early Bird Registration deadline is May 1, 2020

Annual Joint Meetings, January 6 - 9, 2021,
Washington, D.C.

MathFest, August 4 - 7, 2021, Sacramento, CA

AMS Annual Joint Meetings, January 5 - 8, 2022,
Seattle, WA

MathFest, August 3 - 6, 2022, Washington, D.C.

AMS Annual Joint Meetings, January 4 - 7, 2023

Other Meetings of Interest

T³ International Conference, March 13 - 15, 2020
Dallas, TX

International Conference on Technology in Collegiate
Mathematics (ICTCM), March 12 - 14, 2020, Orlando,
FL

NCTM Centennial Annual Meeting and Exposition, April
1 - 4, 2020, Chicago IL

Joint Statistical Meetings, August 1—6, 2020
Philadelphia, PA

AMATYC Annual Conference, November 12 - 15, 2020
Spokane, WA

Second Joint Meeting of CAIMS & SIAM, July 6—10,
2020, Toronto, ON

Other Meetings: Ohio and Near States

OhioMATYC Spring Meeting, Fri, April 3, 2020 – Sat,
April 4, 2020 Mohican Lodge & Conference Center,
Perrysville, OH:

Kentucky Section MAA Section Meeting,
March 27-28, 2020, Asbury University - Wilmore, KY

Indiana Section MAA Section Meeting
April 3-4, 2020, Indiana Convention Center -
Indianapolis, IN

Allegheny Mountain Section MAA Meeting, April 3 - 4,
2020, Grove City College, Grove City, PA

Michigan Section MAA Meeting April 3-4, 2020, Grand
Valley State University-

OCTM 70th Annual Conference, October 15—16,
2020, Sharonville OH

AMS Fall Central Sectional Meeting, October 20 - 21,
2018, University of Michigan, Ann Arbor, Ann Arbor, MI

OHIO FOCUS

The newsletter of the Ohio Section of the
Mathematical Association of America, which first
appeared in 1973, is published twice yearly in
time to reach members before the fall and
spring meetings. Newsletters are published
online at www.maa.org/Ohio. Notification emails
are sent using addresses provided by the MAA.

Editor: Brian Shelburne,
bshelburne@wittenberg.edu
Department of Mathematics and Computer
Science
Wittenberg University
Springfield OH 45501

The deadline for the next newsletter is **August
15, 2020**. E-mail copy is preferred. Please
send copy to the editor (see above), and also to
the Section Webmaster, Darren Wick, for
posting on the web (dwick@ashland.edu).