

Oberlin College Mathematics Department Newsletter

Spring 2018

Faculty Updates

Bob Bosch '85 gave talks on his ongoing “Opt Art” project at the 2017 Bridges Conference in Waterloo, ON; Brooklyn Technical High School in Brooklyn, NY; the Joint Mathematics Meetings in San Diego, CA; and G4G13, the 13th Gathering for Gardner in Atlanta, GA. His twitter handle is @baabbaash (and is pronounced the exact same way you’d pronounce his name).

Jack Calcut had an honors student who will be attending Purdue for graduate studies. Jack is working on two papers with past honors students, and he submitted a paper with a long term colleague.

Susan Colley has been on sabbatical for 2017-18, but has remained in Oberlin. She completed her first year (of five) as Editor-in-Chief of *The American Mathematical Monthly*. To date, she’s seen about 2100 manuscripts go by. She reports, “In my spare time, I’m also still trying to do a little math of my own. I’m looking forward to being back in the classroom this coming fall.”

Colin Dawson began the year with a bang by taking his research student Bill Huang ('17) to Sydney Australia, where they presented a paper at the International Conference on Machine Learning (ICML). In the fall, Colin kicked off a new collaboration with Oberlin neuroscience faculty member Leslie Kwakye and math/neuroscience double major Tao Hong ('20) doing statistical modeling of individual differences in audiovisual sensory integration, and gave a talk at the College of Wooster as part of the Ohio Speakers’ Circuit. In the spring, Colin taught a new class on data computing and visualization, some of which took him out of his comfort zone and all of which was a lot of fun. This summer he is looking forward to spending some time in Seattle, visiting his sister-in-law and brand new nephew and starting a new collaboration on Bayesian time series analysis with University of Washington statistician Emily Fox.

Ben Linowitz has continued to study the geometry and topology of arithmetic locally symmetric spaces. He had two papers accepted this academic year, both of which were joint work with D.B. McReynolds, Paul Pollack and Lola Thompson. These papers will appear in *Comptes Rendus Mathématique* and *Inventiones Mathematicae*. He also submitted three papers. These papers represent

a solo work, the latest paper in an ongoing collaboration with Sara Lapan and Jeff Meyer and work with D.B. McReynolds and Nick Miller. All of these papers concern the study of geodesics and totally geodesic submanifolds of arithmetic manifolds.

Ben gave six talks outside of Oberlin this academic year. These include colloquia talks at the Universidad de los Andes (Bogota, Colombia) and California State University at San Bernardino, an invited talk on his Oberlin first year seminar (FYSP 028 Cryptography) at the MAA Session on Innovative Teaching Practices in Number Theory at the 2018 Joint Mathematics Meetings and a talk about how he became a mathematician at the Wake Forest University REU.

Ben had the pleasure of mentoring his first honors student, Nicholas Wilcox, who completed a wonderful project on elliptic curve cryptography and some related cryptosystems.

This summer Ben is looking forward to co-organizing an AMS Mathematics Research Community workshop in Whispering Pines, RI and co-teaching a course on arithmetic groups (in Spanish!) at the AGRA 2018 conference in Cordoba, Argentina.

Chris Marx has been on leave during 2017-18. He spent the fall semester at the University of Kentucky at Lexington, where, when not proving theorems, he enjoyed exploring the wonders of the Bourbon trail. After a quick trip to his native Vienna, Austria, Chris spent January through April of 2018 as a guest of the department of mathematics at the University of California at Irvine. After a year of leave, he is now happy to be back at Oberlin for the remainder of the summer. In addition to working on his research in mathematical physics, during 2017-18, Chris also developed a new class which will explore how questions from music influenced the development of mathematics, with a special focus on analysis. The class will first be offered in Spring of 2020.

Lola Thompson

Lola Thompson is happy to be back at Oberlin after spending the previous academic year on sabbatical at the Max Planck Institute for Mathematics and the Mathematical Sciences Research Institute. She had several new

papers accepted for publication, including a co-authored paper with B. Linowitz, D. B. McReynolds, and P. Pollock that will be published in *Inventiones Mathematicae*. Over the past year, Lola gave invited talks in the US, Canada, Germany, Poland, Lithuania, Peru, and Cuba (the talks in Peru and Cuba were given in Spanish!). She recently received a grant from the Banff International Research Station to organize a Spanish-language mathematics workshop in Oaxaca in August 2019. Lola is also very excited that she will have the opportunity to teach a new first-year seminar that she designed during the upcoming academic year. The course will be called “Form and Formula: the Interplay Between Mathematics and the Arts.”

Jim Walsh gave a plenary talk at the 20th Annual Chicago Symposium Series on Excellence in Teaching Mathematics and Science: Research and Practice, held at Northeastern Illinois University/North Park University in Chicago. The symposium series has been convening math and science faculty from the Chicago area for the past twenty years with the goal of improving undergraduate math and science education in and around Chicago. Jim spoke about his experiences teaching the mathematical modeling of climate.

Jim also published the article “Diffusive Heat Transport in Budyko’s Energy Balance Climate Model with a Dynamic Ice Line” in the journal *Discrete and Continuous Dynamical Systems — Series B*. The paper concerns the mathematical analysis of a conceptual climate model that couples surface temperature to a dynamic ice sheet.

Jeff Witmer had two papers appear. “To Bayes or Not to Bayes (The Answer is Yes)” appeared in *International Handbook of Research in Statistics Education*. “Bayes and MCMC for Undergraduates” appeared in *The American Statistician*. He also gave a talk on “Bayes for Beginner: No Need to Hesitate” at the Joint Statistics Meetings in Baltimore last summer.

Kevin Woods continued his collaboration with Tristram Bogart (OC ’01) and John Goodrick, aided by two cross country visits (Kevin to San Francisco, and Tristram to Oberlin as the 2018 Lenora Lecturer). This summer, he will travel to the International Symposium on Mathematical Programming in Bordeaux (where he promises to concentrate more on the math than the wine) and travel for fun to East Africa (where he promises to concentrate more on the lions than the math).

Robert Young

A Pilgrim’s Progress

For those who have patiently followed my efforts over the past several years in preparing a textbook on *The Infinite*, this will be my last entry. A brief summary of previous work may be of some help. By the end of the first year, I had succeeded in reaching the number 2; by the end of the second year, I had reached 4; and, by the end of the third year, 6. Dismayed by what appeared to be an obvious progression, I decided to begin at the other end and then work backwards. “Working backwards” — also known as the “method of analysis” — is, or so I have been told, one of a mathematician’s finest tools. There is even a proverb: “A wise man begins in the end. A fool ends in the beginning.” I would not play the fool.

In response to my plan, I received a great many letters and emails from former majors, most of them critical. Some pointed out — in language dripping with sarcasm — that the plan was patently absurd. Surely I had to know that there was no “other end” for the simple reason that there was no largest integer. Several claimed that this was obvious, others that it needed a proof, which they were generous enough to provide. One recent graduate used the occasion to question what I really meant by placing so much emphasis on the “snowflake” curve.

I answered each and every correspondent with the utmost care and consideration. Of course I knew that there was no largest integer. I had used the phrase “at the other end” simply — if not somewhat obliquely — to indicate that I would begin at “aleph-null,” the smallest transfinite number.

The awakening was as quick as it was jarring. I dreamed of a great hotel in one of the great cities of the world, a hotel with infinitely many floors, one for each natural number. The views from the higher floors were breathtaking, but they came at a steep price, the cost increasing by half on each successive floor. As I stood in the lobby, waiting endlessly for an elevator — and hoping they weren’t all going up — I mused about the average price of a room in such a great hotel and how it might feel to mingle, at least for a little while, with the top one percent. At length the elevator doors opened and I got in. As I leaned forward to press 6, a light suddenly burst upon me: there was no 13th floor. Everything had become clear. Aleph-null minus one was still aleph-null. Working backwards would serve no purpose for I would go nowhere. “Hier stehe ich. Ich kann nicht anders.”

Student News

The Class of 2018: Congratulations to our majors!

James Capuder, Jonathan Carroll, James Cumberbatch, Simon Ever-Hale (Dec. '17), Alexander Fox, Bangchen Gong, Sicheng Guo, Annie Goodridge, Rong Guan, Zihao Guo (Dec. '17), Torrin Hallett, Benjamin Hamilton, Owen Harrington, Toby Harvey, Perry Hutcheson-Bleiberg, Bennett Jackson, Matthew Kornberg, Louisa Liles, Emma Marshall, Hannah Pieper, Nathan Rice, Matthew Sarro, Peter Stefek, Jingtian Wang (Jan. '17), Jingyuan Wang, Nicholas Wilcox, Hanyu Zhang, Naiyuan Zhang.

Honors Students. In 2017-18, three Oberlin students wrote Honors theses in mathematics:

- **James Cumberbatch** worked with Jack Calcut. His thesis is titled “The Kakeya conjecture.”
- **Hannah Pieper** was supervised by Elizabeth Wilmer. Her thesis is titled “Comparing two thickened cycles: a generalization of spectral inequalities.”
- **Nick Wilcox** worked with Ben Linowitz. His thesis is titled “A computational introduction to elliptic and hyperelliptic curve cryptography.”

Student Awards. **Hannah Pieper** received this year’s Rebecca C. Orr Memorial Prize. The John D. Baum prize was awarded to **Liam Axon** '21 in recognition of his strong performance on the 2017 Putnam Exam.

Department Activities

The Math Department hosted four high-profile speakers who delivered our annual named lectures:

Craig Guilbault (University of Wisconsin-Milwaukee) was this year’s Distinguished Visitor. He gave a series of guest lectures in Jack Calcut’s Topology class and gave the Fuzzy Vance public lecture on “Proof or swindle: the surprising effectiveness of a sketchy technique.”

Henry Segerman (Oklahoma State University) gave the Tamura-Lilly Lecture on “3D shadows: casting light on the fourth dimension.”

Tristram Bogart '01 (Universidad de los Andes) gave the Lenora Young Lecture on “Determinants vs. perminants.”

Kate Petersen '98 (Florida State University) was this year’s Honors Examiner. In addition to probing the depths of our honors students’ mathematical knowledge, she gave a talk entitled “Normal distribution on the circle.”

Alumni Updates

Jim (Jack) Rutherford Officially retired from employer of over 35 years February 1. Working was easier. Still sorting financial and medical coverage issues and deciding how to use the new freedom when it comes. I could go on but I’m too busy and you probably wouldn’t find it interesting.

Danny Kleinman Two years ago: I was elected to American Backgammon Hall of Fame, primarily for my many books and columns about the game, including mathematical theories about probabilities of winning races, and the use of the doubling cube, especially in match play.

Two years ago: I had a “Ramanujan Moment” while stuck in traffic behind another automobile for five minutes. Glancing at the numeric portion of the license plate of the automobile in front of me, I saw 325 and thought instantly, “That is the smallest integer that is the sum of two squares in three different ways.” Yes; you can check it out for yourself as I did. If you recall, as I do from hearing Professor Angelo Margaris tell it in a math class in the autumn of 1956, G.H. Hardy saw a license plate number 1729 on the cab he rode to visit Ramanujan in a hospital, and thought it was nothing special, but Ramanujan instantly identified it as the smallest integer that is the sum of two cubes in two different ways. Sitting in the back of the classroom, I thought instantly that 91 fit that description. You can check that out also, if you remember to take cubes of negative integers into account.

About a year and a half ago: my work on Election Systems was publicized (and some of it was explained) in an article by Jack Wathey, “Is There a Better Way to Elect a President?” on the Huffington Post website.

Less than a year ago: my solution to the National Basketball Association’s problem with “tanking” was publicized by Wathey in another article, “Silver Points,” on the Huffington Post website.

One year ago: I developed Rhombus Roots as an easily calculable approximation to Square Roots.

This year: I proved a theorem that the nearest integer to the square root of an integer equals the square root of the perfect square nearest to the integer.

The math isn’t very hard. The trick is how to apply easy math.

Harold (Skip) F. Mattson, jr. '51 In Puerto Rico each year for two weeks or so I collaborate on a paper that we hope will be published one day. It applies coding theory to group representations.

While in PR I also give a talk aimed at undergraduates. This year I generalized problem 11992 from the Monthly.

Kenneth Longman, '54 Not much news after 20 years of retirement. Math led to long career building and applying models to marketing and advertising decision making.

Ernest B. Hook, '56 I am still working on a few simple questions in mathematics applied to human genetics.

Bob Pendleton, '58 This will be our 18th year on the road – see our website at www.bobandelsa.com – after which we plan to rent a tiny place in California.

Annie Laurer Alexander Selden, '59 In February 2017, my husband, John Selden, and I were awarded the the Mathematical Association of America's Special Interest Group on Research in Undergraduate Mathematics Education's Inaugural Award for Excellence in Mentoring and Service. In June 2017, I presented a plenary address, "40+ Years of Teaching and Thinking about University Mathematics Students, Proofs, and Proving," to the Canadian Mathematics Education Study Group's Annual Conference in Montreal, Canada.

Emmett Keeler, '62 My wife came back to Santa Monica after leading the American Friends Service Committee for seven years. I still enjoy teaching at the RAND graduate school and UCLA Public Health School, but have cut way back on research.

Kenneth M. Weiss, '63 I was never a professional mathematician. But my whole career, from being an Air Force meteorologist for a few years, to decades as a professor of genetics, involved mathematics to some extent. The most important thing, however, is that my experience as a (not very distinguished) Math major, was the way that it encouraged critical (in the sense of 'logical') thinking. It benefits me today, and every day. It enables one to see things in one's profession but also in daily life with, I think, a more penetrating clarity than other ways of thinking can do. I'm forever grateful for my Obie years!

Karen Fuson, '65 The publisher of my K to G6 math program Math Expressions is finally publishing my prekindergarten program. That should help more children enter kindergarten ready to be on grade level. I've put a lot of my research publications about learning and teaching math and classroom videos and Teaching Progressions outlining the Common Core State Standards in Math on my website karenfusonmath.com. Check it out and share it!!! In these crazy times, I'm proud to be an Obie!!!!

Mary McNab Dart, '66 I have retired to Asheville, NC, where I am involved in dancing (English Country

Dance, International Dance, and Garland Dance), in music (accordion, recorder, piano, and song writing), and in groups focusing on books and writing. My expertise in geometry has helped me as I dabble in various craft projects (floor cloths, paper sculpture, watercolors, shoe making). It is a gift to have the time for these things and to be surrounded by the beautiful Appalachian mountains.

Douglas E Holley, '66 I continue to teach mathematics, now as a long terms substitute teacher since retiring as Director of Mathematics, K-12, for the Hingham (MA) Public Schools five years ago. It was wonderful to see the professor I most respected, Mr. Goldberg, at the Math Department reception at my 50th reunion in 2016. I look forward to seeing people at my wife's 50th reunion this coming May.

Thomas Bradford Gregory, '67 We enjoyed my 50th reunion last spring, including pre-reunion activities in Cleveland. I helped to edit our Reunion Book. I am still working with a colleague in Russia on a project which we have been trying to complete for more than fifteen years.

John Barrer, '68 I retired from The MITRE Corporation 7 years ago where I worked on modeling the flow of traffic into airports of the future. My son is now a first-year student at Oberlin so I have had occasion to visit there. During my last visit I had a great visit with George Andrews who is living out at Kendall. He was the head of the math department when I was a student. I learned that his grand daughter, Sarah who lives near me in Washington and was a math major at Oberlin, is a 7th generation Oberlin graduate. Their earliest ancestor graduated from Oberlin in 1837. My friend Klaus Truemper recently published a book titled, "The Construction of Mathematics, The Human Mind's Greatest Achievement." which I think would be a good read for a college student who wants to get the big picture while working through the details in classes.

Deborah Gray, '72 I'm in my 31st year at Concord Academy, currently teaching calculus 1/4-time and still serving as academic scheduler 1/2-time. We need another math teacher for 2018-19; anyone interested? I'm looking forward to visiting Kendal at Oberlin in June as part of my ready/waiting list application – aiming to retire in 2021.

Robert (Bob) Kelley, '74 I retired from AT&T 3 1/2 years ago, after almost 36 years with Bell Labs and various AT&T organizations. For the last 3 years I've been spending 2 (partial) days a week doing volunteer math tutoring at our local community college, enjoying using my math skills with young students at a wide variety of math proficiency levels. Also one day a week baby-sitting for twin grand-daughters (2 1/2 years old now),

and started a contemporary folk music concert series (Earth Room Concerts) at our UU church.

Margaret Cheney, '76 Now I'm back to my usual teaching and research at Colorado State University (Fort Collins), after spending the fall of 2017 at the Institute for Computational and Experimental Research in Mathematics, the NSF-supported math institute on the Brown University campus. I was one of the organizers for the semester-long program "Mathematical and Computational Challenges in Radar and Seismic Reconstruction".

The defense industry has a huge need for technically trained US citizens! To work in radar signal processing, I recommend that math students get a good background in applied math, and take a course on electromagnetic theory and a course on statistical detection and estimation theory, and if at all possible do a summer internship at a government defense lab or defense contractor. Such mathematicians will be ready for a great career tackling the very interesting and challenging mathematical problems that arise in the field.

Tom Dieterich, '77 I officially retired from Oregon State in June 2016, but I continue to do research and supervise students. I think of it as a never-ending sabbatical. I'm part of the TAHMO project (tahmo.org) that seeks to deploy and operate a network of 20,000 weather stations throughout sub-Saharan Africa. My role is data quality control, so I'm working on methods for detecting bad data and diagnosing broken sensors. We are combining statistical anomaly detection with probabilistic diagnosis. The TAHMO network seeks to improve agricultural productivity, disease management, and many other things that benefit from improved weather data and weather forecasts.

Using some of the same tools, I'm studying how to make machine learning systems robust to the "unknown unknowns". How can an AI system detect that its models are incorrect? How can it fix them?

My wife and I have been traveling more now that we are retired. Recent trips to Costa Rica and southern Africa provided many opportunities for wildlife viewing, especially birding.

Peter & Jane Jaffe, '78 Jane and I met at Oberlin in the 1970s—another notch in the statistics of happily married couples who met as Obies. I still have fond memories of the Math Dept., but after getting my double degree in music and math I went into music (sorry!) and have been an orchestra conductor for decades—now conducting the Stockton Symphony, Auburn Symphony, and Folsom Lake Symphony, plus guest-conducting.

But if space permits I've got a whimsical math anecdote and challenge question. My brother Michael (who also

spent some undergrad years at Oberlin) was at one point teaching high school algebra. He gave the kids an exam problem that involved combining terms and simplifying—and kids LOVE to be able to cancel things, because they get to make slashes through numbers or variables. The thing boiled down to $(64*y^3)/(16*y^3)$. One kid canceled the y^3 on top and bottom with great relish, but didn't stop there. He canceled the "6" in 64 on top with the "6" in the 16 on the bottom, getting $4/1 = 4$. . . which is correct! An argument ensued. My brother marked the kid's paper wrong, telling him that such a process almost never works, and the kid replied "What's your problem? It's the right answer, isn't it?"

So the challenge is: are there any other pairs of numerators/denominators for which such "illegal" cancelling would actually yield a correct answer? Obviously one could do the same with $640/160$, $6400/1600$, and so on, but beyond these trivial modifications of $64/16$, can it work for any other pairs of whole numbers—with any number of digits possible in both numerator and denominator?

Alan Frank, '79 Several years ago, I came up with a problem about how to divide M muffins evenly among S students in order to maximize the size of the smallest piece (and thereby hopefully minimize crumbs). The problem was shortlisted by a national organization of math teachers who were looking for interesting questions for each of the twelfth grades and eventually came, via Gathering for Gardner, to the attention of Bill Gasarch at UMD, who joined forces with some other researchers to produce a long paper (<https://arxiv.org/pdf/1709.02452.pdf>) on the question. Recently, he came up to MIT to give a talk on the problem and we had an opportunity to brainstorm further lines of research.

My wife Nina and I live in a new, ecological house in Amherst, Massachusetts; our daughter Sophie is at Olney Friends School and our son Julian is beginning architecture study at RISD. This fall, I will be in about my 20th long fundraising bike ride, Will Bike 4 Food.

Chris Leary, '79 I've been spending the 2017-2018 academic year on sabbatical in Washington, DC. I have been working in the Bureau for Global Health at the US Agency for International Development as a AAAS Fellow. It's been a fascinating view inside of the workings of the federal government, and a chance to broaden my mathematical skills to include more work with data, and more work with public health professionals.

Peter David, '81 Having fun in a healthcare IT startup, MedicalCue, using computer systems to help guide nurses and doctors as the care for babies in the first seconds of life. Lots of fun math going on behind the scenes. The company is actively looking for both labor and delivery hospitals and investors, across the

US and globally. We hope our work will raise the global IQ, as well as saving babies.

Joanne Roth Wendelberger, '81 The American Society for Quality (ASQ), Statistics Division has recognized Joanne Roth Wendelberger, Oberlin Class of 1981, with the William G. Hunter Award. The award is named in honor of the ASQ Statistics Division's first chair, William G. Hunter. It is given annually to the individual who exemplifies Hunter's most enduring qualities of excellence in statistics as a leader, a communicator, a consultant, an educator, an innovator, an integrator of statistics with other disciplines and an implementer who obtains meaningful results. Dr. Wendelberger is a Scientist at Los Alamos National Laboratory.

Steven Finch, '82 After three years working as a statistical programmer at the Boston University School of Public Health and ten years teaching as a preceptor at the Harvard University Statistics Department, I am currently Research Computing Specialist at the MIT Sloan School of Management. The second volume of my encyclopedia "Mathematical Constants" will be published by Cambridge University Press within a year. I remember Oberlin warmly.

Anne Bretzfeld Ostroff, '82 I'm still a freelance copy editor, working mainly on medical books. My daughter graduated from the Maryland Institute College of Art and is a professional painter who has had gallery shows! My son is a junior at the U. of Rochester, majoring in, of course, math.

Christl Donnelly, '88 I received an honour from the Queen this year. I have been awarded a CBE (Commander of the Order of the British Empire <https://www.thegazette.co.uk/notice/2937914>) "For services to Epidemiology and the Control of Infectious Diseases". From August, I will be Professor of Applied Statistics at University of Oxford (80%) while retaining my post of Professor of Statistical Epidemiology at Imperial College London (20%).

Chris Andrews, '90 I'm proud of my daughter Abby Andrews graduating from Oberlin College this spring with a computer science major and an NCAC Basketball Tournament Championship.

Dan Frankowski, '91 I live in Minneapolis. I work remotely as a data scientist for Pinterest. I've released four albums. The latest is "Thought Versus Emotion" (Frankhouse) in 2009. Email me if you're in the mood.

Robert Levy, '94 On Mar 7, Rob Levy will celebrate his 5th anniversary as a NASA federal employee (having previously been a NASA contractor). He is the team lead for the "dark target" aerosol retrieval (<http://darktarget.gsfc.nasa.gov>), with the purpose being to use satellites and other tools to quantify the global

distribution, evolution, and impacts from smoke, dust, and other particles in the lower atmosphere. With 18 additional legs in his Maryland household (wife = Deborah, kids = Sam (14) and Jordan (11), Clover (dog), Charlie and Cinder (cats)), he keeps himself reasonably busy. Reminding himself of his Oberlin days, he occasionally plays pickup Ultimate, and recently dumped too much cayenne pepper into a pot of veggie chili.

Kim Ekey Roth, '96 is a Professor of Mathematics at Juniata College and teaches math, statistics, and data science. She and her family live a block away from Juniata in Huntingdon, Pennsylvania.

Sean Gavin, '98 I now run a pair of mutual funds in Boston and I am now on the Board of Trustees at Oberlin so I return frequently.

Andreas Orphanides, '99 I'm currently the Associate Head of User Experience at the North Carolina State University Libraries, where I've been a librarian since 2008. In addition, I teach the occasional library science class at UNC-Chapel Hill. I'm also the longsword instructor at Mid-South Fencers' Club in Durham, NC.

I received my Master of Computer Science degree from NC State this past December.

Michael Cardiff, '01 In 2017, I was notified that I will receive tenure as an Associate Professor in the Department of Geoscience at UW-Madison! It's been a fun ride, but I'm looking forward to a sabbatical during the 2018-19 school year. I hope to spend more time next year on my own research in tomography (subsurface imaging) and applying mathematical optimization to environmental problems.

Laurel Paget-Seekins, '01 I am still in Boston working for the public transit agency. I lead the data analytics team and am taking on a new project to help the agency transform its fare policy as we upgrade the technology we use to collect fares.

Wes Kania, '04 After spending the past two years as the Distribution Manager at Jaguar Land Rover North America, I've decided to put my math degree to use as the Analytics Manager starting in April. Since moving back to the east coast, I've also enjoyed hiking in New York's numerous parks with my wife Rebecca and our son Tommy (now 7 years old) and taking photos. I've also been turning wood and acrylic pens for the past few years and sell my pens online through our small business Red Kite Creations.

Elaine Hill, '05 I am currently an Assistant Professor in the Medical School at University of Rochester with a large grant studying the health consequences of shale gas

development (or “fracking”). I’m a mom to a wonderful 1.5 year old who is incredibly talented at all sports, including lacrosse (he can cradle and throw)!

Jonathan Hirsch, ’05? Working in the digital assets space (i.e. crypto-currencies), developing algorithms for automated trading. Very excited to be working in an emerging and fast-paced industry.

Marianne Tassone, ’07 Longtime reader, first time poster. I’ve always been reluctant to submit news updates because I’ve not really done anything mathy since graduating from Oberlin. After college, I went to law school (thanks Bob Bosch for the letter of recommendation!), clerked for a judge, went back for more school, and now I’m an international tax attorney in the Bay Area. Although my job entails only occasional back of the envelope arithmetic, I realized recently that being a math major has in fact helped me in my career, both in terms of grasping complex overlapping concepts, as well as training me to have the fortitude to really get deep into the weeds with the tax code in pursuit of a solution to a client’s problem. Thanks everyone! Hope you’re all well!

Oliver Pechenik, ’10 I’ve moved to an NSF postdoc at the University of Michigan.

Mariko Meyer, ’11 I graduated from Columbia this past spring with a Master’s in Political and Economic Development. From there I have put my Oberlin math degree to use as an analyst in the IRS research, analytics, and statistics division. My projects there range from optimizing Taxpayer Assistance Centers’ geographic coverage of needy populations to developing better filters to catch identity theft and refund fraud. I never would have dreamed my Oberlin degree would take me here, but I’m grateful for it.

Brook Luers, ’12 and Alice McAdams (’13) were married on July 1, 2017 in Madison, Wisconsin. Brook is working on his Ph.D. in statistics at the University of Michigan.

Chris Rackauckas, ’13 This has been an exciting year. I accepted an offer for the applied mathematics instructorship in the MIT mathematics department. This position is in conjunction with a senior research analyst position at University of Maryland, Baltimore’s School of Pharmacy. Over the last few years I have been developing methods and software for more efficient solutions of various types of differential equations (in the Julia programming language, `DifferentialEquations.jl`) and these positions will fund the continuation of this project. In addition, a related software project in pharmacokinetic and pharmacodynamic simulation and estimation (called Pk/Pd) of drug dosage response has received the attention of donors. Our team was invited to give a pitch

about our software to the Gates Foundation and “Big Pharma” in late March. Additionally I have been teaching Julia and its uses in Machine Learning. We have started filming videos for a MOOC and running a series of courses in India, London, and Norway. And to top it all off, this year I got engaged to Diana Navarrete, a fellow Oberlin 2013 grad (Art History).

If any Obies would like a Winter Term project or a summer research project through Google Summer of Code, or even just some workshops on the Julia programming language and mathematical modeling, please let me know.

Robert Bonfiglio, ’16 During my first year out of graduation (2016), I spent the time exploring New York City and getting acclimated as I worked as an academic, financial aid, and career counselor in higher education. Since then, I am now in my first year teaching mathematics at Brooklyn Jesuit Prep, a nativity model single-sex classroom middle school, a few blocks from the Brooklyn Museum.

Julia Olivieri, ’16 I’m in the second year of my PhD in Stanford’s computational math program. My research in graduate school so far has ranged from developing computational methods to quantify protein activity, to analyzing data from over 500,000 individuals to spotlight genetic causes of disease, to determining properties of Euclidean bipartite matchings.

Helen Kramer, ’17 I’m currently working as the Operations and Program Coordinator at Resetting the Table, a nonprofit dedicated to helping people have meaningful conversations across charged political divides.

Althea Levine, ’17 I moved to Van Nuys, CA.

David Jaz Myers, ’17 I am a PhD student at Johns Hopkins, studying higher category theory under Emily Riehl.