The Alumni Newsletter for the UMD Department of Mathematics and Statistics

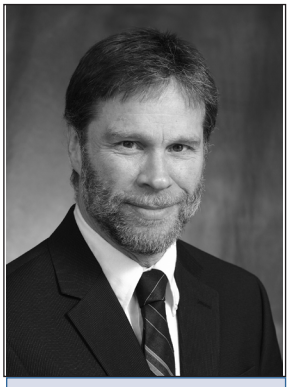
NUMBERLINES

Fall, 2017

University of Minnesota Duluth

Mathematics & Statistics Department group photo (faculty, staff, and graduate students) Fall 2016.

Inside This Issue



Department Head Bruce Peckham

Head Lines

Report from the Department Head

by Bruce Peckham

NUMBERLINES *is the official alumni newsletter of the UMD Department of Mathematics and Statistics. Contact us at mathstat@d.umn.edu.*

Contributors:	Shelby Lonne, Bruce Peckham, Zhuangyi Liu, Joe Gallian, Cindy Gustafson, Eric Erd mann, Xuan Li, Juming Pan, Thierry Chekouo, Eugenie Chekouo, Richard Buckalew
Photos:	Brett Groehler, Valerie Coit, Sarah Pierro, and Yue Zhao
Production & Mailing:	Shelby Lonne

Greetings from the UMD Mathematics and Statistics Department. As I write, I am about to begin my second year as Department Head. For those of you who have not been on campus in the last few years, we have had a significant turnover of faculty, staff, and leadership. Prof. Zhuangyi Liu completed his sixth year as Department Head in 2016. He spent his last two years as DH preparing me to step into this role. I cannot thank him enough for the time and energy he has given to the Department during his tenure as Head. The Department has flourished under his direction. My appreciation for his work has only grown as I have come to understand the requirements of the position over the past year.

I also would like to express my deep appreciation to Prof. Dalibor Froncek for his 8 years as Director of Graduate Studies. Prof. Froncek has been an energetic advocate for all graduate students. From the development of the department graduate student website, to lunch meetings with students to garner feedback, to advising individual students, there are few of our graduate students over the past decade who have not benefited from his influence.

Our current administrative structure now includes Prof. Carmen Latterell as Associate Department Head, Prof. Yongcheng Qi as the Director of Graduate Studies, Instructor Chad Pierson as Graduate Teaching Assistant Coordinator, Instructor Laura (Zimmermann) Carr as Math Learning Lab Coordinator, and Assistant Prof. Tracy Bibelnieks as Outreach/Internship/Job/Big Data Coordinator. The Director of Undergraduate Studies role has been shared by several faculty, most recently Dr. Guihua Fei.

Speaking of faculty, many of you are probably aware that Professors Kang James, Barry James, Harlan Stech, Kathryn Lenz, and Robert McFarland have all retired since 2014. We lost a huge amount of expertise and experience with these retirements, but the silver lining is that we were able to hire five new tenure-track faculty in the past two years. The new faculty have brought a new energy and excitement to the department. See articles in this issue about our most recent hires, Dr. Richard Buckalew, Dr. Juming Pan, Dr. Thierry Chekouo, and Eugenie Nya Chekouo. Drs. Bethany Kubik and Kris Snyder were profiled in last year's Newsletter.

Our Department Staff has also had recent turnover. For many years the tandem of Executive Secretary Jane Lounsberry and Secretary Carol Stockman provided consistent support for the department. Over the last few years, both positions have had multiple occupants. Cindy Gustafson is now our Executive Secretary. Her profile is included in this Newsletter. Shelby Lonne has been in the Principal Office Administrative Specialist position for over a year now. See the 2016 Newsletter for her profile. Both are fantastic employees and keep the department running smoothly. Once we have all made it through a complete year, I expect things to run even more smoothly!

One of the many benefits of being Department Head is that I get to see more closely the contributions of our faculty to our department. Our department has always taken great pride in its teaching role. I believe we have the best teaching department in the college, if not all of UMD. Supporting that opinion is the receipt this year of two more teaching awards to department faculty. These two awards, to Instructor Eric Erdmann and Assistant Professor Xuan Li, are also described in this issue of the Newsletter.

On the research front, the Department faculty continue to be world leaders in their specialties. Faculty are also tireless in their service to the Department, College, UMD and the international Mathematics and Statistics Community.

Students are more active than ever in the department. Math Club and Actuary Club are both strong, and many graduate and undergraduate students participate in research conferences and national contests.

It is my privilege to serve as the Department Head.

Sincerely,

Bruce Peckham

PS It is always great to hear from our alumni! Keep sending in those updates.

2016-2017 UMD Department of Mathematics and Statistics

Faculty News

Juming Pan published two papers, one in Journal of Mathematics in Engineering, Science and Aerospace and the other one in Communications in Statistics Theory and Methods. This May, he visited Shandong University in China and gave two research talk there. Currently, he is working on a statistical consulting project with MN Power.

Rachel Breckenridge directed the fifth annual Math Prep for STEM Careers summer bridge program for incoming freshmen from underrepresented groups and assisted with the first Azhegiiwe Bagwajaya'ii Earth Systems camp at Leech Lake Tribal College.

Zhuangyi Liu was on single semester leave in Spring 2017. After returning to full time teaching and research in Fall, 2016, he has been able to devote much more time to his research projects. In September 2016, he was a plenary speaker at the XV Workshop in PDE at Petropolis, Brazil; in February 2017, he visited University of Catalonia for joint work with Professor Ramon Quintanilla; in April 2014, he visited Shanxi University, Tianjin University, and Northeast Normal University in China, and gave colloquium talks; in May 2015, he gave an invited talk at the LICMA'17, Beirut, Lebanon; in July 2017, he was an invited speaker at the 7th International Symposium at Lima, Peru.

Yongcheng Qi was on sabbatical during 2016-17. He traveled extensively in China, giving six invited presentations. He also published a book, "Inference for Heavy-tailed Data: Applications in Insurance and Finance."

Dr. John Greene Promoted to Full Professor

John Greene's promotion from Associate to Full Professor was officially approved by the UM Board of Regents on May 12, 2017. Promotion to Full Professor requires strong contributions in teaching, service, and especially strong contributions in research. For many years, students have benefited from Prof. Greene's expertise and guidance, both in the classroom and on individual undergraduate and graduate research projects. Prof. Greene has prepared students for the notoriously difficult national Putnam Exam competition, and has served the department and college on a number of key committees. Due to the importance of a collection of his published results, he is now recognized by combinatorialists, number theorists, and some theoretical physicists as the leading authority in the world in his field of hypergeometric functions. These results are still influencing current research. Please join us in congratulating Prof. Greene for his overdue and well-deserved promotion!

Eric Erdmann Receives 2017 SCSE Teaching Award

Mathematics and Statistics Department instructor Eric Erdmann was the recipient of the Swenson College of Science and Engineeering's 2017 Teacher Award! This award is given annually by the college to an outstanding term faculty member.

Eric has been an instructor in the Math Department since Fall 2011. Part of his success as an instructor stems from his familiarity with UMD. He was an undergraduate at UMD until Fall 2008, and graduated from the master's program in Applied and Computational Mathematics at UMD in 2011.

Eric's teaching as an instructor over his six years at UMD has been impressive in quantity, variety, and quality. He has taught Basic Mathematics, College Algebra, Calculus I, II, III, Vectors and Matrices, Differential Equations with Linear Algebra, and Contemporary Mathematics. Outside his regular teaching assignments, he has taught both UMD Freshman Seminar course, and courses for UMTYMP, the University of Minnesota Talented Youth Mathematics Program for exceptional middle school and junior high students.

Even though these courses vary tremendously in student maturity and mathematical level of sophistication, Eric has been able to understand his students' needs, and adapt his teaching style to have success at all levels. His students consistently rate him as one of the top instructors at all of UMD.

In addition to being an expert at course delivery, Eric has contributed to the development of several of the courses he teaches. Especially noteworthy are his contributions to developing computer labs for students in Calculus III, developing Vectors and Matrices as a new linear algebra course, with applications specific to computer science, and transforming College Algebra from the "old" lecture/discussion format to its current mini-lecture/self-paced lab format in the new Securian Math Learning Lab.

Congratulations to Eric on earning this honor. He continues a legacy of excellent teaching that we all aspire to in the department!

Xuan Li Receives Teaching Award

Dr. Xuan Li was one of two recipients of the 2017 SCSE Young Teacher Award. This award recognizes outstanding teaching among all tenure-track faculty in the college. He has been an outstanding teacher from the beginning of his appointment as an Assistant Professor at UMD in 2012. He has taught almost all statistics classes in the department, from Introductory courses for non-majors as well as majors, to standard upper level courses like "Regression", to specialty graduate courses like "Linear Models."

Dr. Li also developed a brand new course in Statistical Computing. The practical use of computational software to complement the theoretical background provided in other statistics courses has already made Statistical Computing a popular elective for mathematics and statistics majors.

Outside the classroom, Dr. Li has supervised many research projects at both the graduate and undergraduate level. Three of his undergraduates have presented their results at the National Council of Undergraduate Research meetings. Students find him very approachable, and his research is both interesting and accessible. His primary areas of interest are Adaptive methods for clinical trials, financial risk management and statistical consulting. He also is a great resource for colleagues in other departments who need expertise in setting up their own trials and experiments.

Partially due to feedback from the students in the Actuarial Club, Dr. Li has developed a course called "The Theory of Interest." This course is intended primarily for actuarial students who are studying to pass "Exam F." The Theory of Interest will be offered for the first time in Spring 2018.

Although he is already an accomplished teacher, Dr. Li is constantly tweaking his courses to improve the educational experience of his students. He makes students feel comfortable, engaged, and excited to learn. His award is certainly well-deserved.

New Staff Member
Cindy Gustafson

In October 2016, the UMD Mathematics & Statistics Department welcomed new Executive Secretary, Cindy Gustafson. Cindy transferred to the department from Sociology and Anthropology after an opening occurred due to the transfer of Paula Cotten to Financial Aid. Cindy is a resident of Superior WI where she earned a BA in Student Services. She previously worked at UWS for fifteen years, and UMD in the colleges of CEHSP and CLA for over ten years.

Cindy enjoys working with faculty, staff, and students in this new capacity, serving the needs of Math & Stats department in the Swenson College of Science and Engineering.

In her free time, Cindy enjoys spending time with her husband Bill, children and three grandchildren ages 16, 3 and 1. Her hobbies include camping at Sturgeon Lake MN, quilting, cooking Italian foods, and spoiling two very needy Yorkies.

New Faculty

In Spring 2016, the department conducted a national search to fill three tenure-track positions which were open due to the retirement of Barry and Kang James and Harlan Stech. We were thrilled to hire three outstanding candidates, Dr. Richard Buckalew, Dr. Thierry Chekouo, and Dr. Juming Pan. We also hired new instructor Eugenie Chekouo.

Dr. Richard Buckalew

Richard comes to UMD from a postdoc at the Mathematical Biosciences Institute at the Ohio State University, where he worked on collaborations in neuroscience, development, and cell biology. His main research interest is in the dynamics of coupled cell networks, where simple individual interactions can lead to emergent behavior at the population level.

Richard is also interested in game theory, both as an educator and researcher. He has taught Probability and Game Theory to exceptional middle school students for four years through the Johns Hopkins Center for Talented Youth, and hopes to introduce a game theory course at UMD. His game theoretic research is still new, and will focus on evolutionary game theory, a subset of mathematical ecology.

Richard is from Columbus, Ohio; an alum of Muskingum University in bucolic New Concord, Ohio. He did a brief stint in Lubbock, Texas before finding his way home again to earn his PhD at Ohio University. He and his wife Rosie are already feeling at home in Duluth, where she is a nurse in the ICU at St. Luke's Hospital.

Richard is always up for a game of chess or volleyball. He's a baseball fan, slowly adjusting to the reality that he lives in a hockey town.

Dr. Thierry Chekouo

Thierry earned his Bachelor's degree and Master's degree in Mathematics from the University of Yaoundé, in Cameroon. He also earned a Teaching Diploma for Secondary and High School Education at the same university. After another Master's degree in Statistics and Economics in Abidjan, Cote d'Ivoire, Thierry moved to Canada where he got a PhD in Statistics from the Université de Montréal.

Thierry's graduate research focused on bi-clustering modeling and application to gene expression data. He spent 3 years in a postdoctoral position at the UT MD Anderson Cancer Center in Houston, in the Biostatistics department. He was working on developing Bayesian statistical methods for high-throughput genomic data. His research interests are biostatistics, bioinformatics, data science, big data and bayesian statistics.

When not doing research and teaching, Thierry enjoys playing soccer, and watching movies and soccer games. He lives in the Woodland area of Duluth with his wife and three kids.

New Faculty

Dr. Juming Pan

Juming graduated from Shandong University in China with major in Economics, and then went on to earn M.S. and Ph.D. in statistics from Bowling Green State University in Ohio.

Juming's research lies broadly in the areas of variable selection, model-averaging, linear mixed models, high-dimensional data analysis, and survival analysis, all in the practical and theoretical aspects. He also enjoys statistical consulting with clients both inside and outside the university community.

When not occupied with statistics, Juming loves music, reading, drinking tea, and spending quality time with his wife Yan and two children Leo and Zoey.

Eugenie Chekouo

Eugenie earned her Bachelor's and Master's degree in Mathematics from the University of Yaoundé, in Cameroon. She also earned a Teaching Diploma for Secondary and High School Education at the same university, and earned a Master's degree in Financial Engineering from HEC Montréal, the business school of the Université de Montréal, in Canada . Her thesis focused on profitability and predictability of technical analysis.

When not teaching, Eugenie enjoys taking care of her family, hiking, and watching movies. She lives in the Woodland area of Duluth with her husband and three kids.

AlumNews: News From Our Alumni

Brian Christner (BS 2011) and wife, Jessica welcomed their daughter, Mackenzie Louise on June 1st, 2017.

Nathan Pollesch (MS 2008) has returned to Duluth as a post-doctoral researcher at the Environmental Protection Agency. He recently greatly entertained the children of departmental faculty with a population model simulation involving sheep and wolves at the Duluth EPA's 50th Anniversary open house.

Jonathan Kane (1974), Professor Emeritus Univ. Wisconsin-Whitewater had a book titled *Writing Proofs in Analysis* published by Springer in 2016. The book teaches how to write proofs by describing what students should be thinking about when faced with writing a proof. Kane was Professor Joe Gallian's first research student. Kane is currently writing a book on the problems from the Putnam Mathematical Competition from 2001-2016 sponsored by Mathematical Association of America. Gallian will contribute a chapter on the team and individual results in those competitions.

Sonja Rasmussen has been in a new position for the past two years – as the Director of the Division of Public Health Information Dissemination and Editor-in-Chief of the *Morbidity and Mortality Weekly Report* (MMWR) – considered the "voice of CDC." Last year, she had the opportunity to work on CDC's response to the Zika virus. Her paper, Zika Virus and Birth Defects - Reviewing the Evidence for Causality," was published in the *New England Journal of Medicine*.

Vaclav Hasenohrl (MS 2016) started his second Master's degree in the Computer Science department at UMD. During the summer he worked as a software developer intern in a company in the Twin Cities.

Haitao Shang (BS 2015) passed the Ph.D. qualifying exam in geology at MIT and also worked on two research projects; one on the oxygenation of Earth's atmosphere in the past 4.5 billion years, including mathematical modeling (nonlinear dynamics and simulation), computation (bioinformatics), and lab experiments; and one on the biomineralization of methanogens in the presence of iron oxides and titanium -- this is an experimental project.

Jim Polsinelli (MS 2010) is working for the Bureau of Reclamation, a federal agency that is part of the Department of the Interior. His position involves hydrologic modeling and forecasting of water supply coming from the reservoirs in the Sierra-Nevada near Lake Tahoe to a federal irrigation project near Fallon, NV. His wife **Jun Bai** (BS 2010) is working as a senior financial analyst for Blue Shield of California. They are living in South Lake Tahoe and enjoy all the outdoorsy things that come with it. Their daughter, Sophia, begins kindergarten in the fall.

Cosmin Deciu (MS 2000)is an Associate Director of Bioinformatics at Illumina in San Diego. He says, "My career in life sciences in San Diego started very much on the basis on what I've learned in the applied and computational mathematics program at UMD. A few years ago, somewhat by accident, I forayed into the world of noninvasive prenatal testing using genomic sequencing. The fact that this kind of technology is touching people's lives is incredibly rewarding."

Matthew Arthur (BS 2015) is an actuarial student working in the health care industry. He works for Optum in Eden Prairie. He plans to start in a graduate program for Math/Statistics in the fall.

Sarah Kabes (MS 2012) is in her second year with her Statistician-Data Analyst position with FIS. In that time she has been able to learn and apply analyst techniques to everyday tasks, research and development in the financial industry field, and grow technically while coding in SAS and WinSQL.

Vinnie Zhang (MS 2010) passed the CFA level 3 exam, got a new job at Fidelity and Guaranty Life and moved to the DC area. He is in the investment department doing fixed income investing. His focus is on structured securities like Mortgage Backed Securities. He also met and married his wife, Jialin Ding, who was a UMD undergraduate student years ago.

Zbigniew Wdowiak (MS 96) is teaching math at Lake Superior College and probably will be doing that for a few more years.

Yujiong Liu (MS 2017) is beginning a Ph. D. program in robotics at Virginia Tech.

Erik Peterson (MS 2015) taught Intermediate Algebra for Nicolet College and will have a total of 4 classes to teach for them in the next year (3 of which are brand new).

Aaron Potvien (BS 2010) defended his dissertation in early June and passed his defense. After making some minor revisions, he'll have completed his Ph.D. in Statistics from UW Madison.

Laurence Lin (MS 2008) is currently working as a post-doctoral researcher at Institute for the Environment at University of North Carolina, Chapel Hill, NC. His research has been focusing on how climate change, landuse-landcover change and urbanization influence water resources supply and management. He develops and applies large-spatial scale ecosystem simulation modeling that integrates mathematics, statistics, ecology, biology, human dimension, computer programming and management.

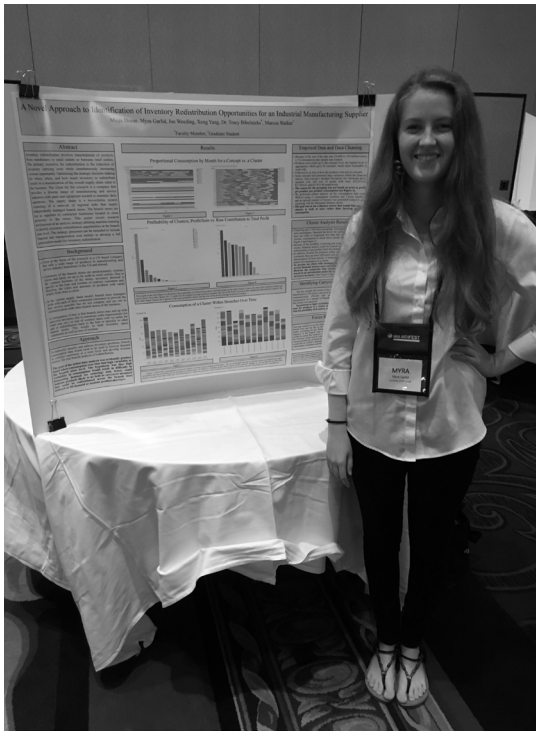
UMD Offers Girls with Nerve Camp for Middle School Girls

Department of Mathematics and Statistics professor Kristine Snyder, with the help of professors Bethany Kubik and Tracy Bibelnieks, put on a day long neuroscience camp for middle school girls in July. The camp was open to girls going into 6-8 grade in the fall. Girls learned about the basic anatomy and function of the brain as well as neuronal structure and function. The girls also had the opportunity to perform experiments and to see presentations by UMD faculty from the psychology, philosophy, and computer science departments. Dr. Snyder plans to offer an extended version of the camp in Summer 2018.

Students Myra Garlid and Marcus Walker Attend MathFest

"This July, I was able to attend the MAA's [Mathematical Association of America] 2017 Mathfest in Chicago and present work done in solving a problem posed in my Industrial Mathematics class this past semester. It was an incredible experience to be able to discuss ideas and solutions my group worked on with other students, professors, and industry professionals. Sharing what we did, and hearing from other students about what kind of problems they worked on and how they attacked them was invaluable! It gave a much broader view of all the things someone with a math degree can do in industry, which was very helpful to me as someone considering that career path. Outside of my session, Mathfest was also a great opportunity to learn about a wide variety of mathematical topics; it was a fun exposure to ideas and areas of math that I may not have encountered otherwise!"

---Myra Garlid, UMD undergraduate student

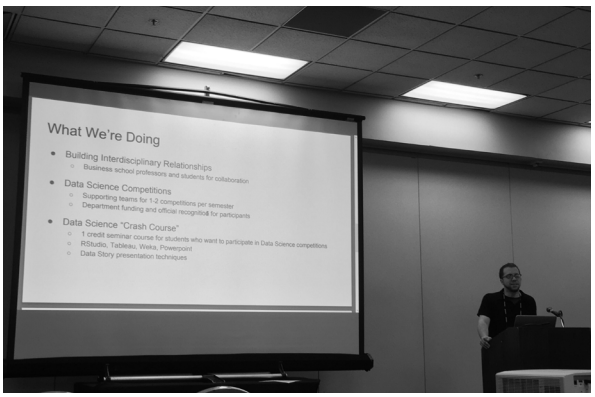


"I gave a 15 minute talk in the Themed Contributed Paper Session called 'Data Science: Big Data, Big Questions.' The title of my presentation was Learning by Doing: Data Science for Mathematics and Statistics Undergraduates through Experiential Learning Collaboration with Industry Clients. The title's a little on the long side, as was evidenced by my session's moderator tripping over it during my introduction!

Here's the abstract:

'The Harvard Business Review famously hailed "Data Scientist" as the sexiest job of the 21st century, but even that might be selling it short. Reality is a puzzle that is beautiful beyond compare, and people will dump money all over you if you can solve it. Great strides are being made, but academic curriculum in general has been slow to adjust to the needs of mathematics and statistics undergraduates hoping to work in modern data science. In this presentation I will talk about what is being done at the University of Minnesota Duluth to encourage mathematics and statistics undergraduates to develop the technical skills, experience, and modes of creative thinking they will require by giving them the opportunity to move beyond regression assignments and into working with business, industry, and government clients on projects involving exactly the kind of data and methods they will see in the field. I also offer a personal account of what it is like both to learn and to mentor in that context.'

It was an awesome experience: giving my first talk at a conference that wasn't "as a student", and watching Myra present the work she'd done during the Industrial Solutions class I'd helped with, and being on hand to offer support that she definitely didn't need. Plus, MathFest is just always oodles of fun. Probably not uncommonly, I feel like I learned more at the conference than I learned in many semester-long classes. 10/10, would recommend."



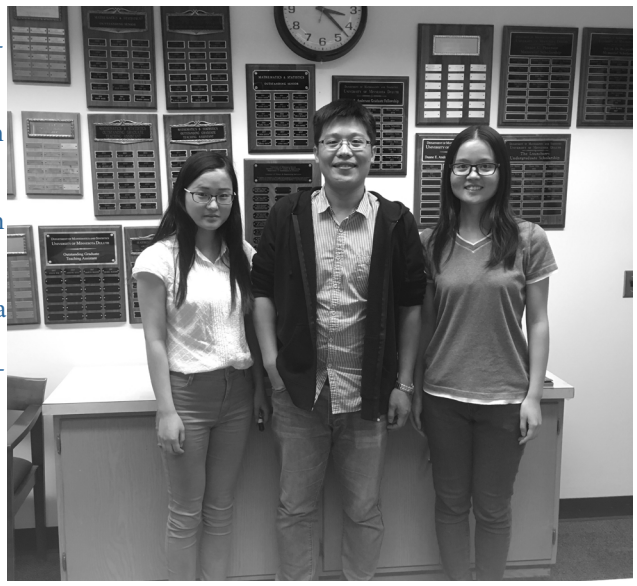
---Marcus Walker, UMD graduate student

The Morgan Prize for Undergraduate Research in Mathematics and UMD

The Morgan Prize for outstanding research in mathematics by an undergraduate has been awarded annually since 1995 by the American Mathematical Society, the Mathematical Association of America, and the Society for Industrial and Applied Mathematics. The Morgan Prize is considered the highest honor in mathematics given to an undergraduate. Many Morgan Prize winners have become professors at leading institutions such as Harvard, Princeton, MIT and Stanford and many have won other prestigious awards. In 2014 one recipient received the Fields medal, which is often described the "Nobel Prize in mathematics, and another was one of the inaugural winners of the $3,000,000 Breakthrough Prize in Mathematics and received a MacArthur Genius Grant.

Unsurprisingly, the Morgan Prize winners usually come from Harvard, MIT, and Princeton. And, amazingly enough, more often than not the winner of the Morgan Prize has been a participant in the Research Experience for Undergraduates (REU) at UMD run by Joe Gallian since 1977. Indeed, the Morgan Prize to be given in 2018 to Ashvin Swaminathan from Harvard will be the thirteenth Duluth REU participant in the twenty-three history of the prize to be so honored. Eight more have been named Honorable Mention. MIT student Daniel Kane, who was in the UMD REU in 2005, and whose father Jonathan Kane, a UMD alumnus, was the 2007 Morgan Prize winner.

Department Hosts Visiting Scholars from China



Professor Zhuangyi Liu has been hosting several visitor scholars from China for joint research.

Miss Yang Wang, a Ph.D. student at the Department of Mathematics, Donghua University in Shanghai, China, came to Duluth in September, 2015. Supported financially by the Chinese Scholarship Council, she has been working on her Ph.D. thesis supervised by professor Liu. She has published a paper "On the Phase-lag Heat Equation with Spatial Dependent Lags" in the Journal of Mathematical Analysis and Applications, jointly with Professor Liu and Professor Quintanilla in Spain. Their second joint paper will be submitted soon. Yanfang Li, a Ph.D. student in the Department of Mathematics from Tianjin University, China, came to Duluth in March 2017. She is working with Professor Liu and Yang Wang on stability of a laminated beam. Both of them will return to their home institutions for thesis defense in September.

Associate Professor Zhongjie Han, from Tianjin University of China, is at UMD for a two-month visit. He and Professor Liu are working on a project "Wave Equation with Local Logarithm K-V Damping."

UMD Math & Stats Hosts Third Annual MMMM Combinatorics Workshop

On April 28-30, the department hosted the 3rd annual MMMM Combinatorics Graduate Student Workshop. The four M's stand for "Mostly Manitoba, Michigan, and Minnesota." Previous workshops were held at MTU (Michigan Technological University), Houghton, Michigan, and University of Manitoba, Winnipeg, Canada.

There were about 15 participants, and 10 of them presented their research, along with three invited lectures. We were particularly happy to welcome back our former undergraduate and graduate students Bryan Freyberg (MTU), James McKeown (University of Miami), Michael Ross, Isaac Wass, and O'Neill Kingston (Iowa State University). Our current graduate student Michael McKeown presented his results that he had obtained as a joint work with his two brothers, James (currently a PhD candidate at University of Miami) and John (our current undergraduate student).

The workshop was organized by Bethany Kubik and Dalibor Froncek, and financially supported by UMD Graduate Office and an anonymous private donation.

Photos from Spring 2017 Department Banquet

Undergraduate and graduate students eagerly await the meal that Valentini's Vicino Lago catered before the awards.

Graduate students enjoying the banquet.

Duane Anderson Fellowship recipients and Nancyelaine Anderson. (below)
L-R: Nancyelaine Anderson, Jiaxing Wang, Kalani Thalagoda, Jingxia Liu, Yejin Cho, Yang Wang, and Bruce Peckham

Alum Photo

Faculty and faculty emeriti attend wedding of alumni Xinguo Li (MS 2013) .

2016-2017 Undergraduate Research Projects

Student	Project
Myra Garlid	"Quasi-Crowns" Advisor: Bethany Kubik
Xiang He	"Clustering Analysis of Gene Expression Data and Application to Kidney Cancer" Advisor: Thierry Chekouo
Alexis Humphrey	"The Data Science Behind Building Customer Loyalty" Advisor: Sara Pitterle (Marketing Dept)
Shuang Li	"Statistical Analysis Regarding Lottery Winning Probability" Advisor: Yongcheng Qi
Pablo Mello da Silva	"Patterns in Non-Simple Continued Fractions" Advisor: John Greene
Jennifer Schwietz	"Movement Patterns During Stand Up Paddleboarding in Novice Paddlers Vs. Experienced Paddlers" Advisor: Kris Snyder
Torri Simon	"Statistical Analysis of Reported Health Habits and Mental Health from the Bridge to Health Survey 2015" Advisor: Xuan Li
Grace Smith	"Economic Feasibility of Renewable Energy Powered Street Lighting: A Case Study" Advisor: Ona Egbue (Dept of Mechanical and Industri al Engineering)
Sarah Stark	"Quasi-Crowns" Advisor: Bethany Kubik
Lesheng Wang	"Dynamics of a Singularly Perturbed Quadratic Family" Advisor: Bruce Peckham
Xin Zhi	"Stock Price Forecasting Using Logistic Regression" Advisor: Yang Li

Thank You to Our Donors! (July 2016-June 2017)

Sabra and Dennis Anderson, Janice Burgstahler, Dalibor Froncek and Anna Fronckova, Shane T. Ellis, Kelli A Broin, Alex G. Kranz, Qingzhao Wang, Yue Yuan, Matthew P. Dinusson, Ronald L. and Elena S. Danielson, Michael J. Hafeman, John R. and Betty H. Greene, Bradley W. Hanson, Joseph A. and Charlene Gallian, Jodi H. Murphy, Bary R. and Kang Ling James, Hui-Laing Low, John E. Lindgren, Colin J and Rosemary M. Jellish, Walter D. Johnson, Howard A. Levine, David E. Koslakiewicz, William A. Lokke, Dr. Bruce R. Jones, Zhuangyi and Jinyi Liu, Wen I-Chang, Jonathan Y. Luo, Daniel J. and Karen L. Moen, Sudhir Mummaneni, Sonja A Rasmussen, Bob and Pam Senkler, Fujun Wang, UnitedHealth Group.

2017 Departmental Honors and Awards

Graduate Departmental Awards and Honors

Graduate Student Service Award
Joe Kell
Honorable Mention: Matej Kroc

Outstanding Graduate Teaching Assistant Awards
Ayoub Dib, Joe Kell, Michael McKeown, and Marcus Walker

Outstanding Graduate: MS in Applied and Computational Mathematics
Neng Wan

2017-18 Duane E. Anderson Fellow
JiaXing Wang

2016-17 Duane E. Anderson Fellows
Yejin Cho, Jingxia Liu, Kalani Thalagoda, Yang Wang

Undergraduate Departmental Awards and Honors

2017 Department Scholars
Mark Broderius, Myra Garlid, Shuning Jin, Pablo Mello, Yue Yin

2017 Bulldog Award
Ron Willis, Miranda Jeske, Josi McMorrow, Megan Resch, Sarah Stark

2017 Faculty Excellence Scholars
Kevin Breimhurst, Xiang He

2017 Grace C. Peterson Scholar
Jake Pulkkinen

2017 William H. Lounsberry Scholar
Lino Rauzi

2017 Kenneth E. Differt Scholar
Gavin Sanford

2017 Sylvan D. Burgstahler Scholars
Sydney Matthys, Donald Wurdock

2017 William A. Lokke Scholars
Rubing Li, Zhengming Zhang

2017 Barry and Kang James Scholar
Megan Resch

2017 Robert L. Senkler Scholars
Kaitlin Adams, Daniel Peters, Grant Pulver, Torri Simon

2017 Krossner/Kac Scholar
Ann Hunt

2017 James L. Nelson Scholars
Megan Roers, Yichen Wei

Grace C. Peterson Calculus Achievement Awards
Jacob Marlow, Jacob Wolfe, and Muhammad Khan

2017 Mathematical Contest in Modeling Teams
Kaiwen Han, Rubing Li, Yichen Wei; Shuning Jin, Ziyi Zhang, Xin Zhi; Lihang He, Guo Wei, Zhengming Zhang

Outstanding graduating seniors at Valentini's Vicino Lago with Department Head Bruce Peckham for the 2017 Awards Banquet (below).

William R. McEwen Putnam Competition Award
Evan Severson

NCS/MAA Team Contest Participants
Jacob Leistico, Ben Schoenfeld, Evan Severson, Mark Broderius, Yichen Wei, Zhengming Zhang

2017 Advance IT Minnesota Data Derby Datathon and Datagon Team
Marcus Walker, Myra Garlid, Nicole Randt, Courtney Struckman

2017 Midwest Undergraduate Data Analytics Competition Team Member
Isabel Ma

2016 MinneAnalytics Midwest Undergraduate Data Analytics Competition Team Members
Isabel Ma, Joseph Paulsen, Anthony Salls, Torri Simon, Daniel Peters, Marcus Walker

Sylvan D. Burgstahler Undergraduate Service Award
Nathaniel Scherer
Honorable Mention: Kaitlin Adams, Jake Pulkkinen, and Andrea Wohlk

Departmental Honors (Pi Mu Epsilon)
Alexis Humphrey, Shuang Li, Torri Simon, Grace Smith, and Lesheng Wang

Outstanding Graduating Seniors
Alexis Humphrey, Jacob Leistico, Evan Severson, Torri Simon, Grace Smith, Andrea Wohlk
Honorable Mention: Shuang Li, Justin Mueller, Benjamin Schoenfeld, Steve Shen, Xin Zhi

The Graduating Class of 2017

Master of Science: Applied and Computational Mathematics

Sarah Chevalier-Rood
Project: Properties of Monomial Ideals and their Decompositions
B.S. University of Wisconsin-Superior
Advisor: Bethany Kubik

Ayoub Dib
Project: Pulsate Locomotion
B.S. in Broad Field Sciences from the University of Wisconsin-Superior
Advisor: Kristine Snyder

Lei Ding
Project: A Statistical Model on Measuring Cloud Peers' Behaviors
B.S. in Information and Computing Science form Beijing Institute Post Telecom
Advisor: Yang Li

Joseph Kell
Project: The Breakup and Continuation of Invariant Circles
B.S. in Mathematics from the University of Minnesota (Twin Cities)
Advisor: Bruce Peckham

Matej Kroc
Project: Statistical Analysis of Moose Habitat Behaviors Using Bayesian Hierarchical Model with Spatially Varying Coefficients
B.S. Financial Informatics and Statistics from University of W. Bohemia, Czech Republic
Advisor: Xuan Li

Yujiong Liu
Project: A Connection Between Analytic and Nonanalytic Singular Perturbations of the Quadratic Map: A Case Study
B.E. in Mechanical Engineering from Harbin Institute of Technology
Advisor: Bruce Peckham

Michael McKeown
Project: Vertex-Magic Group Edge Labelings
B.S. in Mathematics from University of Minnesota (Twin Cities)
Advisor: Dalibor Froncek

Hadi Papei
Project: Search for Communities in the Networks
M.S. in Physics from University of Minnesota Duluth
Advisor: Yang Li

Yingyu (Tina) Tang
Project: Learning Mental Health of Minnesotans Using Random Forests
B.S. in Statistics from University of Minnesota, Morris
Advisor: Xuan Li

Neng Wan
Project: Eigenvalues Approximations of One-Dimensional Partial Differential Equations with Local Damping
B.S. in Aerospace Engineering from the Harbin Institute of Technology
Advisor: Zhuangyi Liu

Xiangpeng Wan
Project: Applied Time Series and Duluth Temperature Prediction
B.S. Harbin Institute of Technology
Advisor: Yongcheng Qi

Yang Wang
Project: Multivariate Poisson and Zero-Inflated Multivariate Poisson Regression in R
M.S. Harbin Institute of Technology
Advisor: Yang Li

Yu-Ting You
Project: Group Theory in Harmonic Progression
M.S. in Physics from University of Minnesota Duluth
Advisor: Marshall Hampton

Award winners at the Spring 2017 Mathematics & Statistics banquet at Valentini's Vicino Lago.

The Graduating Class of 2017

Bachelor of Science: Mathematics

Spring 2017

Barnidge, Miles
Clement, Tressa
Drees, Isabel
Haggstrom, David
Hovland, Seth
Leistico, Jacob**
Li, Shuang*
Lovlein, Alec
Mandery, Kimberly
Mueller, Justin**
Schoenfeld, Benjamin
Severson, Evan*
Shen, Steve
Smith, Grace**
Southwell, Brian
Walters, Sarah
Wang, Lesheng
Yang, Xeng
Zhi, Xin

Summer 2017

Wang, Huayang
Wei, Guo

Fall 2017

Bolstad, Grayson
Martinson, Kyle
Nadeau, Cody
Remple, Bryce*
White, Anthony
Zbleski, Katie

Fall 2016

Huse, Danielle
Kuznia, Abraham
Salls, Anthony
Wohlk, Andrea***

Bachelor of Science: Statistics and Actuarial Science

Spring 2017

Bollmann, Mario
Haggstrom, David
Honkomp, Joshua
Humphrey, Alexis**
Li, Shuang*
Liu, Gordon
Mandery, Kimberly
Quinn, Alec
Smith, Grace**
Southwell, Brian
Sowers, Zach
Wang, Lesheng
Yang, Xeng
Yun, Sang Jun
Zhi, Xin

Fall 2017

Adams, Kaitlin
Breimhurst, Kevin
Ma, Isabel
Martinson, Kyle
Zbleski, Katie

Fall 2016

Lee, Dong Ick**
Salls, Anthony
Wohlk, Andrea***

Unofficial Latin Honors Designations:
**** Summa Cum Laude **Magna Cum Laude *Cum Laude*

Numberlines
Department of Mathematics
and Statistics
140 Solon Campus Center
University of Minnesota Duluth

Our department webpage is at scse.d.umn.edu/about/departments-and-programs/mathematics-statistics-department/

Math Learning Lab Expands

As of Fall 2017, the Math Learning Lab, located in the Library, is being used to teach small sections of Precalculus. Basic Math and College Algebra continue to be taught in the Lab.

The generosity of alumni and friends of the Department of Mathematics and Statistics at UMD make many things possible. Their contributions provide scholarships to undergraduate students, summer stipends for graduate scholars to continue their research, awards to outstanding students and support for programs to assist underprivileged students. Each gift strengthens our tradition of teaching excellence. To make your own contribution to the department please contact Carrie Sutherland at 218-726-6984 or via email at csutherl@d.umn.edu.