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NEAL CROTHERS
(PROFESSOR AT BGSU
FOR 24 YEARS)
Remembering a beloved
faculty member

MESSAGE FROM THE CHAIR

Department Officers

Hanfeng Chen	**Chair**
Tong Sun	**Assistant Chair**
Craig Zirbel	**Grad Coordinator**
Jim Albert	**Undergraduate Coordinator**
Maria Rizzo	**Editor**

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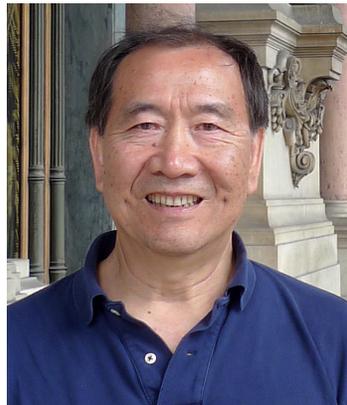
What's new with the department in the past one or two years? First of all, with retirements of our office staff, Barbara Berta, Marcia Seubert and Mary Busdeker, after their working with us for many years, the department has a new staff team. They are Amber Snyder (Administrative Assistant), Anna Lynch (Graduate Secretary) and Carol Nungester (Senior Secretary). We welcomed new faculty members Barbara Christman and Phillip Funtulis joining our Mathematics Emporium team, and Assistant Professor Jianxuan Liu who joins us to support the university's initiatives in Data Science programs and redirection of our statistics doctoral program. With the addition, the department's faculty increases to 33 members, of which 22 are tenure-track faculty and 11 are non-

tenure-track faculty. Congratulations to Dr. Mihai Staic for tenure and promotion to associate professor and to Drs. Junfeng Shang and Maria Rizzo for promotion to full professor.

Our new undergraduate data science major grows steadily in its fourth year. This major was developed with the help of a five-year grant from the National Science Foundation, which has provided funding for scholarships. Our data science teams competed in the regional DataFest sponsored by the American Statistical Association, and our top team took second place among 22 teams competing at Miami University in 2017. Based her success of her first NSF grant, Dr. Kimberly Rogers has recently secured an extended NSF grant and is now directing the innovative peer mentoring program to help train our graduate assistants.

The Mathematics Emporium enters the fourth successful year. The courses MATH 90/95/1210 in the Math Emporium are combined into a new course MATH 99. Students now have the opportunity to complete 99 and 1220 within one semester. Retention of undergraduate students is still one of the university's priorities. With a sustainable increase of student success rate in our developmental courses,

our efforts and contributions to the university's retention rates have been recognized. Within the graduate programs, the curriculum of Ph.D in Statistics program is undergoing some substantial changes including modifying and adding sequences of qualifying exam courses. Job demand for our graduates in mathematics and statistics has been strong in recent years. With the endeavors of our faculty and students, strengths of our graduate programs, and with stabilization of economics nationwide, I expect this trend to continue for years to come. In the university, the news with greatest impact on the department includes that the Faculty Association and the Administration has successfully established the second three-year Collective Bargaining Agreement. There are also significant changes that affect graduate programs. The Graduate College is initiating a new doctoral and masters program in Data Science that is to be supported mainly by our department, Computer Science and ASOR. All graduate applications and graduate program administrations are now online.

Looking forward to the new academic year of 2018-2019, we expect to be able to move the Math Emporium classrooms from

Congratulations and Welcome to Office Staff

Staff members of the Department of Mathematics and Statistics, **Mary Busdecker** (left), **Barbara Berta** (center), and **Marcia Seubert** (right) accepting the BGSU 2016 Classified Staff Award.

Classified Staff Award goes to Barbara Berta, Mary Busdeker and Marcia Seubert

Reporting on the 2016 CSA award, the BGSU News wrote "In recognition of their achievement and the graciousness with which they go above and beyond their official duties, the three were presented the Classified Staff Team Award on May 18 at the annual Classified Staff Council reception and awards ceremony. The team will share a $1,500 award and their names will be displayed on a commemorative plaque in the Bowen-Thompson Student Union." Chair Hanfeng Chen said that our staff is the "heart and soul of the department," adding that "they not only keep things moving, they also create an atmosphere that promotes collaboration and learning."

Barb Berta, as Administrative Assistant, has managed wide ranging responsibilities ranging from class scheduling to organizing the department calendar. Senior Secretary Marcia Seubert served the department for many years, managing wide ranging responsibilities for our graduate programs. Working at the front desk, typist Mary Busdeker would usually be the first person faculty and staff see as they enter the office. "She is courteous and patient … cares deeply about the students and helps them navigate difficult situations successfully."

We appreciate our excellent staff and join the university in recognizing them for their outstanding contributions throughout their career. We were at a bit of a loss when all three announced plans to retire, but congratulate all three on a successful career and extend our sincere wishes for a happy and well-deserved retirement.

Three new staff members join our department

Following the retirement of all three of our office staff, the Department of Mathematics and Statistics welcomes an all new staff in 2016-2017 starting with Amber Snyder, Administrative Assistant. Senior Secretary Anna Lynch joined the department shortly after Amber, now handling the many responsibilities that help to keep our graduate programs running smoothly. Finally, Senior Secretary Carol Nungester arrived in 2017, where she manages the front desk and many other responsibilities. Our new staff members quickly took on the many varied responsibilities of running the department cheerfully and competently, so that the transitions were smooth and easy. The department front office is in very good hands with the new team of Amber, Anna and Carol.

Mathematics and Statistics welcomes three new staff members in 2016-2017: Administrative Assistant **Amber Snyder** (left), Senior Secretary **Carol Nungester** (center), and Senior Secretary **Anna Lynch** (right).

BGSU Math and Stat Faculty Honored by MAA for Teaching Excellence

Thanks to Tom Hern for reminding us about the strong record of faculty excellence among our department faculty over the years. In addition to the latest MAA award recognizing Ron Taylor, in the 26 years of the MAA's national teaching award, our Department has had two recipients itself, including former faculty members Fred Rickey, who was one of the first year winners, and Curt Bennet. Tom notes that "many prominent names appear in the list of 84, including Paul Halmos and Robert Hogg. Only a few colleges or universities have multiple winners." David Meel and Tom Hern received the state level MAA award.

Rogers awarded NSF grant

Kimberly Rogers' joint National Science Proposal was awarded $600,000. This grant extends her previous award. Dr. Rogers (Principal Investigator) is directing an innovative peer mentoring program to help train our graduate assistants.

Xiangdong Xie

Dr. Xiangdong Xie, collaborating with Dr. Jason Behrstock of Lehman College, CUNY and Dr. Tullia Dymarz of the University Wisconsin, Madison, organized a special session on Geometric Group Theory at the 2017 Spring Topology and Dynamical Systems Conference held at New Jersey City University in Jersey City in March, 2017

Jim Albert's "Visualizing Baseball"

Jim Albert's latest book "Visualizing Baseball" was published by CRC Press in August, 2017. https://www.crcpress.com/Visualizing-Baseball/Albert/p/book/9781498782753. Jim is a well known national expert on baseball statistics and sports statistics. "Visualizing Baseball" is a statistical book, of course, by its content, but it was written for several types of readers including baseball fans who are interested in learning more about the quantitative side of baseball. It provides a visual exploration of the game of baseball. Graphical displays are used to show how measures of performance, at the team level and the individual level, have changed over the history of baseball. Graphs of career trajectories are helpful for understanding the rise and fall of individual performances of hitters and pitchers over time.
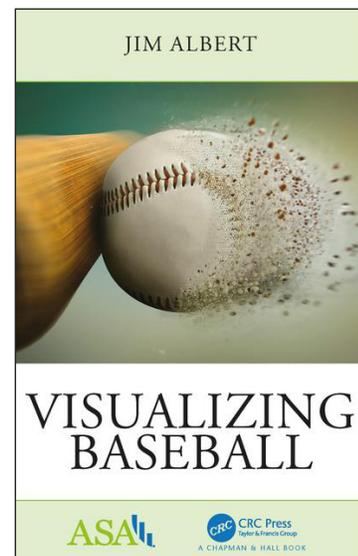
Mihai Staic

Mihai Staic was Co-organizer of the special session on "Cohomology, Deformations, and Quantum Groups" at the AMS meeting at SUNY at Buffalo, Buffalo, September 16-17 2017.

AWARDS AND RECOGNITIONS

Captain Vincent "Gino" Georgetti '08

Gino Georgetti (BS Math/Actuarial Science 2008) was recognized at the October, 2017 BGSU Homecoming among the alumni selected for the inaugural "BGSU 10 Under 10 Award". At BGSU, Gino was a former Freddie Falcon, member of Phi Delta Theta, and the BGSU Army ROTC. From the BGSU News, "U.S. Army Capt. Gino Georgetti majored in mathematics, specializing in actuarial science. Commissioned through the BGSU Army ROTC program, he has spent the last nine years serving in the Army, including a tour in Afghanistan. He earned his master's degree in education, and volunteers as a high school football coach. He also has been a member of the Cleveland Warriors service organization for the past seven years. Georgetti was awarded the Military Outstanding Volunteer Service medal, and serves as the senior full-time officer for the 113th Engineer Battalion, the Lean Six Sigma Master Black Belt for the Indiana Army National Guard. He currently is working with the Counter Drug Taskforce to remove abandoned structures in Gary, Indiana."

Professor Ron Taylor Earns National Recognition for Teaching

Our department is very pleased to share the following press release about one of our distinguished alumni, Ron Taylor (PhD, Mathematics, 2000):

WASHINGTON, D.C. – The Mathematical Association of America has recognized Berry College Mathematics Professor Ron Taylor for "Distinguished College or University Teaching of Mathematics."

"The mathematicians receiving these awards are the leaders in our community who carry out the MAA's mission to advance the understanding of mathematics and its impact on our world," said Michael Pearson, the executive director of the MAA. "Their distinguished service and dedication to mathematical excellence strengthen our community and open paths for future generations of mathematicians."

Taylor received the Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics. He is recognized for his success cultivating an Inquiry-Based Learning approach to his mathematics classroom at Berry College. He used his experience to mentor mathematics faculty at other institutions and co-chaired the organizing committee for the Inquiry Based Learning-Forum & Annual Legacy of R.L. Moore Conference.

Ron's new book for teaching proofs is featured on the main MAA web page: "A TeXas Style Introduction to Proof is an IBL textbook designed for a one-semester course on proofs (the "bridge course") that also introduces TeX as a tool that students can use to communicate their work." (IBL used to be known as Moore-method.)

UNDERGRADUATES EXCEL IN COMPETITION

BGSU Data Science Undergraduates take 2nd place in DataFest 2017: from left to right, **Melissa Dureiko, Monica Matticoli** and **Sarah Hercules.**
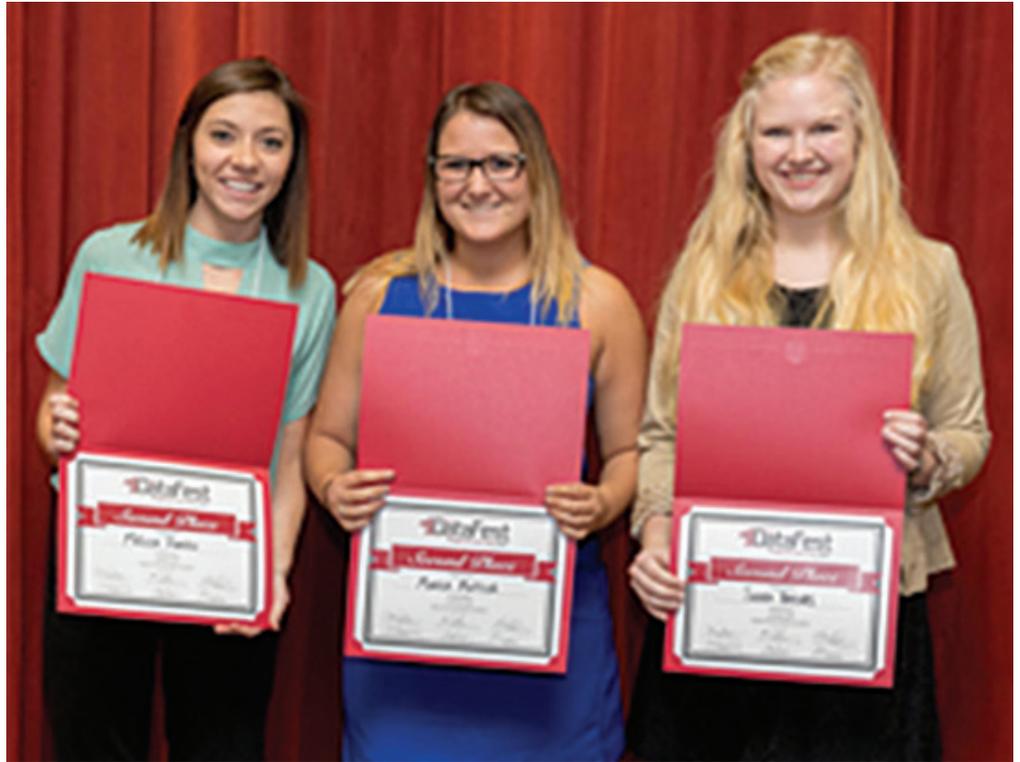
Data Science Undergraduates take 2nd Place in DataFest 2017

Data Science is the newest undergraduate major in the Department of Mathematics and Statistics, graduating its first cohort of students in 2018. For the past two years our students have traveled to Miami University in Oxford, Ohio to compete in the American Statistical Association's "DataFest" competition, organized into several regional competitions throughout the United States each spring. In spring of 2017, BGSU sent two teams of students to the competition, which included 89 students competing in 22 teams of 3-5 students, representing three universities. Our two teams of undergraduates were coached by data science faculty Jim Albert and Maria Rizzo. Team members participating were Christian Burns, Melissa Dureiko, Sarah Hercules, Rachel Hinton, Jacob Pippert, and Monica Matticoli. Students received the data set Friday evening and worked Friday and Saturday until 1:00 am, with the finalists presenting on Sunday. Our top team (Dureiko, Hercules and Matticoli) took second place!

BGSU Mathematics student takes 4th place in MAA Mathfest 2017

Mathematics major Chris Pyles won the 4th place in Problem Solving Competition at the MAA Mathfest held in Chicago in July. Chris is also the winner of the BGSU math competition in the advanced section in March. Alex Izzo and Mihai Staic were the organizers and math coaches of the event and they sent Chris to Mathfest.

BGSU Math Competition

On March 25, 2017 we had the fifth edition of the BGSU Math Competition (organizers Dr. Daria Filippova, Dr. Alex Izzo, Paul Schrader, and Dr. Mihai Staic). Results for the advanced section: First place: Christopher Pyles, Second place: Brenda Emerson, Third place (tie): Karen Izor and Marcus Lawson.Results for the beginner section: First place: Annaliese Keiser, Second place: Sam Sommerkamp, Third place (tie): Ellie Miller, Gwin Wilson and Dakota Brunsman.

Message from the Chair

Olscamp Hall to the Mathematics Science Center. One of the changes at BGSU that has a major impact on the department is that in Fall, 2018, BGSU will adopt a new academic calendar with 15 weeks of classes per semester. With one less week of instructional time each semester, the department will embrace the new challenge to cover materials in all our courses without compromise of quality, and

our graduate students will have to work even harder to complete their programs without delay. As part of the new academic calendar, BGSU will introduce a new three week winter session each year in January, and will have no fall break. Also starting Fall 2018, we will have university-wide student evaluations of teaching and learning, and we will use the new grade report system with additions of plus &

minus to the letter grades.

Throughout these changes and accomplishments, we continue our desires to maintain our strengths and increase our reputation and recognition of national ranking as a Ph.D granting department. We are proud of what we have done, where we are heading, and how we are equipped with our brilliant students succeeding in their programs, our dedicated faculty and staff, and

distinguished alumni. I thank each of you for making contributions to our successes. Alumni, please continue writing to us. We are always honored by your success stories and looking forward to your suggestions. Let's all work together to move the department forward with our mission.

Dr. Hanfeng Chen
Professor and Chair, Department of Mathematics and Statistics
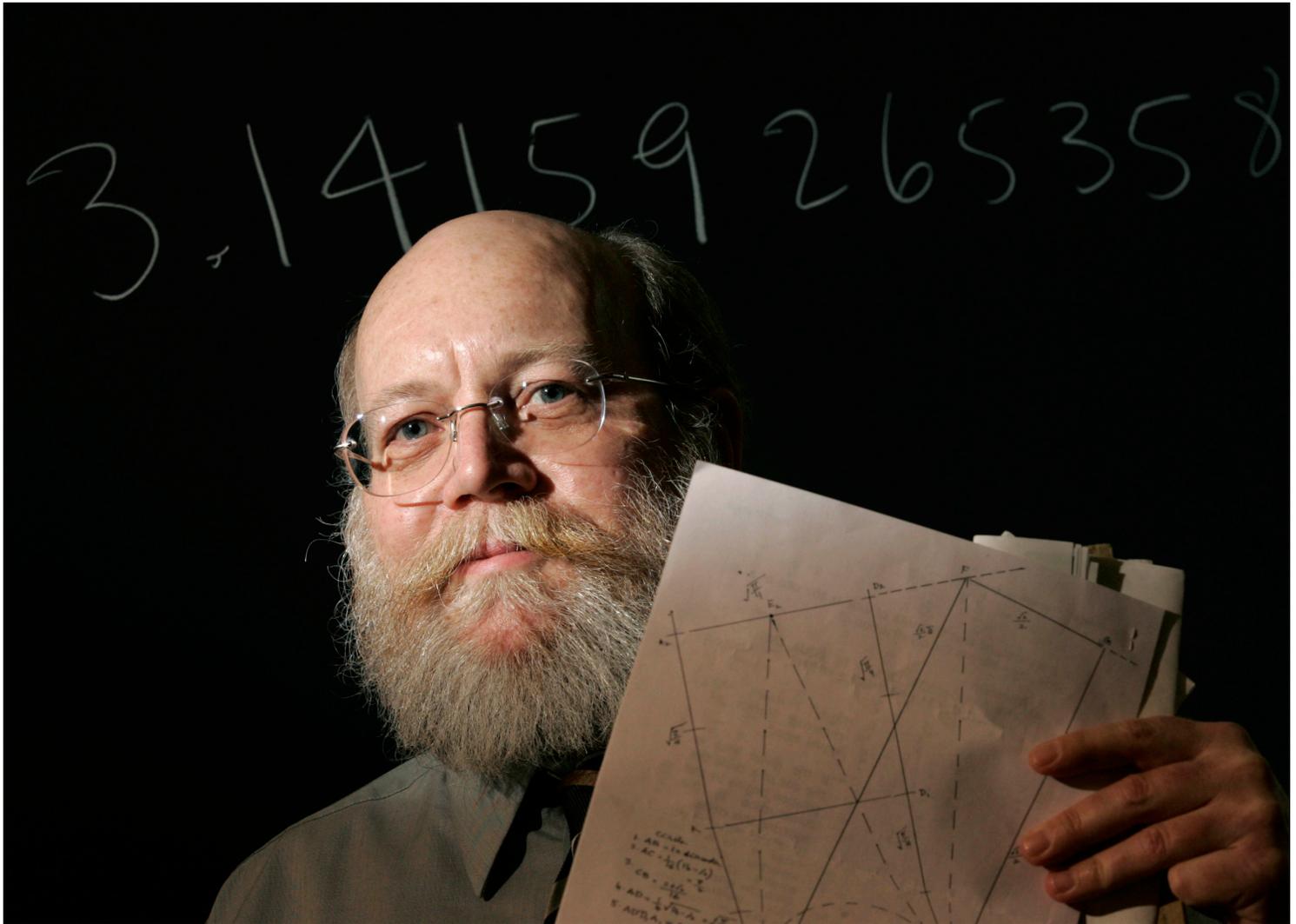
Neal Carothers

Neal L. Carothers (November 16, 1952 - January 29, 2018) was Professor and former department Chair, joining the department in 1987 and retiring from BGSU in 2011, after 24 years of faithful service to the department and university. Neal received the Ph.D. from Ohio State University in 1982. His career was characterized by a rich intellectual aesthetic, quiet professional achievement, and a deep sense of service.

Many colleagues, former students and friends have shared their thoughts and fond memories of Neal. From our current Chair Hanfeng Chen:

"Dear All,

It is with a heavy heart I am sharing with you the sad news that Dr. Neal Carothers passed away on January 29, 2018.

There are not enough words to properly describe the impact Neal made on this department and the math community during his tenure at BGSU. It is touching to see all of the kind words and memories shared about Neal from the math community. Dr. Steven Seubert who was a close friend and colleague of Neal did a good job portraying Neal's impactful professional career. I am honored to have Steve's permission to share his message about Neal with you:

"It is with the greatest sadness that I have learned of the passing of Neal Carothers. I am indebted to Neal not only on a professional, but a personal level as well. He was a gifted mathematician, exceptional educator, and expositor of the highest degree. I not only learned a lot of mathematics from him (and from his book 'Real Analysis"), but learned a lot about how to share it with others; his love of and passion for mathematics was evident and infectious and he had a profound effect on my career. No doubt this was also true for the generations of students he trained at BGSU.

He amassed the usual research credentials publishing more than a dozen refereed research articles in some of the most prestigious journals in his field and he supervised three students who earned their PhD under his tutelage. He was a popular speaker delivering over a dozen invited addresses and wrote two books.

On the administrative end, Neal served the department in all of the most important capacities, as a member of its Advisory, Personnel, and Promotion and Tenure Committees, and from 1999-2007, as its Chair and with impressive results. A hallmark of his leadership was to have nurtured strong graduate programs and fostered strong relationships with departments and programs all across campus by his presence at the college and university levels.

OBITUARIES

I am certain that one of Neal's most cherished accomplishments would be his reputed text 'Real analysis'. I am including below a copy of one review for this exceptional text which compares it to several other well-known books by some of the most revered of all mathematicians of our era. When the review states that Neal's book 'will sit happily alongside classics such as Apostol's Mathematical analysis, Royden's Real analysis, Rudin's Real and complex analysis and Hewitt and Stromberg's Real and abstract analysis,' it is acknowledging Neal as a supreme expositor and master of his trade.'

You will be sorely missed, my friend."

Hanfeng Chen, Professor and Chair

FROM FACEBOOK:

William Rolli: Rebecca and I are dumbfounded and in disbelief. He was the man who schooled me in music, movies, cooking, and most of all, mathematics. My girls will miss receiving your Xmas albums. To my mathematical father and our dear friend, you will be missed.

Konra Holman: I got the sad news today that one of my favorite professors has passed away. He was my graduate advisor, my advocate, my boss, and would have been my dissertation advisor, had I finished. He understood my anxiety issues and was able to differentiate between the student he saw regularly and the version of me impaired by anxiety. He kept the standard high but gave me the room to prove myself.

Diane Erb Mott: I learned a lot about teaching and studying math from being in his classes. He was somehow completely supportive and encouraging of my analysis abilities while being realistic. He and Barbara Moses receive complete credit for my decision to do math graduate work at BGSU.

Keshav Jagannathan: I can't believe it. Neal took so much time to patiently answer all the questions a young Indian boy (me, 20 years ago) had about life, music, and real analysis. He taught me more than just math. He will be dearly missed.

Nate Iverson: When I was a graduate student at BGSU my University payroll got fouled up. I wasn't going to be payed for a span of several weeks. He found me and wrote me a personal check on the spot so I could afford rent and food. This is just one of the ways I knew he was a great person. He'll be missed!

Ron Taylor: I gave a talk at JMM last month and discussed how my career had been impacted by various people. Neal made an appearance. here's what i said:

"In my second year at Bowling Green I took a sequence of analysis classes from Dr. Neal Carothers. This was the first time I had really felt well prepared for a graduate level class and so I was able to divert some of my attention from the concepts and just watch the way he conducted class. Just as the previous folks I have talked about were excellent mathematicians, he was no exception. But he had real verve. He had an amazingly smooth chalksmanship – of which I am infinitely jealous to this day since I have the handwriting of the average jittery squirrel – and he used wonderfully flowing prose in his lectures. From Neal I feel like I learned that mathematicians can write with style and through his eloquence I got a first glimpse of how beautiful mathematics can really be."

RIP Uncle Neal

See our 2012 newsletter for a feature article about Neal Carothers that appeared shortly after his retirement. **https://www.bgsu.edu/content/dam/BGSU/college-of-arts-and-sciences/mathematics-and-statistics/documents/dep-alumni-news/2012-alumni-newsletter.pdf**
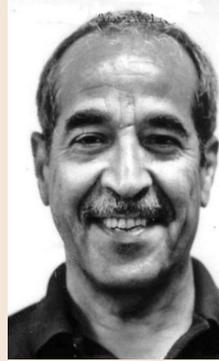
Al-Amiri Hassoon

Hassoon Al-Amiri, Mathematics and Statistics Department Chair 1987-1991, passed away in Bowling Green Oct 14, 2017. He was born in 1927 in Iraq. He taught at BGSU from 1964 to 1995, and held a 1962 doctorate in mathematics from U. of Michigan. He previously had taught high school in Iraq, and college level at Michigan, University of Baghdad, and University of Rhode Island. He was buried in Iraq at his request. His late wife, Aida K. Tomeh (1933-1984), was a prominent sociologist and member of that department at BGSU.

Truc Nguyen

The department was saddened to learn about the passing of Truc Nguyen on December 16, 2017. His obituary can be found at **https://www.turrentinejacksonmorrow.com/obituaries/truc-truong-nguyen**

Truc (pronounced "Chuck") received his doctorate in Statistics at the University of Pittsburgh in 1982 and spent his entire academic year (25 years) in our department. Jim Albert writes "I remember Truc as a very friendly and loyal colleague -- he really would do anything for the department if asked. Although Truc had a heavy accent, he was easy to follow in the classroom since he wrote very clear lecture notes and he was very friendly and helpful to students. He had a solid research record with interests in characterization problems, discrete multivariate analysis, and order-restricted inference. He really was a valued member of our department and we will miss him."

ALUMNI NEWS

Ying-Ju (Tessa) Chen (Ph.D., Statistics, 2015)
Assistant Professor at the University of Dayton, Dayton, Ohio, where she teaches statistics. Tessa had an active role in organizing the ASA DataFest at Miami University for its first two years while she was a faculty member in the College of Business at Miami, and played an important role in getting our undergraduate data science students involved in the competition.

Jake Laubacher (Ph.D. Mathematics, 2017)
Visiting Assistant Professor at St. Norbert College, Wisconsin.

Mark Medwid (Ph.D., Mathematics, 2017)
Assistant Professor at Rhode Island College, Rhode Island.

Ngoc Nguyen (Ph.D., Statistics, 2010)
received tenure and promotion to Associate Professor in Department of Mathematics Western Kentucky University in 2016.

Mary Elvi A. Paler (PhD, Statistics, 2015)
Assistant Professor in the Department of Mathematics at the University of Wisconsin – Platteville, since fall 2015.

Dimistris Papathanasiou (Ph.D., Mathematics, 2017)
PostDoc at University of Mons, Belgium.

Naima Shifa (Ph.D., Statistics, 2009)
received tenure and promotion to Associate Professor at DePauw University in 2016.

Christopher Stvartak (BS, Mathematics, 1992)
earned his MS in Materials Science and Engineering at the University of Notre Dame and is now Advanced Development Engineer with Dura Automotive Systems in Auburn Hills, Michigan. He is a co-inventor on eleven U.S. patents and is currently developing methods of combining plastics and electronics to create 'smart structures' that respond to touch or motion.

David Walmsley (Ph.D., Mathematics, 2017)
an Instructor at St. Olaf College, Minnesota.

Deniz Cemal Yenigun (PhD, Statistics, 2007)
Associate Professor of Statistics in the Department of Industrial Engineering at Istanbul Bilgi University, Turkey since 2016.

RECENT PH.D.s

Ying-Ju Chen (Ph.D., Statistics, 2015)
"Jackknife Empirical Likelihood and Change Point Problems" supervised by Arjun Gupta and Wei Ning.

Songzi Li (Ph.D., Statistics, 2015)
"K-groups: A Generalization of K-means by Energy Distance" supervised by Maria Rizzo.

Yi Li (Ph.D., Statistics, 2015)
"Goodness-of-Fit Tests for Dirichlet Distributions with Applications" supervised by Maria Rizzo.

Yang Liu (Ph.D., Statistics, 2015)
"Variable Selection Utilizing the Whole Solution Path" supervised by Hanfeng Chen.

Mary Paler (Ph.D., Statistics, 2015)
"On Modern Measures and Tests of Multivariate Independence" supervised by Maria Rizzo.

Denis Aliyev (Ph.D., Statistics, 2016)
"An evaluation study of the potential of existing and novel seriation methods to reveal the structure of data" supervised by Craig Zirbel.

Robert Kelvey (Ph.D., Mathematics, 2016)
"Properties of Groups Acting on Twin-Trees and Chabauty Space" supervised by Rieuwert Blok.

Oluyemi Oyeniran (Ph.D., Statistics, 2016)
"Estimating the Proportion of True Null Hypotheses in Multiple Testing Problems" supervised by Hanfeng Chen.

Juming Pan (Ph.D., Statistics, 2016)
"Adaptive LASSO for Mixed Model Selection via Profile Log-Likelihood" supervised by Junfeng Shang.

Jacob Laubacher (Ph.D., Mathematics, 2017)
"Secondary Hochschild and Cyclic (Co)Homologies" supervised by Mihai Staic.

Dimitrios Papathanasiou (Ph.D., Mathematics, 2017)
"Hypercyclic Algebras and Affine Dynamics" supervised by Juan Bes.

David Walmsley (Ph.D., Mathematics, 2017)
"A Constructive Approach to a Universality Criterion for Semigroups" supervised by Kit Chan.

Mark Medwid (Ph.D., Mathematics, 2017)
"Rigidity of Quasiconformal Maps on Carnot Groups" supervised by Xiangdong Xie.

Doaa Basalamah (Ph.D., Statistics, 2017)
"Statistical Inference for a New Class of Skew T Distribution and its Related Properties" supervised by Wei Ning and Arjun Gupta.

Ramadha Dilhani Piyadi Gamage (Ph.D., Statistics, 2017)
"Empirical Likelihood for Change Point Detection Estimation in Time Series Models" supervised by Wei Ning and Arjun Gupta.

Jingwei Xiong (Ph.D., Statistics, 2017)
"A Penalized Approach to Mixed Model Selection via Cross Validation" supervised by Junfeng Shang.