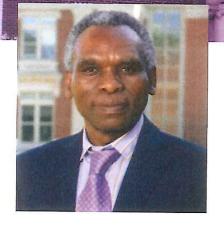
THE WRICHTMESSAGE

DEPARTMENT of MATHEMATICS

2018-2019 University of Northern Iowa



Dear Alumni and Friends.

We are delighted to bring you the 2018-2019 edition of our department newsletter, The Wright Message. In this edition we highlight individuals from each of our constituent groups and events from this past year we thought you would enjoy reading about. We have organized the contents the same way we organized those of previous editions. The contents include features on our newest faculty member Kimberly Conner, alumni Dustin Ross ('07) and Tent Duniven ('12), 2018 Alumni-in-Residence Eileen Youds ('80 B.A. Chemistry and Math, '83 M.A. Math) and Bill Freese ('07), graduate student Jake Weber (B.A. '18 Math), undergraduate students CJ Aldape, Aaron lehi and Amber Lawrence, and donor Carol Crane ('61 B.A. Math and English, '75 M.A. Math). We round out the newsletter with a profile of Professor Mark Ecker and a fixture of the newsletter we call "Around Wright Hall."

We are grateful to the people we feature in the newsletter for abiding our requests for information and allowing us to share their life experiences with our readers. In many ways, the variety and uniqueness of stories depicted in the features reflect the promise of the different pathways along life's journey that a UNI education provides. We hope you will find the stories in the newsletter as interesting and compelling as we found them.

I am pleased to report that the state of the department is strong, despite the challenges that higher education faces across the nation. We are grateful to you, our friends and alumni, for the much-needed support you continue to provide to us and to the students we serve through your contributions to our UNI Foundation accounts. In all, we received \$343,470 in gifts and pledges and \$50,000 in planned gifts between July 1, 2017, and June 30, 2018. Most of the money funds scholarships, but some goes to accounts that cover other expenses (equipment, faculty professional development, and travel to conferences by faculty and students). The department awarded \$193,878 in scholarships to undergraduate and graduate students for the 2018-2019 academic year, an increase of 12.86% over last year. As you know, many students are graduating with huge student loan debts, on average \$23,174 at UNI. They greatly appreciate any financial support we can offer them. We are appealing for your help again this year. If you are able to contribute, please use the enclosed form to direct your contribution to the

account of your choice. Again, thank you for your support. We hope 2018 was good to you and that 2019 will be even better.

Douglas Mupasiri

Avoga hapana

2018 - 2019 TENURE-STREAM FACULTY:

Kimberly Conner

Mark Ecker Sam Eskelson Adam Feldhaus Heather Gallivan Joel Haack Theron Hitchman Elizabeth Hughes Syed Kirmani Min Lee Shangzhen Luo Catherine Miller Douglas Mupasiri Vicki Oleson Michael Prophet Suzanne Riehl Chepina Rumsey Douglas Shaw Marius Somodi Adrienne Stanley Olof Steinthorsdottir Brian Townsend Bill Wood

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Editorial Team: Betty Bagenstos, Douglas Mupasiri and Marius Somodi

NEW FACULTY



Dr. Kimberly Conner earned her BA in Mathematics from Mercer University (Macon, GA), MEd in Secondary Education from Vanderbilt University, and PhD in Learning, Teaching, and Curriculum (Mathematics Education) from the University of Missouri. Prior to beginning her PhD program, she taught middle and high school mathematics in Georgia. She was also a teaching fellow through the Knowles Teaching Initiative, an organization that is committed to supporting beginning high school mathematics and science teachers and helping them become leaders in the classroom (https://knowlesteachers.org/). Dr. Conner credits her experiences as a Knowles fellow for fueling her passion for studying the teaching and learning process and using research as a way of understanding how to support students in developing a deep, conceptual understanding of mathematics. She enjoys traveling, photography, swing dancing, and going to museums and theatre shows whenever possible.

"I am excited to be a part of a school that has a rich educational history and a strong reputation for preparing mathematics teachers. I am looking forward to getting to know people at UNI, collaborating with colleagues, and working with teachers and students in the Cedar Falls/Waterloo areas."

FACULTY SPOTLIGHT

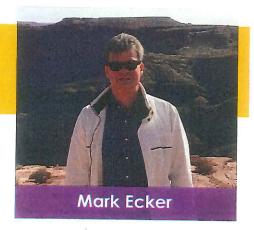
Our faculty spotlight this year is on Professor Mark Ecker. Dr. Ecker received his Ph.D. in Statistics from the University of Connecticut in 1997 and began his career as an assistant professor in the UNI Department of Mathematics in the fall of the same year. He worked his way up the academic career ladder and achieved the rank of professor in 2008. A veteran of more than 20 years in the department, he has touched the lives of hundreds of mathematics majors and non-majors alike through the courses he has taught. In all, he has taught eleven different introductory and advanced courses in statistics, applied statistics, and probability. Even more, he has enhanced the department's curriculum by developing honors and online versions of some of his courses to accommodate the needs of our students, thereby extending the reach of his courses.

Dr. Ecker's efforts and contributions have not gone unnoticed. In his time here, he has received a number of honors and awards, including a University Book and Supply Outstanding Teaching Award (2000), nominations for the Dean's Award for Teaching in Departmental Programs in Mathematics (2008) and the Class of 1943 Faculty Award for Excellence in Teaching (2013), and Certificate for Excellence in Teaching with Technology (2013), Dr. Ecker has also contributed significantly to the vibrancy of student life in the department as the advisor of the UNI chapter of the Kappa Mu Epsilon (KME) Honor Society. As a student-run organization, KME offers students valuable leadership development opportunities, thereby advancing one of UNI's strategic priorities.

To illustrate for our readership why we found Dr. Ecker to be such a compelling subject, we asked him a few questions and let him tell his story in his own words.

You are from the eastern part of the USA and you received all of your education there. UNI would seem an unlikely place for you; what attracted you to UNI?

UNI was and still is a very good fit for what I am looking for professionally, as a teacher and researcher. I very much enjoy interacting with students and get much satisfaction from working on hands-on data analysis research



projects. UNI offers me the work balance that I value: much of my time is spent teaching, either directly in the classroom or improving my existing (online) classes, yet there is an expectation of scholarly activity.

What were your first impressions of UNI? As you look back over your 21 years on the math department faculty, have those impressions changed?

My initial response, when first interviewing at UNI and after meeting the faculty, who were chauffeuring me around the Cedar Valley while driving rusted-out cars, was that they were not paying faculty enough here!!!
Seriously, it was Professor Syed Kirmani's exemplary level of commitment in developing the statistics/actuarial science program that initially attracted me to UNI. He had single-handedly developed the statistics/actuarial science program from scratch!

When I started my career at UNI in the late nineties, my first classes contained such fantastic students (two subsequently earned Ph.Ds., while several others became executives for large insurance companies) that I just knew that UNI was the right fit for me.

Having taught 6 classes as a graduate student at the University of Connecticut (UConn), including a 300+ section of Introductory Statistics, I was initially surprised when first teaching here at UNI at how comparatively much stronger the work ethic of an Iowa student was (and continues to be). The most significant change that I have seen in over 20 years at UNI is that just about every student that I encounter is now working in some capacity to help offset their college expenses. Today, a typical UNI student's schedule is largely filled with classes and work.

You have climbed up the professional ranks from assistant professor to professor. What challenges have you faced along the way and to what do you attribute your success?

I think that ending the Professional Science Master's ("PSM") program was disappointing. The demise of the PSM program is directly attributable to the loss of the faculty member who ran that program, and not hiring a replacement.

You are a statistician specializing in Bayesian statistics, which I understand has wide applicability to many real-life problems involving spatial data analysis. Can you share with our readers some of the problems you and your collaborators have tackled?

As a hands-on data analyst, I get to see and investigate matters across a wide spectrum. My published research papers and consulting projects include: investigating water quality in two lowa lakes and the Chesapeake Bay, how proximity to hog lots affects housing prices, NBA draft lottery probabilities, rates of West Nile Virus infections from mosquitoes, how the closure of the Price Lab School affected house prices in the local school district, scallop abundance in the Atlantic Ocean, how aspirin lowers heart attack risk, and default rates of mortgages.

Most of these real-life data analyses include a spatial component, whereby, the location of the response needs to be directly included in any subsequent statistical model, motivating my interest in Spatial Data Analysis. Some of these hands-on data analyses require statistical models that go beyond standard Linear Models (Regression, Analysis of Variance, Analysis of Covariance). Hence the need for Bayesian Models, that require computer-intensive simulation-based algorithms requiring weeks of run time.

My current research project, that I am just finishing with my co-author, Victor De Oliveira from the University of Texas at San Antonio, studies how proximity to a hoglot affects house values. The statistical model that we have developed allows for nonnormal data where the variability is a function of the distance from a house to a negative externality, a hoglot. Buyers and sellers of houses neighboring the hoglot may be more/less aware of, or bothered/not bothered by its presence, producing a wider range in selling prices for houses near the hoglot. This extra variability motivates the need for the variance and/or correlation structure for the statistical model of house prices, in addition to the mean structure, to depend upon the distance to the hoglot.

You have made advising of the Kappa Mu Epsilon (KME) honor society chapter a cornerstone of your service to the department. Why KME and what's in it for you?

Interacting with students, as a teacher, directing senior seminar projects and being the Math honor society (Kappa Mu Epsilon or KME) advisor, is personally fulfilling.

This is perhaps related to the preceding question. You have, for many years, been serving as co-chair of the scholarship committee, with primary responsibility over freshmen scholarships. You seem to be drawn to service with direct links to students, can you explain to our readers what you find so compelling about this type of service?

Who wouldn't enjoy awarding money in the form of a scholarship?!? Identifying and providing money to fantastic students is very gratifying. If we could just raise even more money to persuade more incoming freshmen to come to UNI to become Math majors!

Do you have any particularly memorable experiences in your time at UNI which you might want to share with our readers?

When I first came to UNI, my colleague Ed Rathmell, encouraged me to play basketball at the Wellness Center over the noon lunch hour, following in the footsteps of Math faculty doing so before me! I have met some fantastic people from the community over the past 20 years on the basketball court.

Is there anything else you would want to share with our readers?

At present, I have two other professional activities that are interesting.

Course Development: I have been refreshing my Stat 1772 fully online Introductory Statistics class to better implement statistical pedagogy. Providing a quality learning centered, online environment requires a much different teaching mindset than that needed for a traditional face-to-face class. In particular, most of 30+ videos that I had originally created for this class have become dated and need to be improved and reshot.

Consulting: I provide statistical consulting services to examine default rates associated with housing sales that underwrite mortgage-backed securities for an expert witness, my recently retired colleague from the Economics Department, and coauthor of several research papers, Hans Isakson.

AROUND WRIGHT HALL

The T.E.A.M. (Teaching Educators About Mathematics) student organization has had several events so far this semester:

- · In September they had a back to school cookout and planning meeting at Chepina Rumsey's house.
- Several T.E.A.M members and UNI students attended the lowa Council of Teachers of Mathematics Conference in Des Moines, lowa.
- In October T.E.A.M. had an event where participants made their own "manipulative toolkits" to use in their level field experiences, student teaching, and in their own classrooms someday.
- The final event of the semester was a panel discussion on December 2, 2018. T.E.A.M. student officers are Shelby Schroeder, Morgan Johnston, Hannah Harrison, Kaylynne Huttinger, and Mikaela Naber.

larger social events such as the "Spring Shindig" during the year. The club is led by Eric Nichols (President), Joshua Prybil (Vice-President), Lauren Falck (Secretary), and Lucas Feltz (Treasurer).

Congratulations to Drs. Suzanne Riehl and Adrienne Stanley on being promoted to the rank of Professor!

Two faculty members in the Mathematics Department were recipients of 2018 UNI summer research fellowships: Dr. Samuel Eskelson, whose project title was "Mathematics and Special Education Consultations" and Dr. Bill Wood, whose project title was "Generalized Trigonometric Functions."

In January, 2018, Elizabeth Hughes and Chepina Rumsey were awarded a grant in the amount of \$125,402 from the Roy J. Carver Charitable Trust. The purpose of this grant is to update the

forward-looking resources that reflect modern classrooms. In doing so, this project will enhance student learning in math education courses and better prepare UNI's elementary education and secondary math education students for success as teachers in K-12 classrooms. A condition of the Carver Charitable Trust grant was that the dean would provide funds to renovate the physical space of the Mathematics Education Lab to make it a more open and welcoming place for students to work and learn.

Douglas Mupasiri gave two mathematics talks, "Topological properties of Banach spaces equipped with weaker topologies I and II" on July 21, 2018, and July 22, 2018, respectively, at the Sixth Annual Conference for the Exchange of Mathematical Ideas, Embry-Riddlle Aeronautical University, Prescott, AZ, July 21-22, 2018.

Dr. Suzanne Riehl and Dr. Olof Steinthorsdottir attended the Research Council on Mathematics Learning national conference in February 2018 and presented their paper, "Proportional Reasoning: Student Reasoning and Implications for Teaching."

In February, 2018, Olly Steinthorsdottir and Elizabeth Hughes presented preliminary research in the form of a poster titled "Teachers' Growth in Implementing the Five Practices to Create Discourse Rich Classrooms" at the Twenty-second Annual Conference of the Association of Mathematics Teacher Educators in Houston, Texas. They continued their analysis and presented their work in July in Umea, Sweden at the Annual Meeting of the International Group for the Psychology of Mathematics Education (PME).

Catherine Miller, Elizabeth Hughes and Sam Eskelson presented a talk titled "College Courses and Standards Based Grading" at the Iowa Association of Mathematics Teacher Educators Annual Conference in Cedar Falls in April 2018.



Left to right: Kelsey Latwesen, Mikaela Naber, Shelby Schroeder, Chepina Rumsey, Hannah Harrison, Alison Becicka, at the Iowa Council of Teachers of Mathematics conference (Oct 2018)

The Math Club is a student organization open to all undergraduate and graduate students regardless of major. The goal is to get students and faculty members involved with one another outside of the classroom. The Math Club meetings often consist of games or activities related to mathematics, while enjoying free food and drinks. Math Club also hosts a few

Mathematics Education Lab's collection of K-12 curricula and children's books and to purchase those currently used in K-12 classrooms across the state of lowa. These resources will be stored in the lab (Wright Hall 209), embedded in teacher preparation curriculum and be made available for math education faculty and student checkout. The support from the Carver Trust advances the Mathematics Department's mission to provide future teachers with current, authentic and

For the second year in a row, Douglas Mupasiri facilitated one of the four 90-minute sessions of the AMS Workshop for Department Chairs and Department Leaders in San Diego, CA. This session took place on January 9, 2018, the day before the start of the 2018 Joint Mathematics Meetings. The session was titled "Outreach and communication: building effective external partnerships."

UNI was represented well at the lowa Council of Teachers of Mathematics annual conference, which was held in October 2018 in Des Moines, with many UNI faculty giving presentations. Sam Eskelson, Elizabeth Hughes and Brian Townsend presented "Pluto's Pen: Pragmatic Predicaments with Prototypical Perimeter (and Area) Problems"; Chepina Rumsey, "Using Noticing and Wondering to Leverage Mathematical Argument with K-2 Students"; Kimberly Conner, "Supporting Student Understanding of the Purpose of Proofs"; Olly Steinthorsdottir, "Number Matters! Student making sense of multiplication and division with fractions"; Brian Townsend and Bill Wood, "Math & Board Games 3: Rise of the Mechanics"; Adam Feldhaus, "Fun with Topology"; Catherine Miller, "Tools for Advocacy."

Douglas Mupasiri completed a four-year term as a member, the last two years as chair, of the American Mathematical Society (AMS) Committee on Education on February 1, 2018. His responsibilities as chair of the AMS Committee on Education (February 1, 2016 to February 1, 2018) included service as an ex-officio member of the AMS Committee on Science Policy. Douglas Mupasiri was appointed by AMS president Dr. Kenneth Ribet to a one-year term on the AMS Committee on Committees beginning on February 1, 2018.

In spring 2017, Catherine Miller was elected to be the Educator Preparation Program Faculty Chair. She represents Teacher Education and other licensure program faculty on various committees

and works on projects affecting the Educator Preparation Programs across campus. During her two-year term, Dr. Miller will coordinate efforts to revise the governance system of Educator Preparation programs at UNI and contribute to the important work of revising the Professional Education Sequence. While mostly housed in the College of Education, all teaching majors, along with other education-related licensure candidates are required to take courses in the Professional Education Sequence. With support of faculty in Mathematics Education. and across campus, this work will serve to update and strengthen the Educator Preparation Program at UNI.

2018 HARI SHANKAR LECTURE

Dr. Sybilla Beckmann, the Josiah Meigs Distinguished Teaching Professor of Mathematics in the Franklin College of Arts and Sciences at the University of Georgia, was the speaker of the 2018 Hari Shankar Memorial Lecture. The event took place on April 6, 2018, in the Lantz Auditorium, McCollum Science Hall. In this lecture, Dr. Beckmann took the audience "on an excursion through some of the connections and subtleties that make elementary math surprisingly beautiful, deep, and interesting." Her examples illustrated that even pre-school and elementary school math is not so elementary when you look at it closely.

2018 ACTUARIAL FAIR

The Actuarial Science Program hosted the second UNI Actuarial Career Fair on September 18, 2018, in the UNI Commons Georgian Lounge. About 40 students and several faculty members had the opportunity to meet with representatives of several top insurance companies, including American Equity, Athene, Global Atlantic, Nationwide, Principal, Sammons Financial Group, and Transamerica. In addition to recruiting for summer internships and full-time positions in actuarial science and insurance-related data science, the representatives provided information about the actuarial profession as well as their own companies.

UNI Actuarial Fair





Bill grew up in Humboldt, IA. After high school, his friends went to college but he joined the Marines. "I wanted to get out of my small town and have an adventure, and I did that for about five years," says Bill. Between 1998 and 2003 he was an aerial navigator – a crew member in the cockpit – and got to travel all over the world. That experience was great, but as Bill points out: "I knew I did not want to do that forever so I went to college. I am first generation college educated, although my sister beat me to it."

Bill's wife, who is also a UNI graduate, finished her Master's degree in speech language pathology right about the time that he got out of the Marines. She found a job in Humboldt (which is just down the road from Fort Dodge) and Bill went to Iowa Central Community College for a couple of years. After getting his AA degree, he transferred from Iowa Central Community College to UNI as a Mathematics teaching major. But, it turned out that his career path would take him in a different direction: actuarial science. "I initially thought that I wanted to be a teacher, to teach mathematics, physics, and to coach (wrestling and cross-country). For various reasons that did not work out. When I started at UNI, I did not know what actuaries do. There were several

Actuarial Science majors in my calculus classes and during that time I decided to switch to the actuarial science track. What really appealed to me regarding my new major was the problem solving aspect and the applied math skills that it involves. After my junior year I was fortunate to get an internship with a company in Milwaukee and during that summer (in 2006) I took my first two actuarial exams." Bill graduated from UNI in 2007 with a BA in Mathematics and started his career as an actuary at the Principal Financial Group. He continued to take actuarial exams and, in 2009, passed the last exam and earned the FSA credential.

The key aspect of Bill's strategy of studying for actuarial exams was his discipline. "I think it was maybe even easier for me than for others because I was married and had two children at the time. I had to be really disciplined about scheduling study time. My wife was on board too, but I could not abandon my family and study all the time. I had to make sure that the time I set aside for studying was well spent, quality studying with no distractions. Principal Financial was very supportive. They provided a study room, all the exam materials, as well as study hours (there were about 150 hours of study time per exam)."

Bill's current professional responsibilities center around reserving and financial reporting for annuity products. "I lead a small team now and do less technical work than I did early in my career. Most of my work now is teaching, advising, analyzing, and reviewing others' work. I am proud of the relationships I have built and I take pride in the way I treat people, especially the people who report to me" says Bill.

Bill finds that entry level actuaries face special challenges: "During the first several weeks and months there is a giant learning curve. Part of it is just administrative things (like getting all the software installed). Then you are assigned to a specific business, to a specific product. You have to learn the product and business and there is a lot to learn as you

go. You have to become familiar with the software and there is a variety of software that is being used: modeling software, or it could be just Excel. Many students think they are strong in Excel but they quickly realize how much there is to learn so there can be a learning curve regarding the software as well."

The aspect of his job that Bill enjoys the most is the interaction with people. "This might not sound like what you expect from an actuary (working with people) but it really is a team-oriented environment. There are a lot of aspects to the business and a lot of roles that actuaries play, from pricing to financial reporting, to risk management. We all have to communicate with each other because we are performing different functions and, if we don't communicate well, we will not be as informed and as effective as we should be. I really enjoy the people interaction."

When asked about the long-term prospects of the actuarial profession, Bill responded: "The one thing we know for certain is that the world is going to change. I think actuaries are in a good position to bring value not only to insurance organizations but also to a lot of other organizations because we deal with uncertainty and try to quantify the unknown and sometimes the unknowable. I think these types of skills are always going to translate. I also think the actuarial profession could face competition from other professions (like data and information science) that can do that as well, so it is a profession-wide issue to make sure that we stay relevant and continue to be life-long learners as new techniques and technologies come out."

Bill finds his experience at UNI to be different from that of many others' because he was a transfer student, was married and had children. "I did not live in a dorm – we actually bought a house in Waterloo. I enjoyed my time here a lot. I remember spending lots and lots of hours in Wright Hall. I also worked in the Math Lab as a tutor and I enjoyed that quite a bit. Since I came here as a math education major, I still liked to teach and that gave me an outlet to do it." While at UNI, Bill took several classes in the School of Business, which he found to be particularly helpful in his current profession:" I would say the most valuable courses out of the business school were the economics classes. Learning to think like an economist is very valuable. One of the things that sticks out to me from my economics coursework is that people respond to incentives. As an actuary, especially in pricing and product development, as you are designing features, you think about what sort of incentives you either knowingly or unknowingly give to customers and what kind of behaviors those incentives might drive, because we would not want to give our customers incentives that would lead them to behave in ways that would give them or the company suboptimal outcomes."

Bill's advice for actuarial science students is: "I would like the students to know that when you are hired, you are not hired to do math, you are hired to solve problems. You have to understand the problems you are trying to solve, which means that you have to understand the context, the business around you, who cares about it, and who you are going to communicate with. If you think of yourself as a problem solver, try to get skills that can help you solve problems effectively and communicate to others why your solution works. Work on those broad, big picture thinking skills and work on improving your communication skills. Interpersonal communication is a key skill, the ability to explain to others what you are doing, because we do complex things and nobody wants to hear a complex answer."

As his children are getting older (he has a ninth grader, a sixth grader, and a second grader), Bill dedicates all of his free time to his family. "For fun I go to the gym (we have a gym at work) – I try to stay fit and stay ahead of all the food I eat."



Dustin was born and raised in Monticello, IA. He received his Bachelor of Arts degree in Mathematics from UNI in 2007, and both his Master of Science degree in Mathematics (in 2009) and his Doctor of Philosophy degree from Colorado State University, Fort Collins, Colorado (in 2013). He followed this up with a three-year postdoctoral fellowship at the University of Michigan, and another one-year postdoctoral fellowship at San Francisco State University. He began his tenure-track appointment as an assistant professor of mathematics the same year he had his postdoctoral fellowship at San Francisco State University. Dustin's story is so illustrative of the promise that a UNI education brings for our students, we thought it would be worthwhile to share it with you. Here, in question and answer format, is the story.

When did you decide to pursue an academic career and what about such a career attracted you to it?

I'm not sure if there was ever a distinct moment when I decided to pursue an academic career. I always knew I would enjoy teaching, and I started my education at UNI with the plan of becoming a high school math teacher. I was intrigued by the mathematics I learned and inspired by the professors I worked with at UNI, and this ultimately led me to pursue graduate studies in mathematics. At the time, I had no idea where graduate school would lead.

While a graduate student, I enjoyed the challenge of learning advanced topics and having the opportunity to immerse myself in structures and patterns and puzzles. I distinctly remember discovering a solution to a problem that I had spent months thinking about, and the euphoria of the moment of discovery immediately erased the months of frustration prior to it. I was subsequently hooked on mathematical research. Along with my love of teaching, it became more and more clear that academia was the right direction to pursue.

There's a lot to love about working in academia. I enjoy having the freedom to pursue the mathematical questions that I find interesting, and working with students is especially rewarding, both in the classroom and on research projects. I have the opportunity at SF State to serve an incredibly diverse student body, and I love getting to know the students, learning about their experiences, and the different perspectives that they bring to the community.

What was the trajectory of your academic journey after UNI, which ultimately led you to a tenure-track position at San Francisco State University through graduate school, like?

After UNI, I chose to pursue graduate studies at Colorado State University. Admittedly, this decision was at least as much about access to the Rocky Mountains as it was about academics; a benefit analysis I do not regret. While at CSU, I had the pleasure of working with Renzo Cavalieri, a brilliant and charismatic advisor. After several productive years working with Renzo, I continued my career with a three-year postdoc at the University of Michigan, working with Yongbin Ruan. My partner (also a mathematician) and I went on the tenure-track job market together in 2016. The cards landed perfectly in our favor and we both received offers from San Francisco State University, where we are currently halfway through our third academic year.

A little known fact about mathematicians is the extent to which they have the opportunity to travel all over the world. In

addition to living in Colorado, Michigan, and California, I have had the opportunity to travel to every corner of the globe to participate in conferences and workshops: from Banff to Zurich, from Cortona to Kyoto, and countless places between.

What is/are the main reason(s) why you chose UNI for your undergraduate education?

Growing up in Iowa, UNI always had a reputation as a teachers' college. Knowing that I would enjoy being a teacher, it seemed like the right choice. In addition, the campus and community felt a little smaller and more welcoming than the other state institutions.

What were your first impressions of UNI? Have these impressions changed over time?

Like most first-time freshmen, my initial reaction was to be overwhelmed by the wealth of social and academic opportunities that one is bombarded by when they arrive at college. As I adjusted over time, I really came to enjoy all of my classes and the campus community at UNI.

Is/are there any course(s) in our department that you feel made a significant impact on your growth as a mathematician?

One course that was absolutely formative for me was Professor Stanley's course on Topology, which I took during my third semester. This was my first exposure to abstract mathematics, and Professor Stanley's energy and enthusiasm were contagious. It was during this semester that I decided to change my major from math education to pure mathematics. Looking back, this definitely feels like one of those major forks in the road that delineated between very distinct paths.

Perhaps related to the previous question: do you have any particularly memorable experiences at UNI?

I have a fond memory of some of the nonmathematics classes I took at UNI, which had a large impact on the development of my world view. One, in particular, that sticks out is a course I took based on the work of the Innocence Project. This course

opened my eyes to a number of issues of social justice in our country, especially regarding mass incarceration. Lately, I've been on the lookout for ways to integrate mathematics and social justice in my role as an educator. In my Exploration and Proofs course, I have students learn about the mathematics of gerrymandering and the social misuses of big data collection. I also recently had the opportunity to guide a Math Circle in San Quentin State Prison, which was an extremely rewarding experience.

What kind of professor do you aspire to be? What course(s) do you particularly enjoy teaching and why?

I aspire to give all of my students positive and empowering mathematical experiences. Part of this means holding them to high standards while providing them with the support they need to achieve their goals, and part of this means asking them to become active participants in their education, and allowing them to use their experiences to help shape their learning.

Regarding specific classes, I've really been enjoying Exploration and Proofs. The students in this class are at that impressionable stage where they think that mathematics is all about computing derivatives (spoiler alert: it's not!), and it's a lot of fun to introduce them to a new world of critical thinking and exploration. I also enjoy teaching our graduate course in algebraic geometry (my area of research), because students begin to see how all of the seemingly disparate structures they learned about in algebra, analysis, and topology are intimately intertwined.

What advice would you offer a student in his/her early years at UNI, who may be considering an academic career?

Build a community. Mathematics is rarely done in a bubble, and you can learn a lot from the people around you. Keep an open mind. Mathematics is an enormous subject, and it's a good idea to spend time exploring. Embrace the challenge. As mathematicians, we spend a lot of time challenging our brains to grapple with abstract and complex ideas; the joys of triumph often occur after a good deal

of frustration. Don't settle. Mathematics is malleable and you should mold your mathematical pursuits to align with your personal interests and goals.

What do you enjoy doing in your free time?

I enjoy reading; mostly novels and comic books these days. I also spend a good deal of time at Roxie Theatre, a great little movie theater in SF. In addition, my partner and I spend a significant portion of our holiday time traveling to rock climbing destinations. Our favorite places that we've been to recently are Tahoe and Bishop (California), Squamish (Canada), Fontainebleau (France), and Rocklands (South Africa). =



Eileen graduated from UNI in 1980 with bachelor's degrees in Mathematics and Chemistry. After graduation, Eileen continued in our Masters of Arts program in Mathematics with a Computer Science emphasis (through night school) and earned her MA degree in 1983. Currently she lives in Minneapolis and serves as an Operating Principal at the Global Infrastructure Partners (GIP). In April 2018 she participated in the UNI Alumni in Residence program. We used the opportunity to have a conversation with Eileen, which we present below:

When was the last time you were on our campus?

Since graduation, I visited UNI a couple of times, most recently about six years ago. I was invited to attend a meeting

of the CNS advisory board by Dean Joel Haack.

How do you find our campus today, compared to the years when you were a student?

The campus is bigger, there are more buildings. I think getting to the south of the campus is where there has been more change. I remember the last time I was here, six years ago, I was really surprised by the amount of building that had occurred even then. But Wright Hall still looks the same. I am really impressed with the campus, which is a very beautiful campus: it is clean, tidy, it is impressive. And, keep in mind, we are coming off a pretty long winter and it looks great! Compliments to all those involved, because it really gives a good impression.

At what point did you decide to study mathematics in college and why?

I had made a decision to study chemistry and mathematics - I loved them both. I got a chemistry scholarship and not math, but I really enjoyed the challenge. I could not make up my mind, that is why I did both. It wasn't until I left college that the direction I took was set. I had gotten a job offer from John Deere to work in their Paint Adhesion department, a very chemically-focused job, and my husband had just taken a job in a different state. I followed him and that is when my journey began with the computer science/math route. Up until that point, I was dual with everything. During the years when I was a graduate student I was working at Lutheran Mutual, which later became CUNA Mutual, in Waverly. I started in programming there and then I went into management. They used the computer programmers as their pool of candidates for any supervisor position that would open. I was tapped on to take one of those roles and that is how I got exposure to management and supervision at a very early age. Then I ended up relocating to the Twin Cities, where I did seven years of systems programming (UNISYS was the company I worked for). When the company decided to downsize to about 30,000 employees, I made the decision to move into IT management.

How did your mathematics education help you achieve your professional goals?

You always look at what you benefit from a program. One area is the knowledge of the topic and I think that UNI did a very good job of teaching the basics of mathematics. What also is there, are the hidden skills that are not so evident, and that is through the connection with certain professors who saw in you the ability to go above and beyond what you saw yourself. That comes from experience and guidance and I think that is an understated quality that the faculty at UNI have. When you are a first-year student, you don't look for that. It's not until after the fact that you look back and say: who are those professors who saw something in you that you didn't see in yourself? If you look at the academic side, many times you get so focused on the grades and the output. You forget "where is your journey here?" and "how do you see things differently when you get into the working world?" A second and very important part is being able to help the student and push them to be able to understand the material in a way that they can take into the real world. The third part is critical thinking. When you get into any job, the answers are not going to be evident. You have to work through a lot of complex options to determine what the right solution is. I don't care what your background is, but if you can do critical thinking that will serve you well. That is a hard skill that the mathematics program does help develop and I think that is very well done here.

What are your favorite memories from UNI?

Campus living was certainly an important part. I was a resident assistant, so I had a certain level of involvement on campus. I lived all four years in the dorm so being an RA certainly gave me that opportunity to continue to stay on campus. Another important part were the communities within the different departments (we had a math club and a chemistry club), being able to interact with students that otherwise you might not get a chance to interact with. I think those are things that help each other. When you do different team activities, when you're doing different math problems and working together, to know that there's a group there that you are all in it together is a great thing. The programs that are provided here allow some of that to happen.

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IN MEMORIAM



Jack Wilkinson 1931-2018

Dr. Jack Dale Wilkinson, Sr., 87, of Cedar Falls, died Monday, September 3, 2018, at the Bartels Lutheran Retirement Community in Waverly, Iowa. He was born January 27, 1931 in Ottumwa, Iowa, the son of Lester and Pansy (Collins) Wilkinson. Jack married Carole Johnson on June 7, 1953 in Ottumwa.

He was a 1948 graduate of Ottumwa High School, earned his B.A. in 1952 and M.A. in 1958 from Iowa State Teachers College (UNI) and his Ph.D. in 1970 from Iowa State University. Jack taught at Aplington Community Schools, Beloit Junior High School in Wisconsin, and La Habra High School and Fullerton Junior College in California. In 1962, he returned to State College of Iowa (UNI) and was a professor in the Mathematics Department for 49 years, retiring in 2011. Jack was a member of the Rotary Club and was passionate about UNI and the Panthers. He was elected to the UNI Hall of Fame for his service to the university.

He is survived by his wife, Carole Wilkinson, of Cedar Falls; his son, Walter Milton (Karen) Wilkinson, of Plano, Texas; his three daughters, Laura Joyce (Jeffrey) Flicker of Silver Spring, Maryland, Leslie Jane (David) Brandt of Rochester, Minnesota and Martha Beth Wilkinson of Greene, lowa; nine grandchildren, Jaci Wilkinson, Sidney and Max Flicker, Robin, Tracy and Clare Brandt, Josh (Nicki) and Jeremy (Bethany) Wilkinson, and Zachri (Amelia) Volgarino; nine great grandchildren, and many beloved nieces and nephews.

Jack was preceded in death by his parents; a son, Jack Dale Wilkinson, Jr., and his stepfather, Larry Wallen.

* From Dahl-Van Hove-Schoof Funeral Home

As an operating principal, what are your current professional responsibilities?

I'm going to just give a bit of a background. In our particular company, which is a private equity company, we have two key groups. One consists of the "deal" guys, who go out and look at buying the companies. And then I'm on the "fix it" side, the operating side. So, the deal guys see opportunities, see where we can streamline, use maybe technology to become more efficient. I'm part of the team that goes in and does the fixing. Now, my specialty is technology and operations. So what I do is look at these organizations of companies we are going to buy or have bought, and certainly since we have bought them (I'll just talk from that perspective), I'm working with the CEOs to understand how we are working as a business. Sometimes we have to separate some of the companies we buy, which means we have to separate all the systems, all the hardware. So we ao through a very detailed process on how we attack that, and I'm usually on the steering community, helping drive that. Many times we have deadlines, we have to be separated by a certain date. And so I am in the middle of that.

As someone who has a good understanding of how important mathematics is, do you have any advice for our students (math majors)?

Lactually have a few points I would make. There are what I call "hard skills." They are tactical, but you need to have them as a starting point. Number one is, you have to know your numbers, and by that I mean you have to know how the company works, where the success is. If you're going to run a department, you better understand your budget numbers. Because if you don't, someone else will do it for you, and that's usually not a good position to be in. You have to make sure you understand what a P&L (profit and loss) is and a balance sheet. Make sure you understand the difference, especially in the world of technology. You have to know what is capitalized and what is not. You have to know what market changes are happening that could impact your budget dollars. So even as mathematicians in the areas

that you're added, you have to know your numbers.

Number two is, you really have to have good communication skills. And this is the tactical side, I'm not talking about the soft side yet, so I'm going to talk about the hard, tactical pieces here. You have to know how to communicate by email. And the funny part with email is, when you type you have a thought process in it but you don't know how it's going to be interpreted on the other end. There are some subtleties with email etiquette that you better figure out, because it can get you into real trouble. If someone expects a salutation, you better have a salutation in your email every time you respond. Some people could care less about a salutation, they get right to the matter, you better respond accordingly. But it's important to be aware how you need to respond. Also, you have to be able to use Powerpoint and Excel. And the thing is, as you look at mathematicians, explaining complex issues, if you cannot be concise and succinct in how you present that information, and many times you're doing it in a Powerpoint, that'll get you into trouble. And the one joke you'll hear out in the market, is you always can tell who the mathematicians are from the IT people because their entire Powerpoint presentations are just text. And that's why marketing people do so well: they have been trained. And the other thing is, good written communication. You could be the most brilliant mathematician, but if you can't spell check and you can't do complete sentences, people think you're stupid. And that's how they will perceive you. And I think you really have to be thoughtful about that. And the last one is project management. There isn't a thing that you're going to be asked to do that isn't going to have some type of deadline. And maybe you have to work with somebody else. You have a start date, you have an end date. You are now in the world of project management. You at least need to be exposed and understand the terminology around it, that doesn't mean you need to be proficient in Microsoft Project. But as you move up in the organization and you look at - especially around math and some of the complex pieces of how you're bringing it all together – you have

to understand how you work with the rest of the team, what your contribution is, and your deadlines. You don't need a lot of training in it, but you should understand what it means. Those are the hard skills that I would fell anybody coming out of math: take the time to take a class on it, a training on it, get on youtube, whatever it is, get yourself exposed to it because the first time you're asked to do that in a work setting and you don't know what questions to ask, you're not going to be producing what's going to be expected. If someone tells you you're only going to get two slides to present your information, that's all you're going to get. That doesn't mean you go down to 8-point font to try to squeeze it in, you have to look - what is the story? And that is why I say Excel is part of that too. Because many times you're using bubble charts, you're using some of the latest techniques that exist, you're taking those into Powerpoint. So you have to understand how to use the tools to present complex information in a tactical way that's consumable. If you're with your peer group, that is a different story. But if you are working with upper management, you have to know who your audience is. That is the key – know who your audience is. From a math standpoint, make sure the students at least know how to do it. I would make it part of the criteria for them to be successful. Because you're expected to know how to do it.

What advice would you give a student getting ready for a job interview?

The first is to be prepared. And prepared means a couple different things: spend the time on the internet researching the company that you're going to be interviewing with. There is no reason to not understand, are they making money or not? What markets are they in? You'll be able to ask intelligent questions. Number one is be prepared on the company. Number two is, how do you show up? How are you physically dressed? Do you know what that environment is like? You are much better to be overdressed than underdressed. Are you tidy? The third is, how do you act during the interview? First of all, you want to be on time. You do not want to be late. Do you have a spare resume? When you sit at the table, do you

have good eye contact? A good, firm hand grab? Are you an active listener? Do you actually listen to the question being asked, or are you off daydreamina? And do not walk in with your phone. Put your phone in your pocket, put it away, because you're there to be interviewed. You want to give 100% of your attention to that person. I have had interviews where the person has stopped the interview to take a phone call. They did not get the job. So you have to ask yourself, obviously the person doesn't care enough to show up. The other thing is, go online and look for the top ten interview questions. Everything is online. Practice your answers. No answer should last longer than three minutes. If you can't make your point in three minutes, you haven't done your homework. They're going to ask you, "What did you accomplish in college?" this is not a fifteen minute dissertation. You hit the high points. If people want to know more, they will ask you more. The other thing that is not written, is the person is evaluating you. Whoever the interviewer is, they are evaluating you, the interviewee; are you a cultural fit? Are you a person that can work with the rest of the team? They will ask you about your ability to do teamwork. They will ask you what projects you have worked on, and what activities you have done as a group. And statistically, what they are showing for successful executives, what is the one common trait that the majority of them have? Team sports. Because you win and lose as a team. For many of these complex projects, can you work as a team member? That is the other thing that we are finding: people are so entwined with social media and one-onone that they are forgetting that skill does not convert to being a good team player and good communication skills, and we are really struggling with that. That is what the interviewer is going to be picking up on. The most important aspect for me is good eye contact. If you cannot look at the person and answer their questions, or if your eyes are all over the place or you are talking at the wall or you mumble, you are not going to do well. The statistics show that, within one minute of you walking in the room, the person will have decided whether they will hire you or not. It is that fast. You are going to know if the person will connect or not.



When did you decide to become a mathematics teacher?

As a junior in high school, my Algebra teacher saw something in me that I did not see in myself for many years to come. She asked me to tutor a young man in Algebra during my free time. I needed the community service hours for graduation so I obliged. I discovered I was really good at it and enjoyed seeing the student succeed. I felt his successes in Algebra were my successes as well, and his failures were mine also. We developed a bond that would otherwise not exist. I recently saw him while attending my 10-year reunion and the impact I had on him still remains. However, I fought the notion of going into mathematics teaching. I wanted to go into the corporate business world and climb the corporate ladder as fast as possible and for many years avoided my true calling. It was only at UNI, after taking business classes and math classes, that I decided to follow my true passion for teaching.

What are the main reasons why you chose UNI over other colleges and universities?

I chose UNI for many reasons. While on a road trip as a 16 year-old, we made a stop in the Cedar Valley. I made a decision at that time that I wanted to live in the Cedar Valley. Quite honestly, I did not even know about the University until after I had made the decision

to live in the Cedar Valley. Upon visiting the campus, I was hooked. The fact that the college "specialized" in business and teaching was only a bonus for me.

I also wanted to venture away from my "norm" back home. As a resident of a different state, all of my friends were going to the same college. I did not want to be a part of the "norm" and wanted to make a name for myself. I was pretty set on going to a college where I would have no acquaintances. UNI was definitely that place for me. I came to UNI not knowing anyone but left with lifelong friends.

UNI was also very welcoming to me from the very start. Financial aid was an issue and UNI's financial aid department did everything in their power to make my enrollment at the university possible. Throughout the process, I knew that I would feel at home at UNI and I was not let down in that regard.

What were your first impressions of UNI? Have these impressions changed over time?

My first impressions of UNI were that it would be the perfect fit for me. This has not changed over time for me. The campus itself is aesthetically pleasing. I honestly enjoyed walking to class and taking in the entire surroundings. My wife and I to this day still occasionally will walk the campus with our two boys and dogs. I even proposed to my wife by the clock tower and our wedding was on the UNI grounds as well. It is by far the best looking campus I toured while on the college search.

My first impression of my classes at UNI was also good. All of my professors seemed approachable and willing to help. The professors worked hard to keep classes meaninaful and engaging. I enjoyed all of my classes at UNI and am thankful for all of my experiences.

Are there any courses in our department that you feel have made a significant impact on your growth as a future teacher? How about certain professors who helped you succeed in our program?

All of my classes at UNI had a significant impact on my growth as a future teacher. In particular, Dr. Cathy Miller's classes taught me the importance of developing relationships. Dr. Miller made deep lasting relationships with

all of her students and I try to do the same. Dr. Jiwha Noh's class taught me the importance of perseverance. It was the first class that I had significant trouble with and had to work extremely hard in to pass. It taught me to be empathetic towards the students in my class who may be struggling. I remember constantly the frustration that I had during the class and that helps me to meet the needs of struggling students in my class. I really enjoyed Dr. Nikolay Silkin's Linear Algebra class as he made the class fun and entertaining. Dr. TJ Hitchman is another professor that really stands out. The way Dr. Hitchman organized his class made a significant impact on my teaching today. He encouraged us to explore the content, make mistakes and work together. He truly was a facilitator of learning and did not directly teach anything. I thought his class was one of the more difficult classes, but I can honestly say that I learned the most in his class. I try to implement that same approach in my classes today. Students in my class are taught to persevere and explore through problem situafions and learning is the end result. Very rarely do I direct teach students a concept. I also was fortunate enough to have outstanding professors such as Dr. Stanley and Dr. Shaw to name a few.

Do you have any particularly memorable experiences at UNI?

Ljoined the UNI Club Soccer program as a freshman. This was a memorable experience that will last a lifetime. I formed many great friendships through this experience and had the time of my life while playing for them. Most notable was our trip to Alabama to play in the National Club Championships. I continued to play throughout my time there at UNI.

Other memorable experiences include all of my Field Experiences. I was fortunate enough to get placed with some of the most amazing educators in the Cedar Valley. I particularly enjoyed Dr. Balong's Level II Field Experience and my student teaching placements with both Mrs. Netty and Mr. Laures. I have formed lifelong relationships with these educators through UNI's Field Experience program.

It is hard to pinpoint exact memorable experiences at UNI. The day to day life at UNI is fantastic. Each and every day was something new and an opportunity to do something I enjoyed. The Wellness and Recreation Center is very accessible and always has something fun going on. I was very active in our rec rooms at the Towers as well. Just being able to have fun with friends all the while getting a

great education is something that is memorable in itself.

What kind of teacher do you aspire to be?

I aspire to be a teacher that has a consistent presence in a student's life. I enjoy working with students who are facing many challenges in life and being a role model for them. I want to be a firm but fair presence in students' lives. I want students to see the value in attending my class. I want them at the end to say it was a difficult but manageable class. I want them to be proud of their perseverance and have a sense of accomplishment for completing something they did not feel was possible beforehand.

I also want to be a teacher who helps students see the value in their hard work. I want the students to be able to apply the problem solving skills learned in my class to whatever situation they may be dealing with either academically, professionally, or even personally. I want students to be comfortable enough to approach me with whatever challenges they may be facing and work together to overcome the obstacles before them.

What are some of the most rewarding aspects of your job?

One of the most rewarding aspects of my job is the "aha" moments students experience along the way. I celebrate as much as the students do when something that was difficult for them all of a sudden makes sense. I live for the moments when a student who has been working so hard at something suddenly understands it and lights up. Just having the influence on students' beliefs and attitudes in them is rewarding.

I also enjoy when students come back and say thank you. Many times I teach students who do not see the value or the long term goals of what we are doing in Algebra 1. When a student comes back and says, "I am glad you did the things you did and it was worth it in the end," it validates what I am trying to do.

Another rewarding aspect of my job is being able to collaborate with colleagues and even Field Experience students from the local colleges. The Field Experience teachers I had through my journey had a lasting impact on my career and I hope I can do the same for others. In fact, two of the teachers in my department at Waterloo West High were once Field Experience teachers in my classroom. It is

awesome to see college students go full circle and excel in their chosen profession.

Are there any professional achievements that you are particularly proud of?

I am extremely proud of my first year teaching. I was hired mid-year based on positive word-of-mouth comments as to how well I was doing in student teaching. My first class was a very difficult class that had gone through multiple long-term substitute teachers. The expectations were low for me starting but I had high expectations of the students going in. We were able to collectively, as a group, get behavior under control and much to the surprise of others, were even able to raise math standardized assessment scores. This was by far the most challenging group of students I have ever worked with but the most rewarding group as well.

I am also very proud of the success my students have had on standardized assessments. Each year my students show above average growth. This is a testament to the hard work they put in each year but something (am still very proud of.

Another achievement I am proud of is being named the Department Head of a fairly large Mathematics Department. Each teacher in my department is highly supportive of me in that role and we are all working together to make our department the best it can be.

A non-academic achievement I am very proud of is being on the school's soccer staff. I was fortunate enough to find a coaching position immediately after school and have been an integral part of the program. Two years ago, our whole staff was named the Mississippi Conference Coaches of the Year and this is something I am very proud of.

Trent is a teacher at Waterloo West High. He coaches High School Boys' Soccer at West and also coaches two girls' teams for the Iowa Rush North Soccer Club. He is married to his wife, Amy, and together have two very active boys, Kannon (4) and Brody (2). In their free time, they like to go ice skating or play hockey around the house, Trent's hobbies include playing soccer in various local adult leagues and taking his kids to sporting events. They have recently gotten into building their own ice rink in their backyard which, according to Trent, is quickly becoming a year round hobby. Other hobbies include enjoying many of the various outdoor activities the Cedar Valley has to offer.

NEWS FROM THE Center for Teaching and Learning Mathematic

By Vicki Oleson and Julie Creeden

The Center for Teaching & Learning Mathematics (CTLM) is thrilled to announce the formation of a second cohort of teachers in Mascoutah, Illinois! This new cohort will be starting in January 2019 with the first course in our Making Sense of Mathematics and Teaching (MSMT) professional development (PD) series: Making Sense of Numbers. This second cohort is already filled to capacity with 25 teachers who are excited and ready to go! The Mascoutah Community School District requested an early start for Cohort 2, which was originally scheduled to begin in 2020. This request was due to the continued successful delivery of our MSMT courses with the first cohort, who are currently taking courses three and four in the series: Making Sense of Geometry and Making Sense of Measurement. The Mascoutah Math Mania summer camp also continues to be filled to capacity with over 140 fourth through seventh graders from the district. The CTLM provides the camp curriculum and supports the training of Mascoutah teachers to effectively lead this popular summer math camp. All of this good work is possible due to the continuation of a Department of Defense Education Activity subaward to the CTLM for military impacted schools. Additionally, we will be replicating all of this good work in O'Fallon, Illinois beginning later this year.

We have also recently submitted proposals for two STEM scale-ups through lowa STEM. The first PD course we hope to scale is called Opening Doors to STEM for Struggling Learners. Students who learn mathematics easily at the elementary level have more opportunities to take difficult math courses in middle school, high school, and college. This leads to a broader range of STEM career opportunities for these students. Students who struggle to learn mathematics in elementary school are often excluded from advanced STEM courses in high school and college and are later excluded from STEM-related occupations. Teachers work hard to catch

up struggling students in mathematics, but often do not know what to do to help. Opening Doors to STEM for Struggling Learners is a professional development opportunity that helps special education teachers provide better instruction for students who struggle to learn math. This PD is designed to help teachers catch-up students who struggle with mathematics so that they are better prepared to take math courses that lead to STEM-related career opportunities.

The second course included in our scaleup proposal is Opening Doors to STEM for Grades 3-8. Students gain the mathematics background necessary to take gateway courses such as algebra during their middle school years. When students are not prepared to take gateway courses in middle and high school, they are excluded from programs and higher-education courses that prepare them to work in STEM-related fields. Opening Doors to STEM for Grades 3-8 is a PD program for teachers that will supply them with curriculum and professional learning designed to boost their students' confidence as they dig into problem solving and critical thinking with creativity and collaboration. This program will focus on communicating, problem solving, persevering, and developing a growth mindset. After completion of this two-day, face-to-face PD with online follow-up, teachers will be equipped to deliver the Opening Doors to STEM for Grades 3-8 curriculum in their classrooms, during after-school activities, or during summer programming. We anticipate hearing whether or not our scale-up proposals have been accepted by late January.

Finally, all of this good work is thanks to the CTLM staff consisting of Dr. Vicki Oleson, Director; Karis Townsend, Assistant Director; Julie Creeden, Writing Coordinator; and Amy Frohardt-Schafer, technical writer and editor.

So what do you get when you interject a brand-new, young, energetic, tech-savvy,

sophomore student assistant named Hayley Palensky into a department filled with women who are old enough to be her mother? You get a fresh, new presence on several popular social media platforms, that's what! In addition to its Facebook page, the CTLM has jumped onto the bandwagon of YouTube, Instagram, and Twitter! One day at a time, we are gaining new followers who find us through the creative and strategic use of hashtags - #mathisfun #mathed #iteachmath #STEM #teachersofinstagram #STEMteacher #mathteacher #iteachsecond #iteachfourth #iteachmiddleschool #homeschool and MANY more! We are thrilled to see that our vast array of high-quality, research-based resources are getting into the hands of those who can use them - both teachers and families! Our new channel on YouTube is called Center for Teaching & Learning Mathematics (catchy name, don't you think?) and it currently houses a variety of playlists containing many of our Problem Solved: Making Sense of Mathematics video resources. In the near future, ALL of our resources from the areas of math, literacy, early learning, and autism spectrum will be housed there. Our Instagram account links directly to our YouTube channel. Our YouTube channel links directly to our brand new CTLM website, which houses all of the print resources that accompany each video. Please check out our new website at ctlm.uni.edu, subscribe to our YouTube channel, like us on Facebook at Center for Teaching & Learning Mathematics, and follow us on Instagram and Twitter @CTLMath.

#CTLMathPDrocks #UNItrainsmathteachers #currentlyservinglowalllinois



Aaron is a UNI student majoring in Mathematics - Actuarial Science and Economics - Applied Economic Analysis and minoring in Finance. Currently a junior, he came to UNI in the fall of 2016 and is on track to graduate in May 2020. A top honors student in his class, he is a Presidential scholar and has been on the Dean's list every semester. This past summer Aaron was an intern at Principal Financial Group, where he was involved in individual life financial reporting, calculation of mortality experience and actuarial balances, and reserving of term and life insurance products. He is an active member of the UNI Actuarial Science Club, where he has been a Treasurer since March 2017. He is also a member of the UNI Economics Club and serves as a student admissions ambassador for the UNI Admissions Office. We asked Aaron several questions about his experience at UNI.

How did you decide to become an Actuary?

When I started my college search, I knew that I was aspiring to use my strong analytical math skills, but was unsure of how to apply them. Some of the more common career paths in education or engineering were not appealing to me and at some point during my search I felt I was stuck. Then I got in contact

with some people at Principal Financial Group in Des Moines, IA and went on a job shadow. I was able to learn a lot about the profession and why actuarial work is so important. From that point on, I decided to become an actuary and I have thoroughly enjoyed my time studying actuarial science.

How do the two majors help you meet your career goals?

As a double major at UNI in Actuarial Science and Economics: Applied Economic Analysis, I have been able to learn about two different but related subject areas. I feel I have a good understanding of how my technical work as an actuary can apply in a business setting. Courses in the business school really help to find practical applications to my studies. I am very appreciative of the ways in which the Mathematics and Economics departments have worked together to develop very cohesive major programs for students interested in business-applied mathematical work. I have also been able to build a stronger network with more UNI professors by majoring in two different areas. This has been extremely valuable to my education.

What are your thoughts about our actuarial program?

During my sophomore year at UNI, I was able to pass two actuarial exams: P and FM. I completed my first actuarial internship at Principal Financial Group in the summer of 2018. Upon completion, I was offered a returning internship for the summer of 2019 and I am excited to continue working for a company like Principal. UNI has provided tremendous opportunities to network with multiple companies. The program is very strong and supportive as seen through the Athene Actuarial Scholarship that I received.

What are your favorite UNI experiences so far?

I have had many great experiences at UNI. One such experience in the Mathematics Department was competing on the UNI team at the Travelers Actuarial Case Competition in St. Paul, MN. I also am an active member of the Actuarial Science Club, in which I serve as treasurer. I also enjoy serving as a Student Admissions Ambassador to prospective students. Last but not least, I like to have an active lifestyle, and I am very pleased have been on the UNI Men's Club Soccer team for the previous two years in addition to participating in many intramurals.



Amber, an Elementary Education major with a Mathematics minor and seeking endorsements in Science, Mathematics, and Social Science, came to UNI in the fall of 2015. A Presidential Scholar maintaining a 4.0 GPA, Amber has earned accolades from many of her professors, including several in our department. Because of her strong mathematical background and strong leadership skills, she has been the Lead Lab Assistant in the UNI Mathematics Education Lab (located in Wright Hall). In addition to tutoring elementary education majors in mathematics education classes, she is in

charge of training new tutors and holding various staff meetings. Amber answered a few questions for our newsletter:

Why did you decide to become an elementary school teacher?

Growing up, I have always felt drawn to being a teacher but it wasn't until my family did foster care, during my senior year of high school, that I realized I wouldn't want to be anything else. We fostered two three-year old boys and a baby girl. I helped out a lot with their care, got them ready in the morning for daycare, and picked them up after I got off school. That experience made me realize that working with children was what I wanted to do for the rest of my life.

Why did you add a math minor?

Math had always been my favorite subject throughout middle school and high school. I loved working on a tough problem until I was finally able to solve it. I was excited to take math classes at UNI and the first class I took here was Mathematical Reasoning I with Olly Steinthorsdottir. We went very in-depth into mathematical concepts that appeared simple, like counting or addition. That class made me realize how much more there is to math and made me fall in love with it even more. It was during that class that I decided to add a math minor. So many children dislike mathematics and I want to become a teacher who hopefully will help students develop the love for math that I had while in school and here at UNI.

What is your favorite UNI memory?

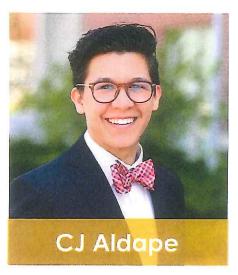
My favorite UNI memory is from the Middle School Leadership Conference that I helped organize with the Student Association of Middle Level Educators (SAMLE). The conference, which was attended by over 100 middle school students and UNI pre-service teacher volunteers, focused on diversity and teaching leadership skills. It featured an opening and closing keynote speaker and three breakout sessions. Hed one of the breakout sessions and I loved getting to work with the students. The conference required a lot of planning but it went amazingly well. SAMLE received UNI's Program of Distinction Award for the conference. SAMLE is in the process of planning another conference for this coming spring that focuses on the growth mindset and I cannot wait to be a part of it again.

You have volunteered for a variety of on-campus activities. What is your favorite one?

My favorite volunteering experience at UNI has been as a tutor at the University of Northern Iowa Center for Urban Education (UNI-CUE). This is my fourth semester tutoring a middle school student.

I love being able to work one-onone with middle schoolers because it is a completely different experience than what I get in field experiences.

I get to know the students so well because I see them every week for an entire semester. I also love that I get to see their progress as we work together.



CJ came from Chicago to UNI in the fall of 2016 to pursue a major in elementary education. After taking a course in mathematical reasoning with Dr. Olly Steinthorsdottir, he declared a mathematics minor to go with his major. This addition gave him the opportunity to take additional courses in our department, which piqued his interest in mathematics in general. He soon realized that his interest in mathematics is very strong and decided to change his major to secondary mathematics teaching. His transition to the new major was greatly facilitated by Dr. Olly Steinthorsdottir and Dr. Catherine Miller.

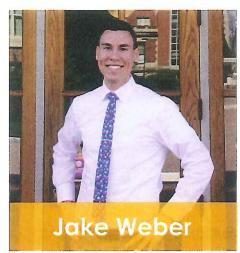
CJ has an impressive track record of engagement in student organizations. Shortly after starting at UNI, he was elected a senator in the Northern Iowa Student Government (NISG) representing the College of Education. As a senator, he advocated for the interests of students as a representative in university committees, collaborated with fellow peers and faculty on issues regarding the university, communicated and compromised with faculty and peers in order to achieve various NISG goals, and advocated for students of minority status through meetings and presentations. Last semester, CJ served as a NISG Chair of Campus Relations. In that capacity, he managed a team of eleven students, communicated student concerns to university faculty,

and advised committee members on how to complete certain initiatives. With the support from the Mathematics Department faculty, CJ was appointed Chief of Staff for the Northern Iowa Student Government. In this role, he oversees the activity of 14 Lower Cabinet NISG Directors.

Since his freshman year, CJ has been an office assistant in the UNI Office of Student Life. This position has given him the opportunity to identify and solve a variety of issues that student organizations come to the office with, and to assist the office staff with preparing funding documents and procedures for student organizations. In addition, since the spring of 2017 CJ has been a member of the UNI Student Life Team, in which he assumes an active role in educating student organizations on methods to set aside implicit bias when recruiting current students and in planning informational workshops designed to educate student organizations on the resources they have.

CJ's campus community involvement includes service on a variety of organizations including Connecting Alumni to Students (CATS), Educational Policy Commission, Maucker Union Feasibility Committee, Sexual Assault Strategic Prevention Plan Committee, LGBT LLC Task Force, Student Leader Advisory Board, General Education Revision Committee, and Governmental and Legislation Affairs Committee (to name a few).

His impressive service record is matched by an equally impressive performance in the classroom, where CJ is among the best students in his class.



Jake came to UNI as a high school student in 2013, planning to be an actuarial science major. He had heard about this major from his high school math teacher but did not know exactly what actuarial science was. However, when taking the Mathematics of Finance class he realized that while he could become an actuary, that was not what he really wanted to do. From that point on, he decided that he wanted to be a problem solver and gain a comprehensive understanding of mathematics.

I want to be a go-to resource for others when they have questions about math. I figured the best way to gain that comprehensive understanding would be through majoring in pure mathematics."

Some of Jake's favorite courses in college were the Advanced Calculus sequence, Complex Analysis, and Combinatorics. He feels that the Advanced Calculus sequence helped him improve significantly his proof writing skills. "Not only has the quality of my proofs improved", reflects Jake, "but through the adversity of obtaining differing proofs day in and day out, I believe I have a better understanding of the logical process of proving a statement." He found Complex Analysis to be quite challenging: "Complex Analysis was the first mathematics course where I remember I had to sit and study the material outside of class. The homework was sometimes challenging and taking that class before I was a full time student at UNI set me up for success by establishing positive study habits." Jake found Combinatorics to be a great course to take for many reasons. "At the onset, I thought it would be a good course to help challenge my ways of thinking, pushing me to consider different ways to solve problems. Boy, was I right! The course was also a good experience because it exposed me to students that aren't majoring in mathematics and it showed me how students of different backgrounds attack problems."

Jake has many favorite memories about his years as an undergraduate student at UNI. Says Jake: "I will forever remember the late nights studying with a core group of math students; from Discrete and Argumentative Mathematics to Modern Algebra to Advanced Calculus, these students, colleagues, and friends have made my success possible by pushing me to be my best. Not only have they helped me to be a great mathematician, but through their support and friendship they have helped me to be a better person." A particular event made a lasting impression on Jake: in 2016, he and a couple of other students in the

department, together with Dr. Michael Prophet, participated in the annual SIAM conference in Boston. "Aside from listening to professionals share what cool things they've been working on, I got the opportunity to explore Boston (my first time being on the East coast). This was my first conference. I enjoyed identifying parts of mathematics I wasn't interested in, discovering the vast array of topics mathematicians concern themselves with, and talking to other students and professional mathematicians about what they recommend for future study."

Jake feels that several faculty members have made a major impact on his undergraduate education. According to Jake, Dr. Adrienne Stanley has been instrumental to his success as a mathematics major. During the summer of 2017, he worked with Dr. Stanley on an undergraduate research project (which involved exploring counterexamples of balanced sets). Says Jake: "From doing summer research together, to working through my honors thesis, to having Dr. Stanley in class, she has always taken time to make sure I understand the material and feel good about my progress, even if that meant spending time outside of class. Not to mention, I have been bitten by the "Set bug" and I now enjoy the quick and fast paced game whenever a break from mathematics is needed." Although he has not had any formal classes with Dr. Miller, meeting with her one-on-one for his independent study in teaching college mathematics has proved to be enlightening. "Working with Dr. Miller has helped me gain great insight on who I am as a person and who I would like to be" says Jake. Finally, at the start of his undergraduate education at UNI, Jake had five consecutive semesters with Dr. Michael Prophet. "I believe he set me up for a successful mathematical

career just by the way he structured his courses and what he expected out of me as a student. As my advisor, he was instrumental in helping me realize I should become familiar with different computing languages to aid my mathematical computation power."

As an undergraduate student, Jake gave several talks at meetings and conferences. Under Dr. Prophet's mentoring in the Preparing for Industrial Careers course in Spring of 2016, Jake's team was invited to give a ten-minute talk on their solution to a problem posed by Short's Travel Management (a charter travel agency in Waterloo, IA). His team presented their solution, "The Genetic Algorithm: Relevance Beyond Biology", at the 2016 SIAM Conference in Boston, MA. In addition. Jake presented his poster "Exploration of Counter Examples of Balanced Sets" at the Summer Undergraduate Research Program poster session at UNI and, in October 2017, he gave a talk on the same topic at the Mathematical Association of America's regional meeting held at Loras College.

During his years at UNI, Jake was active in the Sigma Phi Epsilon Fraternity, serving as vice-president of finance for three semesters. He was also part of the Kappa Mu Epsilon Math Honor Fraternity, where he served as president for one year. During the 2016-2017 academic year, Jake served as an atlarge student representative on the UNI Student Fees Committee. In addition, for the past three years he has been part of the UNI Bowling Club and served as co-president for one year. Jake is a very successful bowler: he has bowled a 300 game and an 800 series (over three games). He even managed to throw these honor scores while qualifying in a monthly scholarship tournament he bowls in every month.

In his free time, Jake enjoys playing music (he plays the saxophone and the trumpet). This past summer, after preparing and going through an audition process, he marched with the Troopers Drum and Bugle Corps, performing at 32 different shows and traveling 11,500 miles across 22 states. He also enjoys crocheting (he is always in the middle of a project), running, biking, playing games (most often Set and Cribbage), and drinking tea.

Jake earned his BA in Mathematics from UNI in May 2018 and was awarded the Purple and Old Gold Award by the Mathematics Department. He is currently a graduate student in our department, pursuing an MA in Mathematics. ■

DONOR SPOTLIGHT CAROL CRANE



The donor spotlight this year is on Carol Crane ('61 B.A. Math and English, '75 M.A. Math) of Johnston, IA. We suspect that Carol's own life experiences, first as a student at Iowa State Teachers College (ISTC) and later as career school teacher, give her a unique perspective on the financial challenges that students pursuing a teaching major face. But appreciating and recognizing a problem is one thing, having the compassion and the wherewithal to do something about it is entirely another

thing. Carol, now a retired math educator, and her late husband Bob Crane ('62 B.A. PE, '75 MBA), a retired Marine colonel, and retired CIO of Guide One Insurance in Des Moines, who died in 2016, began funding the Robert A. and Carol L. Hendrickson Crane Scholarship in Secondary Math Education in 2009 with a \$5000 scholarship to a mathematics education major. Together they have a 42-year history of giving to UNI, which started with their very first gift in 1971 to the Class of

1962 Fund. Their gifts have supported many initiatives on campus, including a variety of funds in the Department of Mathematics. We, and even more, the students who have received the Crane scholarship over the years, are deeply indebted to the Cranes for their support.

As our team was going through the process of selecting a donor to feature in this edition of the Wright Message, we were intrigued by Carol Crane's long history of giving and sought to learn more about Carol, the person, and the inspiration for her extraordinary generosity. We asked Carol to tell her story in her own words. Our only guidance to her was that the story might include some details about her education, professional experience, her achievements, her hobbies, and anythina else she might want our readers to know about her. What follows is Carol's rendition of her own story.

In May 1957, I walked across the stage at graduation from Northwood High School, as the valedictorian of the class, with plans to attend ISTC as a secondary mathematics major with an English minor. I remembered my 8th grade math teacher who showed me that I could be a teacher and enjoy it as well as she did. I wanted to stand up one day as the teacher of eager students who saw how much I loved teaching math to all students!

ISTC had many wonderful professors who showed me the way to a future as a math teacher. I have copies of my algebra and geometry books from my days in Northwood High School and I compare them with textbooks used today. The material in my high school textbooks would be covered in just a few months of teaching today.

At ISTC I found the number of female math education majors very small. It was a time where the majority of students becoming math teachers were male. Most of my math classes only had one or two females. This encouraged me to demonstrate that women who loved math were capable of becoming exceptional math teachers. My goal was to have all of my students want to learn mathematics and love it too!

While at ISTC, I worked every job I could possibly get. I kept very busy including working at the telephone office and helping a female professor teach math to three rooms of students watching via TV at the same time. These jobs helped me pay my way through each year and taught me I could succeed without debt.

During the time I was in college I made many friends. These friends helped me realize that helping students understand that I enjoyed working with them was important. While some students could be challenging, all of my students grew to know that I enjoyed working with each one of them.

Back when I was in college, very few students had a car. One student from Northwood had a car and put up a note on a big board when he would be going home - "Call if you want a ride." One day, I was one of three heading home and along the road appeared a student hoping to be picked up. We stopped and picked him up as he was on his way to Glenville, MN that was just north of Northwood. To make a long story short, 2 years later I married him after I graduated from ISTC.

The rest of this story includes both my husband, Bob Crane, and me. I taught in Waterloo our first year of marriage while Bob finished his undergraduate education. I learned so much that year that I hadn't encountered before. Lessons learned that first year were impactful on all my future years of teaching. Bob was encouraged by the Marine Corps to attend training to become an officer, which he accepted. His ISTC football and track experiences helped him be successful in the Marine Corps where he

ultimately became Col. Robert A Crane. Military life required many moves with our children, Diane and Rob. Both of our children and one grandson graduated from UNI. Bob and I both received our master's degrees from UNI. Right now, our youngest grandson is in Air Force ROTC at Montana State University.

I am very pleased to get to know **UNI's current staff** in the Mathematics building, Wright Hall. The students are well taught, just as I was at ISTC.

Everywhere we moved (except three unaccompanied trips to Vietnam and several trips to Guantanamo Bay for Bob) I faught mathematics. Every move had a job for me. I had to get teachers certificates in 6 states plus a certificate for a year in Okinawa, Japan teachina all branches of the military. I still have two teacher's certificates that are for life - Iowa and Missouri. While we moved many times, I taught the most years in Virginia. While in Okinawa, I received a long-distance call from a principal in Virginia who heard we were headed back toward Virginia and wanted to know if I would teach for him once again!

When Bob decided to retire from the Marine Corps, we headed to Kansas City for several years. Eventually, he was recruited to a job in Des Moines IA. We lived in the Des Moines suburb of Johnston. While there, UNI, through the UNI foundation, again knocked on our door. I told the foundation that what I really wanted to do was provide a scholarship for a UNI junior or senior secondary mathematics education major. The recipient could be male or female and would

be chosen by the mathematics department of UNI. This December I will send my ninth \$5,000 scholarship to UNI, with an additional 5% going to the foundation. All eight of the candidates selected by the mathematics department were, to my surprise, energetic, knowledgeable females, anxious to teach math! In some respects, I was recreating myself! The recipients have all expressed their gratitude for the scholarships, especially when student teaching could take place without an extra job!

Bob and I also mentored confirmation students at St. James Lutheran Church for nine consecutive years. It was a warm, healthy and fulfilling thing to do. We gained so much in doing this for both the students and ourselves.

In addition to being the Valedictorian of my high school, another highlight came my senior year at ISTC. On the evening of Mother's Day, with my parents present but hiding from me, I was tapped for a senior women's honorary, the "Torch and Tassel." Only seven seniors were chosen. I'm proud of my degrees including my 1961 Mathematics and English degrees and my 1975 Masters in Elementary Math.

My favorite hobby is reading. Through all the years of teaching, I often didn't have time to sit and read. Now I can read all I want. I am also on a Johnston Library committee to fund ideas we all want for our public library. When I moved to where I am now, I took 12 boxes of books to the library and kept several boxes of my favorite authors for my present home.

I say hello to students with Panthers on their shirts and sweatshirts and enjoy chatting with them. I am definitely "Purple for Life." I am also very proud of Bob for being in the UNI athletics Hall of Fame for the undefeated 1961 football team.

UNI ONLINE MATHEMATICS SECONDARY EDUCATION PROGRAM NAMED ONE OF THE BEST IN THE NATION

The University of Northern Iowa's online master's in secondary education program has been recognized as one of the best in the country of 2018 by BestColleges.com, a leading provider of higher education research and college planning resources. The ranking (number 15) highlights accredited, not-for-profit institutions, which have developed exceptional academic online programs for students looking to advance their knowledge, skills and career in secondary education.

"We are deeply honored to have our online master's in mathematics secondary education program selected by BestColleges.com as one of the best in the country for 2018," said Douglas Mupasiri, professor and department head of the Department

of Mathematics at UNI. "The recognition is the culmination of hard work and sustained effort, which was spearheaded by the mathematics education faculty with the support of all the other faculty in the Department of Mathematics. The list of the other programs that made the BestColleges.com ranking is humbling. But even as we celebrate this milestone, we will 'keep our eyes on the ball.' Our cause, as always, is to do everything we can to provide a first-rate education to the students we serve. If anything, the recognition by Best-Colleges.com motivates us to rededicate ourselves to that cause."

"Our online Master's in Secondary Education ranking highlights education institutions that have established quality academic

curriculums while remaining affordable and flexible for today's graduate students," said Stephanie Snider, director of BestColleges.com. "Earning a position on our ranking demonstrates that the University of Northern Iowa is committed to providing an online program that focuses on successful student outcomes."

BestColleges.com's ranking uses a methodology grounded in statistical data compiled from the Integrated Postsecondary Education Data System and College Navigator, both of which are hosted by the National Center for Education Statistics. The aim is to objectively assess relative quality based on academic outcomes, affordability, and the breadth and depth of online learning opportunities.

ALUMNI UPDATES

JESSICA FOSTER

I graduated from UNI with a major in actuarial science and statistics in 2008 as Jessica Phelan (maiden name). For the most part, I stayed in the Cedar Valley since then and have made it my home, working for two of the major employers in the area as an analyst, in various capacities. Recently, in addition to getting married, my husband and I took over Moment in Thyme catering (located in Cedar Falls) after the former owner retired. I believe that everything that happens in life happens for a reason and culminates with the present. And while I am not in an overtly mathematical/ statistical career, my choice of a major was paramount to launching my post collegiate learning-by honing my critical thinking skills, which led to a job as an

analyst where I learned all aspects of a business, which gave me the confidence needed to run my own. Basic algebra is all that I use nowadays, but I use it all day every day in the kitchen-so when junior high students ask "when will I ever need this?," I have the answer.

I would like to close out this update with a quick thank you to the math department. I went to UNI on a partial scholarship from the department - having won the math symposium test back in 2004. That scholarship made going to UNI as an out-of-state student affordable, in as much as college can be affordable. So, thank you!

DOUG D KILBURG

I graduated in 1999 with a Bachelor of Arts in Mathematics/Secondary Education. I also graduated in September 2003 with a Master of Arts in Mathematics. As of the fall of 2003, I started working as a Mathematical Statistician for the USDA's National Agricultural Statistics Service in St Paul, MN. In 2008, I transferred to the

Headquarters unit, designing samples and developing analytical tools. This past fall they offered to send me to graduate school at the University of Maryland in College Park. I submitted an application and was selected. I will enroll in the Joint Program in Survey Methodology this fall studying statistical theories in connection with social and psychological theories in order to better conduct surveys.

BRANDY NETTY

My name is Brandy Netty, (maiden name Brandy Mefferd). I graduated from UNI with a BA and MA in Secondary Mathematics (2003 and 2010, respectively). I am currently an Associate Professor of Mathematics at Kirkwood Community College. I also was a high school math teacher for six years before coming to Kirkwood. I am very proud to be a UNI Alum. I am married to another UNI grad (BA, 1990 and MA, 2004), John Netty. He is an Administrator in the Iowa City Community School District. Go Panthers!