

THE WRIGHT MESSAGE

DEPARTMENT of MATHEMATICS

2015–2016

UNIVERSITY OF NORTHERN IOWA



Dear Alumni and Friends,

We are delighted to bring to you the 2015-2016 edition of our department newsletter, *The Wright Message*.

The newsletter's editorial team, consisting of Dr. Marius Somodi (who also writes most of the articles), Ms. Betty Bagenstos, and me, has put together a mix of stories we hope will be as interesting to you as they were to us.

Roughly speaking, the contents of this edition are divided into five segments. The first segment spotlights students, alumni, and donors. The students, Britney Bockstahler, Derek Hofland, Amber Irlmeier, and Julia Robinson, were selected for spotlight honors because they exemplified the very best that we expect of our students. The alumni, Clayton Edwards and Mary Theilen, were chosen because their extraordinary achievements in their careers illustrate the promise that a UNI education holds for our graduates. We put the donor spotlight on Alan and Barbara Hubbard, not only because they made an unusually large estate gift to the department even though neither attended UNI, but also because their reason for doing so will resonate with all of our readers. I won't risk spoiling the story by giving snippets of it here. I will, instead, only say their reason has everything to do with the big difference that great teaching can make in the lives of students lucky enough to experience it, and refer you to the full story in the newsletter.

The next segment contains fascinating interviews with Dr. Adrienne Stanley

(who spent the Spring 2015 Semester as a Fulbright Scholar in Budapest, Hungary), alumna Dr. Suzanne Shontz (who came back to the department and gave a colloquium talk on her research in applied mathematics), recent graduate Benjamin Castle (who spent the Fall 2014 semester in Budapest, Hungary, participating in the Budapest Semester in Mathematics and is now a graduate student in mathematics at the University of California - Berkeley), and Dr. Joel Haack, who, after serving for two decades as an administrator at UNI, has returned to what he loves best, teaching.

The third segment contains a tribute by Dr. Diane Thiessen to Dr. Edward Rathmell, who retired in June 2015 after 43 years of teaching at UNI. In this segment, we also bid farewell to our colleagues Drs. Bin Liu, Jihwa Noh, and Matthew Webb, who all left us this summer to pursue opportunities elsewhere after a combined 24 years of service to the department.

As in previous years, the marquee event in our departmental life this year was the annual Hari Shankar Lecture whose goal is to bring out and share the beauty, joy, and usefulness of the mathematical sciences with the general public in the Cedar Valley. This year's lecture, titled "Data Mining and Business Analytics with Big and Small Data", was given by Dr. Johannes Ledolter, the C. Maxwell Stanley Professor of Management Sciences at the Tippie College of Business at the University of Iowa, and Professor of Statistics at the Vienna University of Economics and Business. Details about the lecture are in the newsletter.

We round out the newsletter with an "In Memoriam" tribute to Dr. Augusta Schurrer

who died on January 1, 2015, announcements of a Presidential Award to alumna Allysen Lovstuen, a Tritjzinsky Scholarship award to Emily Wardenburg, and a summary of the comings and goings around Wright Hall.

The stories in this edition of the newsletter demonstrate that the state of the department is strong. 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 \$158,307 between July 1, 2014 and June 30, 2015. 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 has awarded \$179,871 in scholarships to undergraduate and graduate students for the 2015-2016 academic year, an increase of 28.15% over the last year. Additionally the department received a \$429,086 life insurance gift from Dr. Augusta Schurrer and a \$1,000,000 estate gift from Alan and Barbara Hubbard. As you know, many students are graduating with huge student loan debts, on average \$22,313 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 2015 was good to you and that 2016 will be even better.

A handwritten signature in black ink, appearing to read "Douglas Mupasiri".

Douglas Mupasiri,
Professor and Head

Table of Contents

- 2 Retiring Faculty
- 3 2015 Hari Shankar Lecture
- 4 Around Wright Hall
- 6 Alumni Spotlight
- 8 Interviews
- 14 UNI Students Travel to Korea
- 15 Trijitzsky Scholarship
- 16 Student Spotlights
- 20 Donor Spotlight
- 22 Farwell to Three Colleagues
- 23 In Memoriam
- 24 Contributions to an Account – Recognition
- 26 Department Funds

Editorial Team:

Betty Bagenstos, Douglas Muspasiri
and Marius Somodi

Dr. Edward Rathmell retires from UNI



By Diane Thiessen

Ed is one of the few people for whom it is most appropriate to have a personalized license plate that reads MATHED.

Ed Rathmell has been a classroom teacher, an AEA consultant, a Fulbright Scholar, author of an elementary textbook series, member of the Editorial Panel for the *Arithmetic Teacher*, interim Mathematics Department Head, and a professor of mathematics education at the University of Northern Iowa. He has been president of the Iowa Council of Teachers of Mathematics (ICTM) and served on its board in various capacities. He has received the ICTM Lifetime Achievement Award and the Faculty Excellence Award from the Iowa Board of Regents.

After receiving his Ph.D. from the University of Michigan in 1972, Ed began his career at UNI. Each year for the next 43 years, Ed provided professional development for teachers in various schools. This has included being a math coach, teaching demonstration lessons and talking with and listening to teachers. Work with teachers has included national, state, and local projects such as the professional development of

Department of Defense teachers, Iowa middle school teachers in Every Student Counts, and collaboration with local teachers in the Primary Mathematics Project. Additionally he has given annual presentations at regional and national NCTM conferences and at Iowa and other state meetings.

Nationally, Ed was one of the coauthors of the K-4 Writing Team of the *Curriculum and Evaluation Standards for School Mathematics*; this was the first set of standards commissioned by the National Council of Teachers of Mathematics and became the prototype that other professional organizations emulated. Later, he was both an editor and author of other reform materials including *Navigations* and *Essential Understandings*. Two of his earliest publications in the 1970s, "Thinking Strategies to Learn the Basic Facts" and "Number and Numeration" in NCTM yearbooks, contained ideas that Ed continued to refine and pursue throughout his career — this should sound most familiar to individuals cognizant of his current work. In the past several years, he has written about and advocated for meaningful distributed instruction.

The very first Mathematics Methods Conference, a conference centered on discussions of teaching mathematics at the college level, was held at UNI and was organized by Ed. This started a tradition that led to the creation of the national organization, the Association of Mathematics Teacher Educators (AMTE).

"One important series of events occurred in Iowa where, beginning in 1978, mathematics teacher educators from the Midwest met every two years at a mathematics/mathematics education methods conference that provided an opportunity to share ideas and common concerns. Among the leaders of these activities were Ed Rathmell, University of Northern Iowa and Don Balka, St. Mary's College, Notre Dame, IN." (A History of the Association of Mathematics Teacher Educators, AMTE website)

The 2015 Hari Shankar Lecture



*Dr. Johannes
Ledolter
Speaker, 2015*

Ed has been a leader in UNI mathematics education. During major revisions of the mathematics education programs at both the undergraduate and graduate levels, Ed worked on both program and course development. Over time, he also taught most of the math ed courses for both undergraduate and graduate students developed the Math Methods course during the NSF-funded PEMST program (Preservice Elementary Mathematics and Science Teachers) and continued to teach the methods course most semesters. He has been Director of the MA Program for Teaching Mathematics in the Middle Grades. Since the inception of this program, he has worked with about 70 students on their Master of Arts Papers, a rewarding but time-consuming project.

In my first years at UNI, Ed was my mentor as well as my office mate. This was before new faculty members were assigned mentors and before the remodeling of Wright Hall, when shared offices were common. There were many long discussions of teaching and learning mathematics, what it means to understand mathematics, what math is important, how to introduce and teach different topics, how to implement change . . . I observed that, whether with faculty or students, with individuals or in classes or presentations, he enjoyed the discussions and extended genuine interest in the participants.

A special thank you to Ed for his thoughtfulness, contributions, and leadership at UNI and in Math Education. His dedication and work have had a major impact.

The Hari Shankar Mathematics Lecture Series is an annual event hosted by the Department of Mathematics which features a lecture intended for general audiences given by a distinguished personality in the Mathematical Sciences. This year's guest speaker was Dr. Johannes Ledolter.

Dr. Ledolter is C. Maxwell Stanley Professor of International Operations Management and Professor of Statistics and Actuarial Science in the Department of Management Sciences, Tippie College of Business, at the University of Iowa. He is also a Professor of Statistics at the Vienna University of Economics and Business, in Austria. Dr. Ledolter earned Master of Science degrees in Statistics (1972, University of Wisconsin-Madison) and in Social and Economic Statistics (1974, University of Vienna), and a Ph.D. in Statistics (1975, University of Wisconsin-Madison). He has taught at several prestigious universities as a visiting professor, including Stanford University, University of Chicago, Yale University, and Princeton University. He is an elected fellow of the American Statistical Association and the American Society for Quality and authored or co-authored several books.

The lecture was given on April 7, 2015, in the Lantz Auditorium, McCollum Science Hall. The title of the lecture was "Data mining and business analytics with big and small data." Approximately 60 students,

faculty, and guests attended this event. The lecture was preceded by an introduction by Dr. John Fritch, Dean of the UNI College of Humanities, Arts and Sciences, and by an address by Mrs. Rekah Shankar.

The lecture provided an accessible introduction to the principles of experimental design and data mining. Dr. Ledolter highlighted the important role that design of experiments plays in statistics by discussing various ways of collecting data and stressing the importance of collecting data appropriately. He pointed out that the size of a data set alone is not what counts - the quality of the data is also important - and that data mining on big data sets may not always provide clues, while the analysis of a small data set (if collected appropriately) may yield greater understanding of the information hidden in the data. He quoted Ronald Fisher who said: "To consult the statistician after an experiment is finished is often merely to ask him to conduct a post-mortem examination. He can perhaps say what the experiment died of." The second part of the lecture was an equally accessible introduction to various methods of analyzing data, particularly different types of regression techniques.

The lecture was followed by a reception, where members of the audience were given the opportunity to speak with Dr. Ledolter.

Around Wright Hall

Congratulations to...

Dr. Olof Steinthorsdottir and Dr. Bill Wood on earning tenure and promotion to the rank of Associate Professor!

Dr. Syed Kirmani for winning the College of Humanities, Arts and Sciences Dean's Award for Excellence in Research, Scholarship or Creative Activity in Fall 2014.

Dr. Heather Gallivan and Dr. Min Lee for being awarded 2015 summer research fellowships from the UNI Graduate College. Dr. Gallivan's four-week project was entitled "Elementary Prospective Teachers' Beliefs about Teaching Mathematics to Socio-Culturally Diverse Students in Urban, High-Needs School." Dr. Lee's eight week project title was "Modular Forms and Differential Operators." The objective of his project **was to find differential operators which carry modular forms to modular forms and use such operators to investigate various properties of modular forms.**

Dr. Suzanne Riehl for completing her year-long Professional Development Assignment during the 2014-2015 academic year. She worked on a research project entitled *Analysis of Data in "Routes to Reason: Proportion"*.

Dr. Heather Gallivan and Dr. Adam Feldhaus on being admitted to the STaR Program. STaR (Service, Teaching, and Research) is a program for early-career mathematics educators. The 2015 cohort of STaR Fellows includes 32 faculty members from 30 different institutions in 21 states.

Faculty Highlights

In April 2015, Dr. Joel Haack was honored to be selected by United Faculty as the **first recipient of the "Faculty Administrator of the Year"** award. The award recognizes UNI faculty administrators who uphold the AAUP (American Association of University Professors) principles of academic freedom, tenure, and faculty governance. Haack returned to teaching in the fall of 2015 after serving 11 years as Dean (of the College of Natural Sciences, the College of Humanities and Fine Arts, and the joint College of Humanities, Arts and Sciences). He completed a total of 20 years in administration at UNI, having served 9 years as head of the Department of Mathematics before becoming dean.

Dr. Theron (TJ) Hitchman was interviewed for the Chronicle Blog Network, sponsored by *The Chronicle for Higher Education*. His 4+1 Interview was published in June 2015 in the Casting Out Nines section of the blog: <http://chronicle.com/blognetwork/castingoutnines/>

In June-July 2015, Dr. Douglas Shaw taught a course in the Michigan Math and Science Scholars program. The Michigan Math and Science Scholars program is designed to offer a pre-college experience exposing students to the breadth of curricula offered at the University of Michigan while introducing high school students to current developments and research in the sciences.

Dr. Douglas Shaw is serving on the Cedar Falls Board of Education. He is currently the Vice-President of the Board and his term will expire in 2017.

Dr. Syed Kirmani served as a Guest Editor (jointly with Ram C. Tripathi) of a Special Issue of 'Communications in Statistics – Theory & Methods' (Publisher: Taylor & Francis). The title of the Special Issue is "Distribution Theory and Statistical Methods for Lifetime Data".

Dr. Joel Haack made three professional presentations during August and September, 2015. At the MathFest held in Washington, D.C., he presented "**Humanistic Reflections on Mathematics Magazine Problem 1951 and a Solution.**" At the invitation of UNI's Department of Physics, and for its students, he gave a colloquia talk on "Euler's Greatest (Mathematical) Hits: The life and (very) selected works of Leonhard Euler, 1707-1783." Finally, his presentation at the Iowa Council of Teachers of Mathematics meeting in West Des Moines was "Activities from the History of Mathematics."

Dr. Syed Kirmani gave a talk at the Iowa EPSCoR STEM Conference, University of Northern Iowa, July 15, 2015. The title of the presentation was "Why major in Mathematics? Why at UNI?"

Three faculty members in our department gave talks at the Third Annual Conference for the Exchange of Mathematical Ideas. Dr. Douglas Mupasiri's talk was entitled "Elementary Submodels and their Applications to Functional Analysis." Dr. Michael Prophet talked about "Chalmers' Equation and Minimal L^p Projections." Dr. Bill Wood's talk title was "Cube Tilings and Discrete Conformal Geometry in Higher Dimensions." The conference took place over two days, June 6-7, 2015, at the University of Mary Washington in Fredericksburg, VA.

Dr. Syed Kirmani was a panelist on the panel Ethical Issues in Statistics at the Workshop on Scholarly Integrity for Graduate Students, University of Northern Iowa, on October 22, 2014.

Student News

The 21st annual Iowa Collegiate Math Competition was held on February 21, 2015 at Iowa State University. Twenty-four teams from twelve colleges and universities participated in this event. The UNI team, consisting of Ben Castle, **Derek Hofland**, and one student from ISU placed first, scoring 82 points out of 100 possible!

The results of the 2014 Putnam Mathematical Competition are in! Several UNI students participated in this annual event. Among them, Ben Castle earned a score of 29, which placed him in "top 500" in the nation!

The twelfth annual Midwest Undergraduate Mathematics Symposium (MUMS) was held on April 10-11, 2015, at Simpson College. Mark Ronnenberg, at that time a senior majoring in mathematics, gave a talk entitled "Discrete Dynamics on Graphs under Contractions." His research project was supervised by Dr. Olena Ostapyuk.

Rebecca Holzrichter, a UNI senior majoring in elementary education with a mathematics minor, worked on a summer research project under the supervision of Dr. Suzanne Riehl and Dr. Olof Steinhorsdottir. Her project was entitled "Proportional Reasoning in Middle School: Exploring Students' Use of Labels." The project was funded by the Dean of the College of Humanities, Arts and Sciences.

Taylor Coulter, an elementary education major with a mathematics minor, worked on a summer project entitled "Are Problem Contexts Really Real? Analyzing Contexts in Textbook Problems on Fraction Multiplication" under the supervision of Dr. Heather Gallivan and Dr. Jihwa Noh. The project was funded by the Dean of the College of Humanities, Arts and Sciences.

Cole Boudreau and Coved Oswald, undergraduate students majoring in computer science, worked on a motion virtual manipulatives project over the summer using new technology which turns any wall or surface into a virtual touch wall. They were supervised by Dr. Sarah Diesburg (Department of Computer Science) and Dr. Adam Feldhaus (Department of Mathematics). Both Dr. Diesburg and Dr. Feldhaus are Fellows of the UNI Center for Educational Transformation, which funded this research project. Cole created an application that allows interaction with virtual manipulatives receiving touch input and Coved created an application for the evaluation of these inputs. Using information from these applications, their motion virtual manipulatives framework will be tested and used to teach mathematics in K-5 classrooms along with other manipulative types.

2015-2016 TENURE-STREAM FACULTY:

Russell Campbell
Mark Ecker
Adam Feldhaus
Heather Gallivan
Joel Haack
Theron Hitchman
Elizabeth Hughes
Syed Kirmani
Min Lee
Shangzhen Luo
Catherine Miller
Douglas Mupasiri
Vicki Oleson
Olena Ostapyuk
Michael Prophet
Suzanne Riehl
Karen Sabey
Doug Shaw
Marius Somodi
Adrienne Stanley
Olof Steinhorsdottir
Brian Townsend
Bill Wood

Alumnus Spotlight

Clayton Edwards



By Brian Townsend

Dr. Clayton Edwards received the Robert Yager Exemplary Teaching Recognition Award in 2014. The University of Northern Iowa Yager Exemplary Teaching Recognition Award is sponsored by Dr. Robert Yager, a nationally recognized science educator who graduated with his BA from UNI and went on to receive his Ph.D. from the University of Iowa. The award is designed to highlight UNI graduates who have gone on to achieve excellence as science and/or mathematics teachers and showcase their specific successes and those of their students. Recipients of the award receive \$2000 and a plaque from the Yager Science Education Fund for Excellence and are recognized at an awards luncheon.

Dr. Edwards' path to excellence began several years ago. As a fairly new middle school teacher in Grundy Center, Clay began to notice that many of his students seemed to have a superficial understanding of much of the mathematical content that they were learning, and even that understanding tended to diminish over time. This led to unsatisfactory student assessment results that Clay sought to improve. In 2007, Clay began the Middle Grades Master's Program at UNI in an effort to improve his instruction.

Early on in the program, Clay learned the importance of students being able to explain their mathematical thinking and the benefits of individualized instruction. Clay made the most of his new learning and

worked to identify and implement changes in his teaching practices. More and more, group work became the norm. Tasks that allowed students to explore and create their own understandings replaced rote memorization. Student questions and explanations became the currency of the classroom, with the students themselves serving as the arbiters of authority. In short, Clay grew exponentially as teacher and, in the process, his students achieved similar growth in their understanding of mathematics.

When the pacing of class didn't allow him to meet the needs of all of his students, Clay worked to utilize technology to support his students' learning. He set up online units that allowed students to work at their own pace while maintaining their ability to collaborate and do group/whole-class discussion, all online. Clay's journey in developing this online setting and assessing its impact is detailed in his dissertation. Dr. Edwards continues to heavily utilize technology in his classroom and has a significant online following through his @Doctor_Math Twitter account, his math website, his personal math blog, and his dedicated YouTube Channel.

Clay's classroom changes brought about immediate results, as measured by standardized assessments, and his students continue to score well. More of his students began scoring in the advanced range and the lower-performing students made substantial progress every year. More importantly, everyone in his class improved, which was always his primary goal.

The changes that Clay made in his classroom and the resulting student growth were chronicled in his Master's Thesis. The work from Clay's thesis was ultimately published in *Mathematics Teaching in the Middle School*.

As previously alluded, Clay finished UNI's Middle Grades Master's Degree program and just recently completed his doctorate in curriculum and instruction, all while continuing to serve his students as the middle school mathematics teacher in Grundy Center. In total, Clay has published five articles, with another expected this summer.

This fall, Dr. Edwards accepted a position in the College of Education here at UNI. Clay charted a highly successful path since beginning our program at UNI and will undoubtedly continue to make us proud.

Alumna Spotlight

Mary Theilen



Each spring, academic departments throughout the campus invite distinguished alumni to participate in the Alumni in Residence program. This program provides current UNI students an opportunity to learn from the selected alumni about their professional experiences and to seek guidance from them before embarking on career paths. This year, our department selected Mary Theilen, Chief Risk Officer and Vice-President of the Loss Reserving unit at American Family Insurance, as our alumna in residence.

Mary graduated from UNI in 1999 with a BA in Mathematics. She was always interested in mathematics and was good at it. At some point, while still in high school, she became interested in actuarial science and eventually decided to become an actuary. Her career choice was reinforced when her older brother married an actuary, which allowed Mary to learn more about the profession directly from someone within it.

Mary remembers with great pleasure her years at UNI. She cherishes the memories and friendships she formed during those years. She remembers nostalgically the meetings of the Mathematics Club and the interactions with her peers, from studying together to playing volleyball. Add to these the fact that Mary met her husband at UNI (he was a social studies and political science education major) and you get a

good image of what UNI means to her. After graduation, Mary started her job as an actuary at American Family Insurance. She is currently responsible for enterprise risk management for the organization, which means that the division she is leading is in charge of identifying and monitoring risk to the organization, including operational risk (e.g. business continuity), capital insolvency risk (insuring there is enough capital to meet the promises to policyholders), and catastrophe management risk (e.g. loss due to natural hazards). She is also the leader of the loss reserving function. In that role, she oversees a large number of actuaries who work on the quantification of the organization's loss reserves for their financial statements.

In order to be a fully credentialed actuary, it is necessary to study for and pass actuarial exams. Most of our students pass one or two actuarial exams before they graduate. As a student, Mary passed what is the equivalent of the first four actuarial exams. "I would not necessarily recommend students trying to achieve four" says Mary. "I would highly encourage them to try to pass one if not two exams before coming out of school because it does help getting a job; it also helps to understand some of the basic concepts that you start with on the job."

Mary is a member of the American Academy of Actuaries (MAAA). In addition, she is a Fellow of the Casualty Actuarial Society (FCAS) as well as a Society of Actuaries Chartered Enterprise Risk Analyst (CERA), which means that, among other requirements, she has passed all the actuarial exams required to attain these credentials.

"The mathematics program gave me the educational foundation for starting my career in actuarial science. The breadth of knowledge I got from UNI allowed me to leverage that as I moved through my career."

When asked how she prepared for actuarial exams, Mary answered: "When I was a student, preparing for actuarial exams involved taking much of my class work and augmenting it. When I got into the professional world, it was different. American Family Insurance, like most employers, gives you some study time. You are working a certain number of hours, studying a certain number of hours, and you have to balance both. You might get to go to a seminar for 1-3 days, where someone would be teaching you, but it's not like having someone always available for that. When I was hired, the company was hiring groups of actuaries often, so there were typically between 2 and 5 of us taking the same exams. That was nice because we would study together occasionally or at least use each other for questions."

Mary encourages students wishing to pursue successful careers as actuaries to focus on two things: first, focus on the actuarial science courses and get deep into the material covered in school. A solid understanding of the material is extremely important. Second, do not ignore the broader aspects of your education and, potentially, of your career. "What I found in my 16 years of work experience is that I wouldn't have planned it the way it has turned out. There have been opportunities along the way, including risk management, that weren't necessarily on my career plan. Having a broader focus in my education helped me be prepared for those opportunities as well."

A broader education is important because, according to Mary, in recent years the actuarial profession has become increasingly dynamic. "When I came in, most actuaries worked in one of two areas in the property casualty business (everything other than life and health, basically); in pricing for those lines of business or in loss reserving – that was the traditional actuarial path. Over the last decade, there has been a trend of actuaries working in less traditional areas. For instance, some actuaries started working in product lines (e.g. state product managers) or on developing sales models. What we do now with risk management is an area that was not well developed in the industry 15 years ago and it's been an opportunity for actuaries to find areas where their skills and backgrounds can add value."

Mary has kept in touch with our department after her graduation. She comes back to UNI often to meet with students in the Actuarial Club and to recruit the best of them. She hired two of our recent graduates in full time positions, one of whom is currently a member of one of her teams. As an experienced recruiter, Mary recommends anyone who is about to interview for a job to "be themselves and be genuine. Making good eye contact, speaking appropriately, but at the same time not getting so rigid to lose yourself in that process, are good things to think about before going in the interview."

Mary and her husband Jason have four children, Alyson, Amy, Henry and Jeremy, and live in Columbus, WI. Mary enjoys athletics – she jogs and runs races for fun. She coaches different sports and athletics teams for her children. "I enjoy reading a lot. I think it is a break from my everyday life" says Mary.

Department: Interviews



Adrienne Stanley

Dr. Adrienne Stanley spent the spring 2015 semester as a Fulbright scholar in Budapest. The Fulbright Scholar program sends 800 U.S. faculty and professionals abroad each year. Grantees lecture and conduct research in a wide variety of academic and professional fields.

What motivated you to apply for the fellowship?

Initially, I had no intention to apply for the Fulbright. My neighbor was a Fulbright scholar who went to Budapest. She had such a wonderful experience that she encouraged me to apply. I was not sure if I wanted to do that but she insisted that I apply. I started looking into the academic disciplines that were strong in my area and, as it turns out, Budapest is one of the hubs for set theoretic topology (which is my field) in the entire world. I also found out that there was a mathematician, Lajos Soukup, who was a head in the Alfréd Rényi Institute of Mathematics (part of the Hungarian Academy of Science), who had actually quoted my work. In fact, I had one of his papers on my desk, which I had been consulting in my own studies. I contacted him to inquire about the possibility of a Fulbright and he said that he knew my work. We started talking about the opportunities and the potential for working together, and determined that we study the exact same topics. I sent him some of my current results and asked if he would write a letter of invitation in support of my application. He did and, surprisingly, his letter quoted results from my PhD disser-

tation of which I had not told him. I applied and, amazingly, I got it.

What were the expectations in terms of teaching, research, and service?

The fellowship was 100% research. This was: how much mathematics can you do in five months? Lajos had a lot of obligations but we met in his office and actively worked together about six hours a week. In addition to that, I was doing 30-40 hours of math on the side (in every coffee house in Budapest). It was really lovely because I was living in a flat, I did not have to

worry about my car or about my cats, I did not have to worry about teaching or serving on committees. I only concentrated on Math. It was truly wonderful!

What can you tell us about the research project you worked on?

One of the things that Lajos and I are quite fond of is called elementary submodels. These are smart pieces of the mathematical universe. Within their scope, everything that they can see, any statement that is true within their small universe, is true if and only if it is true in the mathematical universe. This is truly amazing. They can see uncountable things but they cannot see all of their elements. They have a limited scope. Anything, any logical statement that is true for them is also true for the real world. This gives an extremely powerful tool when you are doing proofs. If you are doing a proof on an uncountable object, you can approximate it with uncountably many smart countable pieces.

What role do you think this fellowship will play in your professional development?

It is going to play two roles. One, I now have a connection in Budapest - and I intend to go back - that will help enrich my research. I already have a project that Lajos and I worked on and I think it is a project that one of our graduate students could make progress on. I am arming two of our graduate students this semester so that they have enough tools that they can start working on it, as a team, in the spring. The project is based on a couple of

questions that Lajos and I did not answer. Second, I met the head of the Budapest Semester in Mathematics Education program. The program just started this semester and I am hoping to set UNI apart as preparers of secondary mathematics teachers because of this program. I want to get a pipeline in place to send our strong secondary education students, the ones who want to be that star teacher. The program is designed to educate the students in inquiry-based learning. That is how I teach, but I don't know how to teach someone else in this method. All of us, on occasion, have to do a lecture and all of us, on occasion, do group work. Doing effective group work is one of the cornerstones of inquiry-based learning. The participants will have a variety of techniques at their disposal. Think about how powerful that would be in a high school classroom..... This is very exciting.

What are your favorite memories from Hungary?

The escape rooms! My three kids and I would go into a room where they would lock the door. We would have one hour to solve puzzles inside the room to figure out how to get out. There are many escape rooms in Budapest. My favorite escape room was on this nice street. There were all these apartments and beautiful old buildings. We got to the address and found no indication that there was an escape room there. The name of the escape room was Code 33 and so we thought that the first puzzle was how to get in... We rang the doorbell for apartment 33 and heard a voice... Oh, no! That was not part of the puzzle... We ran around the corner and found another door into the basement, which said Code 33. We went to many escape rooms and were able to get out of all but one of them. Once, we were even locked in a jail cell.

What did you do in your spare time?

The kids and I had a lot of fun with the bakeries. They have really nice bakeries all over the place. We would often go and order three pieces of cake. They would wrap them up nicely and we would take them home and share. We also went to see a lot of monuments and learned a lot about Hungarian history.



Joel Haack

You came to UNI in 1991. Could you briefly describe the trajectory of your career since then?

I was hired as head of the Department of Mathematics and Computer Science in the spring of 1991, assuming those responsibilities in August. My interest in coming to UNI was two-fold. Professionally, it was a good fit, I care deeply about good teaching, as does UNI. My academic background included both mathematics and statistics; additionally, during my twelve years at Oklahoma State University, I had been involved in a number of grant-supported projects in which I worked directly with high school students, professional development for teachers, and the preparation of future teachers for the middle grades. Given the breadth of activity in the department at UNI, this seemed perfect! Secondly, both my wife's family and my family live in Iowa, so coming to UNI was a good opportunity for us that way as well. In fact, Linda's mother was an Iowa State Teachers College alum, class of 1934!

After assisting with splitting the department into the separate departments of Mathematics and of Computer Science, I served for an additional eight years as head of the Department of Mathematics, from 1992-2000. During that time I also became active in faculty governance, including a year as Chair of the Faculty Senate. In 2000, when Dean Jerry Intemann left UNI, I became interim dean of the College of Natural Sciences. From July 2001-December 2004, I was a happy member of the faculty of the Department of Mathematics, moving back into the role of interim dean when Dean Kichoon Yang left. Following an unsuccessful quick search for a dean in the spring of 2005, I agreed to serve an additional year as interim dean.

I applied for the job in the national search of 2005-2006, and I was offered the position. I served as dean of the College of Natural Sciences from July 2006-July 2011. I also became dean of the College of Humanities and Fine Arts in January 2010, when the decision to merge the colleges was announced. In July 2011, I became the inaugural dean of the College of Humanities, Arts and Sciences, serving in that role until December 31, 2014.

You came to UNI as department head and remained in that role for nine years (1991-2000). What are your most memorable experiences in those years?

The period from 1991-2000, during which I was head of Mathematics, was an exciting one. We moved into the renovated Wright Hall in January of 1992. There were several fundamental accomplishments of the department during the decade. The first involved the use of technology in the classroom. In order to convince me of the advantages of using graphing calculators in our teaching, Augusta Schurrer and Diane Baum (who had begun teaching at UNI in 1950 and 1964, respectively) told me that I was going to accompany them to the International Conference on Technology in Collegiate Mathematics in the fall of 1991. The result was that the department faculty chose to adopt a reformed calculus text with the accompanying wholesale use of graphing calculators. A second development was the review of the undergraduate curriculum, resulting in a revision of the tracks within the department, including a separate statistics and actuarial science track. The revision also introduced the course sequencing within our majors in which students begin with the core of Calculus I, II, and III and Linear Algebra, then specialize after that. A third accomplishment was the creation of the masters program for Middle Grades Teachers. This offered a truly significant professional development opportunity for many Iowa teachers. Finally, if I may brag a bit, we were also successful in hiring our first choice in 11 straight faculty searches during that (almost) decade. One of those hires was Doug Mupasiri, our present department head.

You next served two terms as interim dean of the College of Natural Sciences (2000-2001, 2005-2006). You returned to the faculty between the two terms. How was it to

return to teaching full-time after 10 years in administration?

I truly enjoyed my time as a faculty member in Mathematics from 2001 through 2004 when I had no particular administrative responsibilities. Much of my teaching assignment was comparable to now: I'm teaching courses in the history of mathematics and in introductory statistics. While I have taught approximately 25 different courses during my time at UNI, history and statistics are certainly among my favorites. I also became more active in the Mathematical Association of America during this time, resulting ultimately in my term on the Board of Governors of the MAA, representing the Iowa Section. I was also an active participant in the mathematical study tours offered by the MAA, so that I traveled (and studied) in Greece, Turkey, England, Mexico, China, Russia, Switzerland, Germany, Ecuador, Guatemala, Honduras, and Italy.

You next served as Dean of the College of Natural Sciences (2006-2011), Dean of the College of Humanities, Arts and Sciences (2011-2014, Dec). What do you remember most from those years?

My years as dean of three colleges (CNS, CHFA, and CHAS) certainly had their challenges. Part of my goal was to make sure that the administrators that came to UNI at the levels of provost and president understood how strong the faculty, students, staff, and programs in the colleges were. It still amazes me what we are able to accomplish at UNI with less resources than would be expected at an institution as strong as ours. Certainly I was involved in the decision of the state of Iowa to look to UNI for leadership in the areas of mathematics and science education, for example. The past five years were devoted to making the transition to a merged college of humanities, arts and sciences as successful as possible. Evidence suggests that that merger was smoother and more successful than might have been anticipated! Finally, of course, finding creative ways to absorb the budget cuts that UNI has faced almost every year since 1992 also occupied a great deal of my time.

Rather than staying in administration, you have now decided to return to the faculty. What draws you to the classroom?

My return to the faculty is a natural one for me. Even during my administrative years, I remained active in the national commu-

nities of instructors of statistics and mathematics history. I attended workshops in both areas, traveled extensively abroad with the Mathematical Association of America Study Tours, and continued to read and study in these areas. It's a treat to return to the classroom to share both my enthusiasm and what I've learned. Thus, I am truly savoring the opportunity to think again about mathematics and to teach it instead of working to solve the kinds of problems that occupy the life of an academic administrator.

Do you have any other comments you would like to make to our readers, alumni, and friends?

After 9 years as department head and 11 years as dean, I'm delighted to return to the Department of Mathematics for my phased retirement. I am grateful to UNI, my colleagues, and especially the department for the opportunity to have had such a rich career here.

In the fall of 2014, Ben Castle, at that time a UNI senior majoring in Mathematics and Music, participated in the Budapest Semesters in Mathematics (BSM) program. Initiated about 30 years ago by Paul Erdos, László Lovasz, and Vera T. Sós, to introduce North American students to the unique traditions of Hungarian mathematics, the program has continued to expand in size and now takes about 70-80 undergraduate students each semester majoring in mathematics or mathematics-related fields. Students from around the world participate in the program, although most of the students come from American colleges and universities. For more information, visit www.budapestsemesters.com/.

Ben graduated from UNI in May 2015 - he was the recipient of the Purple and Old Gold award in Mathematics. He is currently pursuing a PhD in Mathematics at the University of California–Berkeley. Shortly after his graduation, we asked Ben a few questions about his semester in Budapest. The full interview is presented below.

How did you learn about this program and why did you decide to participate?

I first learned about the program by reading about it on the internet. I was looking into applying for graduate school, and was led to the program through browsing various opportunities for both enhancing



Benjamin Castle

my resume and preparing me for a more intense mathematical environment. Later, my interest was further sparked at the Midwest Undergraduate Mathematics Symposium (MUMS) conference in 2013, where a past BSM student was part of a panel on extracurricular and research opportunities for undergraduate students. I decided to attempt to participate in the program shortly after this conference; after looking more into the program, I found that I was very attracted to the program's emphasis on creative problem solving and independent thinking, as well as the wide array of mathematical topics available each semester.

How is the program different than a typical semester at UNI?

First, students at BSM take almost all (in my case all) math classes. At BSM, I had the rare opportunity to focus my studying time entirely on math, and take five advanced math classes (although 3-4 is also very common). The students at BSM are very mathematically motivated, and like to talk about math and work on math homework together frequently. It was quite new for me to be surrounded by such a large number of mathematicians, many of whom had diverse mathematical backgrounds and had acquired expertise in areas I had never heard of.

Additionally, and most obviously, BSM takes place in a different country. The program is very intense academically; however, the students are still able to dedicate large amounts of time to exploring the new culture. It was an exciting challenge learning to balance my time

between math, learning to live in a foreign environment, and visiting as many new places as possible.

What can you say about the way courses are taught in Hungary? How are they different than our courses?

All of the courses focus on creative problem solving, and typically center on weekly homework problems. The homework assignments are quite difficult, and really test the student's ability to creatively apply ideas from class. In some of the most problem-solving oriented classes, there is a significant emphasis on individual performance; students were put on the spot and frequently asked to present ideas to the class. Thus, instead of sitting and taking notes, many of the courses required the students to be active participants throughout the class time. Most of the courses did not follow textbooks, and the material was simply designed by the professor. In class, students were led through the discovery of ideas, so that each subject really seemed like the presentation of a story. Emphasis was placed on hidden applications of the ideas presented, most of which were quite beautiful and surprising; in this way, students always saw the underlying motivations and consequences of the math they were learning. The students were then tested not just on the theory they had learned, but on their ability to find proofs of new applications of the theory. Because of this, like I said earlier, the homework and tests were quite demanding, so that often only 70-80% was needed for an A in a class.

What courses did you take? Which one of them was your favorite or the most challenging?

I took five courses. Three of them were "subjects"- Advanced Group Theory, Mathematical Logic, and Extremal Graph Theory. The other two focused on problem solving and general methods of doing and teaching math. These two were called Conjecture and Proof, and Discovery Learning for Gifted Students. It is hard to pick favorites because each course was so unique. However, if I had to pick favorites/most challenging courses I would probably go with the three most "Hungarian" courses I took: Extremal Graph Theory, Conjecture and Proof, and Discovery Learning for Gifted Students. Each of these seemed truly unique to the Hungarian math tradition.

Extremal Graph Theory is one of the most authentically Hungarian fields of math, and we studied the work of many of the greatest Hungarian mathematicians in the last century. The ideas and methods used in this class were strikingly beautiful, and each homework problem was truly original and required distinct, independent ideas-making the course quite challenging and also extremely rewarding.

Conjecture and Proof is a problem-solving course; however, instead of simply teaching students general competitive problem solving techniques, the course delves deeply into a series of advanced mathematical topics (algebraic numbers, complex numbers, linear algebra, fields, and geometric construction and dissection) by demonstrating some of their most surprising and accessible applications. Everything we studied was genuinely surprising and fascinating, and the homework problems all required a significant amount of creativity and deep thinking. This was one of the most uniquely structured math courses I have encountered, and was very inspiring in my continued pursuit of becoming a professional mathematician.

Discovery Learning for Gifted Students might have been my single favorite math class I have ever taken. The idea was to introduce the students to the way that gifted Hungarian students are trained in problem solving. To accomplish this, the students play the role of high school Hungarian students in a problem solving camp, and the course centers on a

series of quite challenging, but elementary, math problems. Students present their progress at the beginning of each class and then spend the rest of the class working on new problems and discussing the organization and presentation of the class. The structure and organization of the problems, as well as the competitive nature of the class, made it extremely fun and rewarding for each of its students, as well as demonstrative of what exactly makes Hungary so successful in producing talented math problem solvers.

Were there any expectations for doing research?

Research opportunities were available to all students who were interested, but it was not the focus of the program. No one was particularly required or expected to do research, and most students did not.

If you had certain expectations about the program, were they met or exceeded?

I would say my expectations for the program were exceeded. I was hoping to learn great math while exploring a new place and being around other people who were as passionate about math as me. As it turned out, I think I flourished mathematically in Budapest more than at any other time in my life. Because of my time in Budapest, I was able to greatly expand my mathematical knowledge and problem-solving ability, while also preparing myself for the mathematical environment of grad school.

I was also able to deepen my perspective on the various cultures of the world; before Budapest, I had been in America my whole life, and spent almost all of it in Iowa. Now, I suddenly have experience traveling to six new countries, and have developed a significant understanding and appreciation of Hungarian culture.

Finally, I was very happy with the quality of the people involved with the program, and the number of good friendships I was able to develop in Budapest. Being surrounded by other mathematically inclined students and professors was an amazing experience, and I was able to develop a close group of friends that I have maintained since the end of the program.

In what ways did the BSM program help you develop as a young mathematician?

BSM helped me learn to think mathematically on a larger, more generalized scale. The math that we did never seemed centered on any one particular theorem or proof or problem; especially in Extremal Graph Theory, for example, we always focused on the "essence" or "big picture" of the subject, capturing recurring ideas and thought processes most beneficial to our mathematical thinking ability.

Also, BSM introduced me to a more intense and focused mathematical environment. The program is an excellent way to enhance a resume for grad school, and most importantly is a perfect opportunity for undergraduate students who want to experience an environment closer to graduate study in math. UNI has given me an excellent and diverse liberal arts education; after BSM, however, I am now more confident in my ability to focus all my attention on math and learn a very large amount of math in just one semester.

How and to what extent did you interact with your peers?

I interacted with peers as frequently as I could. It was amazing for me to be surrounded by so many people who liked math as much as me, so I tried to take advantage of this as much as possible. This was especially prominent in the DLG (Discovery Learning for Gifted Students) class. The five students in the class bonded quite a bit by working on problems together and talking about math in general; I even started dating one of the students in the class during the semester, and our relationship has continued to the present day. By the end of the semester, the DLG class had formed our own travel group, and the four other students in the class had become arguably my best friends in the program. In fact, since the end of the semester, I've stayed well in touch with this group; one of the students came to visit me during the following semester, and I've visited another multiple times, including working at a math camp together in the summer.

Did you have any opportunities to study music in Hungary?

I didn't have the opportunity to directly study music in Hungary. However, I was able to occasionally play my trumpet, and I saw many performances throughout

the semester. Notably, I saw various performances by four Budapest orchestras (including two concerts featuring Hungarian composers), as well as two performances by the Vienna Philharmonic. I was also able to gain quite a bit of valuable perspective and experiences simply by encountering the rich musical history of Budapest and surrounding locations that I visited (especially Vienna).

What did you do in your spare time? Did you have any time to travel?

Despite the intense academic environment of BSM, I was able to spend a large amount of spare time exploring Budapest. One of my favorite activities to do in my free time was to pick a random spot in the city, and simply spend a few hours taking in that area and observing the local culture. I found Budapest to be an amazing and unique city to be able to discover over a semester. I also traveled within both Hungary and Europe. I visited six Hungarian towns outside of Budapest, as well as five other countries (Czech Republic, Slovenia, Italy, Austria, and Switzerland). Traveling around Hungary and Europe became a frequent activity because it was so accessible and affordable, and came to produce some of the best and most rewarding experiences of the semester.

What are your impressions about Budapest and Hungary?

Budapest was an amazing city to live in for a semester. Hungary has amazing mathematical and musical cultures, and very interesting people. The cost of living in Hungary is incredibly low, in contrast to many of the countries surrounding it. Additionally, the people all seemed to be extremely nice. There were far less tourists in Hungary than in any other country I saw, so I felt like I got to really experience genuine local culture. Finally, Hungary has amazing scenery, architecture, and food; everything is inexpensive and accessible, and it is easy to go around and see many different places in the city and country.

What are your favorite memories from your semester in Budapest?

My best memories were probably exploring Europe (and especially Budapest) with my best friends in the program. It was amazing to see so many new and exciting things, and to experience so many new cultures. I had an immensely rewarding experience going out on my

own and discovering Budapest during my first couple weeks in the program, and then going back and revisiting things and exploring more later on with a close group of friends.

Also, I would have to include some of the best concerts I saw among my favorite memories of Budapest. In particular, seeing the Vienna Philharmonic come to Budapest and play Mahler 5 was one of the best musical experiences of my life.



Suzanne M. Shontz is an Associate Professor in the Department of Electrical Engineering and Computer Science at the University of Kansas. She is also affiliated with the Graduate Program in Bioengineering and the Information and Telecommunication Technology Center. Prior to joining the University of Kansas in 2014, Suzanne was on the faculty at Mississippi State and Pennsylvania State Universities. Previously, she was a postdoc at the University of Minnesota. Suzanne earned her Ph.D. from Cornell University in 2005. She also holds an M.S. in Applied Mathematics and an M.S. in Computer Science from Cornell University and a B.A. in Mathematics and a B.S. in Chemistry from the University of Northern Iowa.

Suzanne's research efforts focus on parallel scientific computing, more specifically, the design and analysis of unstructured mesh, numerical optimization, model order reduction, and numerical linear algebra algorithms and their applications to medicine, images, electronic circuits, materials, and other applications. In 2012, she was awarded an NSF Presidential Early CAREER Award (i.e., NSF PECASE Award) by President Obama for her research

in computational- and data-enabled science and engineering. Suzanne also received an NSF CAREER Award for her research on parallel dynamic meshing algorithms, theory, and software for simulation-assisted medical interventions in 2011 and a Summer Faculty Fellowship from the Office of Naval Research in 2009. She has chaired or co-chaired several top conferences in computational- and data-enabled science and engineering including the International Meshing Roundtable in 2010 and the NSF CyberBridges Workshop in 2012-2014 and has served on numerous program committees in the field. Suzanne is an Associate Editor for the Book Series in Medicine by De Gruyter Open and was nominated for the 2016-17 Defense Science Study Group directed by the Institute for Defense Analyses.

In April 2015, Suzanne visited our department. She met with faculty members and students and gave a colloquium talk in front of a large audience. During the visit, we asked her and she agreed to answer a few questions for our readers:

At what point did you decide to pursue a math major and why?

Late in my high school years – I don't remember if it was during my junior or senior year. What always interested me in mathematics was translating story problems into equations. That was the sort of math modelling that first captured my interest. Later, I got interested in computation, but I was always interested in applied mathematics topics, although I did not know it was called that. I figured that out during my sophomore year, when I took a modern algebra class. I kept wondering: when will we be getting to a story problem? We didn't really. Then I realized that modern algebra was all about learning the theory, and that was good for me too.

What was the motivation to pursue two majors in college?

When I came to UNI, I knew I wanted to study mathematics for sure, and I was also deciding between computer science, physics, and chemistry. I got a chemistry scholarship, and that influenced my decision. I always looked for the interdisciplinary background because that is what appealed the most to me. I like developing new algorithms but am also interested in how to apply them to real-world problems.

What are your favorite memories from UNI?

Some of the good times in classes. For example, Dr. Douglas Mupasiri always had a great laugh. You could always hear him in the hallways. He could be up on the top floor when I was downstairs, and I was thinking "Dr. Mupasiri is definitely here!" Then I recall some of the fun times with the Math Club playing volleyball, or some of the KME conferences, where students got to present their research papers. It was always an interesting experience to present to other undergraduates what we had worked on.

How did our department and UNI help you achieve your professional goals?

For me, it was really important to get the mathematics major and also take some more classes, just to do more hours of math. That really helped give me the right foundation to be able to pursue an applied math Ph.D at Cornell University. Without that, I would have not been able to pursue this degree.

What are the professional accomplishments you are most proud of?

I would mention a couple of things: one, I was proud of becoming a professor. That is something I wanted to do for a long time. I always thought I probably would do it, but you never know what the outcome will be. It is hard to get a faculty position, and you never know where you will end up... So I was happy when it became a reality. The other milestone was when I received the NSF Presidential Early Career Award from President Obama at the White House. Not that I planned on getting such an award, but when I found out that I received it, I was very happy and proud at the same time. I also got to meet the President, which was pretty cool, as well as the other people who also earned the award.

What do you enjoy most about teaching?

A couple of things: one, is being able to take some real world applications, introduce them into the curriculum, and teach students those things. I teach numerical methods (both their design and their analysis), but I also like to add applications into the curriculum, which are not necessarily there on their own. Second, we teach students all of this material, they do homework, and also take exams. I like it when I see them synthesize and integrate this material into projects of some kind. Not all my classes have projects, but in the

ones in which the students do projects, they have come up with some pretty cool stuff. They often took the project farther than I imagined.

Do you have a favorite course?

I don't know if I have a favorite course to teach. I really like teaching both Parallel Scientific Computing and Numerical Optimization.

What projects are you currently working on?

Parallel mesh algorithms for patients who have medical implants. I am doing simulations related to medical implants. I am trying to simulate what kind of motion implanted devices go through, what kind of movement is in the patient (for instance, when the patients exercise with these medical devices implanted in them). We are looking at cases where patients have blood clots, the blood clots are moving in the veins, and the veins are moving because the patients are exercising. How does the device interact with the patient's vein and the blood clots? Can it trap the blood clot like it's supposed to? We obtain patient CT images and from them we can extract the patient's anatomy of their vein and of the branching veins near the area of the blood clots. A doctor gave us a sample of the device. We had an engineer make a CAD model of the device, with the correct angles and lengths of the components of the device. We use mesh warping to combine all these things together and to virtually implant the device in a patient's vein. We then model the blood clots and simulate how they interact with the device. Our goal is to determine which device is best for the patient. The devices are of different geometries, so we have to see how the different ones perform.

Do you supervise undergraduate research? What projects have your students been working on?

When I was at Penn State, I had students work on undergraduate honors theses and projects. One of them was doing mesh simplification – he was interested in computer graphics. He had this complicated model and the question was: can he reduce it via an algorithm? Another student was looking to find the best ordinary differential equations method for his particular problem – he was looking at an earth science problem; his father was an earth science professor and he got interested in the early atmosphere. He got some data from his father

to work on. He was also interested in trying to reduce a complicated chemistry model to a simpler one which still represented the essence of the reactions. Another thing I have had a student work on recently is parallel mesh algorithms. The student got interested in parallel computing from one of my courses.

What advice would you give to a mathematics major that would help them be successful when working on a research project?

Perseverance is the biggest key. Unlike homework, which is typically constrained to the material your professor taught last week or the last couple of weeks, in research, the ideas are coming from everywhere. You might have to take things from a couple of areas of mathematics and put them together to be able to work on a research project. It is not just what your professor covered last week, research is more open ended, so you have to be more perseverant. You have to not be afraid to learn new things. Maybe you know one area of mathematics and you do research in that area, but you have to learn more mathematics from another area and put things together.

What are your hobbies?

I like to play volleyball, listen to jazz music, and visit lighthouses when I have time. I like to travel to Europe. Most recently, this past winter, I went to Portugal on vacation for one week. Sometimes, when I go to a conference, I try to stay a few days to see something in the area.

UNI Students Travel to Korea

By: Abby Zakowski, OIP Office Assistant



Nicole Hegewald



Sam Kapler

This past summer, UNI math teaching majors Sam Kapler and Nicole Hegewald traveled to Korea for a one-month global summer school program at Kyungpook National University (KNU). Sam and Nicole both were recipients of a scholarship from OIP (Office of International Programs) and KNU. As part of their scholarship, KNU provided tuition, accommodations, meals and the travel to the different cultural activities. The Office of International Programs provided the airfare. During this trip, Sam and Nicole taught Korean students English language skills, experienced the culture and food Korea has to offer, and were able to meet college students from all over the world!

The Teaching Experience

While Sam and Nicole were in Korea, they were given the opportunity to teach some middle school English classes for three days and a total of nine classes. In addition to teaching, they were also able to get in some observing hours, including observing a Korean English teacher. Sam and Nicole both felt that this opportunity largely benefited their major. It was a great experience for the both of them as they had never taught classes prior to this trip. Something that stood out for the both of them was how nice and friendly the Korean middle school students and faculty were. Sam said, "It was a really friendly experience and they made us feel a part of everything. It was such a positive middle school teaching experience." Aside from teaching, Sam and Nicole were able to experience a Korean school lunch. Let us just say the school lunches, where they were able to try octopus, are very different than U.S. lunches!

Housing and Transportation

Sam and Nicole lived in a KNU dorm during their time in Korea. The dorms they stayed in held up to six people and included laundry. They shared the dorm rooms with other college students in the same global summer school program. The global summer school program included students from 15-20 different countries from all over the world. There were about 30-40 international students in the program. Nicole's roommates were from Scotland. Sam and Nicole both really enjoyed their roommates and were able to bond with other international students as well. Sam and Nicole both had a "Korean buddy" who was a KNU student that assisted them with anything they needed, such as getting around the city or ordering at restaurants.

When in a foreign country, most people worry about transportation and how they are going to get from one place to another. In Korea, it was quite easy for Sam and Nicole; both commented on how the transportation was very convenient. The taxis and buses were very cheap and they could get a taxi within seconds. Nicole even rode a bus all by herself! Nicole said, "Not knowing the language wasn't a problem at all and even if you did get lost, people were very helpful". It also helped that Korea has free Wi-Fi nearly everywhere so they could just look up directions on a device.

Food

While there, Sam and Nicole were given meal tickets for the food in the residence hall. They were given around 30 meal tickets so they could eat one meal at the residence hall a day. They often chose to eat

the western food that consisted primarily of rice and bread. They typically ate lunch at the residence hall. For breakfast, they would go to a grocery store and pick up breakfast foods and then for dinner they would go out on the town. They said that the food in town was much better than the residence hall food. They both enjoyed the food, but it was different from what they normally eat. They felt that the food was really spicy and that there was meat in most of the food. Meat is different in Korea than here in the U.S. In the U.S., people will eat large portions of protein/meat, such as steak or chicken. In Korea, the portions of meat are much smaller and are usually in small chunks. The portion sizes in Korea are also much smaller than U.S. portions.

Activities

One of the best parts about their trip was all the different activities they were able to accomplish. They went to the movies, hiked mountains and traveled to many different cities. Each Friday, the students would go on a field trip that was supported by KNU. Nicole's favorite trip was when they went to Beach City in Busan. While there, they went to the main beach, explored the city and went to the fishermen's market. Nicole said that the beach was beautiful and amazing! Sam's favorite city in South Korea was Daegu. He loved how Daegu felt like home and also loved the beach saying "it's the type of beach you dream about." They also visited temples and tombs on some of their field trips.

In addition, Nicole had the opportunity to attend a tea party and try on the traditional types of clothing. On one very exciting day, Sam was able to meet the U.S. Ambassador to Korea. He was one of the few students selected from the program that was available to meet with him.

"Life Changing Experience"

Sam and Nicole were both shocked at how similar the culture is in Korea to the United States. They also said that everyone was so nice and sensitive to Americans. Nicole also pointed out that she always felt safe wherever she was in Korea and that everyone

Trjitzinsky scholarship winner

there is very trustworthy, so you do not have to be worried about being out at night.

Sam and Nicole were both able to take away a lot from this trip. Nicole said, "You are able to find out who you are when in a foreign country, and you realize there is so much the world has to offer. I became such good friends with my roommates and other international students in the program; we all want to meet up again someday."

Sam said, "I don't know how the trip could have been any better, it was amazing and I definitely want to go back. By the end of the trip it felt like all the students in the program were one big family. This trip has also made me more motivated to try new things. It was the best month of my life!"

Future Students Interested in Going on This Trip

There will be another opportunity for students interested in this trip next summer (2016). Interested students should be an education major, in primary or secondary education. They also have to be willing to teach English to South Korean students. It does not matter the student's year of study in school. It is open to all classes (freshmen, sophomores, juniors and seniors). This trip is open to three to five students. If you are interested in the trip, please contact the Office of International Programs.



*Emily
Wardenburg*
scholarship recipient

Each year, the American Mathematical Society awards Waldemar J. Trjitzinsky Scholarships, of \$3,000 each, to undergraduates majoring in mathematics. The scholarships are funded by a 1988 bequest in memory of Waldemar J. Trjitzinsky and are intended to assist students who lack adequate financial resources and who may be in danger of not completing the degree program in mathematics for financial reasons. Institutional members of the Society are selected at random and each chosen institution is asked to select a student deserving of the award.

As luck would have it, for the 2015-2016 our department was among those selected for one of these scholarships. The student selected to receive the scholarship is Emily Wardenburg. Emily is a single mother pursuing a secondary mathematics teaching degree.

She grew up in a small rural Iowa community, began her college education at Kirkwood Community College, and then transferred to University of Northern Iowa.

Emily wants to become a teacher because her life's dream is to make a difference in other people's lives. Currently she teaches classes at her church and mentors a middle school student. On a daily basis, Emily faces the challenge of balancing going to school full-time and working part-time, while serving as a good role model for her daughter.

Student Spotlights



Amber Irlmeier

A first generation college student, Amber came to UNI unsure about which major to pursue but with interests in accounting and actuarial science. The size of the UNI campus, the small class sizes, the reasonable distance from her hometown (Elk Horn, IA), and the vibrant campus life were big selling points, and being awarded a Presidential scholarship was a strong incentive for her to come to UNI.

For many students, the transition from high school to college is challenging and for Amber it was no different: "I went from a small high school, where I knew everyone, to a university where I knew no one, and in those first few months I felt like I had many acquaintances but no true close friends. Fortunately, those friendships grew and now many of my best friends are those acquaintances that I met during my first semester at UNI. When I go back to Cedar Falls now, it makes me so happy. I have many great memories, and many close friends who still live in Cedar Falls" says Amber.

Although she declared a major in accounting, Amber started taking some mathematics courses right away. She found the mathematics courses both interesting and challenging and decided to switch her major to mathematics (actuarial science). However, she did not abandon her interests in economics. After taking the Introduction to Macroeconomics class, which she thoroughly enjoyed, Amber decided to add a second major, in applied economic analysis. Among Amber's favorite math classes

is Dr. Adrienne Stanley's Calculus II: "I liked her class because she made it challenging but not impossible, explained the concepts clearly in both words and pictures, asked us to create groups to think through and discuss questions, and gave us plenty of tools to practice what we were learning."

Amber has many favorite memories from UNI, some of which put a smile on her face. She recalls a basketball game between UNI and Creighton, which she attended with several friends during her sophomore year. The game took place shortly after the former UNI basketball coach Greg McDermott started his coaching job at Creighton. His son, the current NBA player Doug McDermott, who had initially signed a letter of intent to play with UNI, followed his dad and was playing for the Bluejays. At the game, one of the students in Amber's group held a big sign teasing Doug and a picture of her friend holding the sign appeared the next day in a major newspaper. Amber has one other favorite memory related to sports: "Every Friday, a few students from Saudi Arabia were playing volleyball at the UNI Wellness and Recreation Center. I started playing with them during my freshman year and continued playing with them, every Friday I was free, until I graduated from UNI. The on-the-court friendships turned into off-the-court friendships, where I tried their food and had many discussions about culture. I now have very strong friendships with Saudis and a deep understanding of their culture."

Amber was involved in different on-campus organizations and in some of them she assumed leadership roles. She served as the president of the UNI Actuarial Science Club for one semester. Says Amber: "The Actuarial Science Club is the ideal path to obtain actuarial internships and full-time jobs. For someone who is not far enough into the major or hasn't officially decided if actuarial science is the major they want to pursue, these meetings are one of the best ways to ask questions to actuaries and to see what the career is like." In addition, she served as the Director for Administration and Finance in the Northern Iowa Student Government for one year, as a student admission ambassador for 2.5 years, and as an honors peer

leader for two semesters. She also worked as an athletic tutor for Introduction to Macroeconomics, Introduction to Statistical Methods, and Business Statistics, and as a paper grader in the Mathematics Department. Yet, somehow, Amber found time to study for her classes and for a couple of actuarial exams (which she passed with flying colors!).

As a student, Amber traveled to Europe on a couple of occasions. First, she spent the summer of 2011 as a child development intern at the USAG Ansbach Army base-Storck Barracks in Illesheim, Germany. During the week, she worked with children who were six weeks to two years old. On the weekends, she and the other interns traveled all over Europe: Venice, Italy; Paris, France; Prague, Czech Republic; Interlaken, Switzerland; Munich, Germany; and Berlin, Germany. Then, during her junior year, Amber spent one semester (spring 2013) at the American College of Greece (ACG), in Athens, Greece.

Amber's Hobbies:

watching movies, working out, visiting family and friends, traveling, and most recently, learning Arabic... and studying for actuarial exams, of course 😊

"Studying abroad is easily one of the best parts of my college experience!" says Amber. ACG is an academic institution where all the classes are taught in English but where over 90% of all students are from Greece. In fact, Amber was the only student in her classes who did not speak Greek! "I took a Greek class while I was there and, by the time I left Greece, I was able to hold very short conversations in Greek!" For Amber, the semester abroad was quite different than a typical semester at UNI: "Typically, in a semester at UNI I was working 15-20 hours a week, actively involved in two or three organizations, and studying for 5-7 difficult classes. During my study abroad semester, I took four easy classes, did not work, and

Student Spotlights

was not involved in any organizations. I spent my free time learning Greek, playing tavli (backgammon), learning how to cook, and making friendships." In addition, the semester abroad offered Amber an opportunity to travel to other parts of Europe: Austria, Holland, Italy, and Romania.

Amber participated in several actuarial summer internships: at AVIVA (2012), John Hancock (2013), and Principal Financial Group (2014). All these internships helped her to understand better what it means to be an actuary. Says Amber "from having multiple internships I found that I liked pricing better than financial reporting or modeling, which was great knowledge to have when looking for a full-time position."

In December 2014, after 4.5 years at UNI, Amber graduated, Summa Cum Laude, with dual degrees in Mathematics (actuarial science) and Applied Economic Analysis. The commencement was a particularly memorable event for her, because she had been selected to be the commencement speaker. "At first, I was very apprehensive about giving the speech" recalls Amber. "Finals week is always a busy time, and I knew that the speech was going to add more stress on to an already stressful week. Before commencement, every time I thought about the speech my heart would start racing and my palms would sweat. However, in the moment, all of my nerves went away. I could not believe how calm I was."

In January 2015, right after her graduation, Amber started her career as a full-time Actuarial Assistant in Group Dental and Vision Insurance at the Principal Financial Group. We asked Amber how she liked her job so far. "I really like my job! From my internships I found that the most important factor for whether or not I like my job is the people with whom I am working. I love my team at Principal - they are all very friendly and helpful. I find the dental/vision insurance product more interesting than other products. I never expected to learn words such as periodontics, root planing, and endodontist in an actuarial position!" answered Amber smiling.

Planning for the future, Amber would like to attain the Fellow of the Society of Actuaries

credential. In order to achieve that, she will need to continue to take actuarial exams. "While I am taking exams, I will have three rotations in different areas of the company. From these rotations, I hope to find a product/area that I have a true passion for, because my primary goal is to be happy with my career and to feel fulfilled by my work." Knowing Amber's motivation and intellectual ability, we have no doubts that she will succeed. Good luck, Amber!



Britney Bockstahler
By Catherine Miller

UNI continues to have the premier teacher preparation program in the state. One reason is our mathematics minor for elementary education majors. Instead of taking mathematics courses designed for other majors, our program consists of courses designed specifically to prepare future elementary teachers to meet the mathematics learning needs of their students. A current student, Britney Bockstahler, an elementary major pursuing a mathematics minor, is an outstanding example of the students in this program.

Britney graduated from Linn-Mar High School in Marion Iowa. She began her studies at UNI as an elementary education major and has not wavered from that path. It is clear that Britney is committed to learning all she can while an undergraduate student, both within and outside her coursework. This is why she added a specialty in early childhood education and literacy minor, in addition to her work in elementary mathemat-

ics. Britney has also been active in student organizations. She was first vice-president and then president of the Early Childhood Education Association, the Student Reading Association and TEAM (Teaching Educators about Mathematics). Additionally, she has served as a STEM Ambassador and a College of Education Student Ambassador.

I was fortunate to be the instructor of the Geometry and Measurement course Britney took a couple of years ago. Her part of the final group project focused on young children developing spatial skills when playing with blocks. I was so impressed with her work, I suggested to Britney that she present her work at the annual Iowa Council of Teachers of Mathematics (ICTM) meeting in the fall of 2013. Organizers of the conference were also impressed with her work and asked that she submit a manuscript to be published in the upcoming ICTM journal. Before she begins her teaching career, Britney will have published and presented at a professional meeting!

Not all students with the elementary education teaching major accomplish as much as Britney. Nevertheless, all our elementary education, mathematics minor students recognize the need to begin children's mathematical education as soon as they begin school, or pre-school. Some, like Britney, are already mathematically accomplished. Others select the minor to improve their mathematical content knowledge so they are prepared to teach children mathematics. We are confident that our graduates, Britney is an example, will be effective elementary mathematics teachers.

Student Spotlights



Derek Hofland

Campus visits are an important step before choosing a college to attend, and Derek knows that very well. Initially, he was planning to go to a different, larger university but was persuaded by his parents to visit UNI before making a decision. "I felt overwhelmed by the size of the other university, and my visit to UNI was amazing, so I decided to come here," recalls Derek.

Derek came to UNI, as a Presidential Scholar, to pursue a BS degree in computer science. However, during the first couple of years his academic interests changed, and by his junior year, Derek seriously considered changing his major. He had taken several mathematics courses that were required for his computer science major which, when reconsidering his options, put mathematics high on his preference list. Says Derek, "I had never considered majoring in mathematics before, but the more I thought about it, the more I realized that my favorite classes had always been my math classes. So I talked to some professors from the Mathematics Department and decided that majoring in mathematics was the right fit for me."

Ever since he was in middle school, Derek enjoyed participating in mathematics competitions. At UNI, he participated three times in the Iowa Collegiate Mathematics Competition and one time in the Putnam Mathematical Competition. In addition, he participated in computer science competitions: the Midwest Instruction and Comput-

ing Symposium and the ACM Programming Contest. "I am a fairly competitive person, so these competitions have always been fun and exciting opportunities for me to apply what I have learned in my classes. While these competitions have always piqued my interest in mathematics, some of the most valuable lessons I learned from them came during the time I spent working through the problems that I wasn't able to solve during the competition. Finding solutions to problems that eluded me during the competition can be frustrating, but also reminds me that math will never cease to provide me with new problems to explore." His results were outstanding: he was a member of the winning team (2015) and of the third place team (2013) in the Iowa Collegiate Mathematics Competition, and a member of the fourth place team (2012) in the Midwest Instruction and Computing Symposium.

Derek's favorite mathematics classes were Modern Algebra and Combinatorics. In Fall 2014 he started working on a combinatorial problem for his honors thesis. "I got the idea of doing research on the game Lights Out after working with the game for a homework assignment in my Artificial Intelligence class with Dr. Ben Schafer from the Computer Science Department. After I got this idea, Dr. Douglas Shaw agreed to be my advisor, and we met regularly to discuss my work. Progress was slow at first, but once the spring semester rolled around, I had a clear idea of what I was going to focus my work on. I then spent a couple of months researching, followed by a month of writing, and I capped it off with a presentation at the Honors Research Day." Derek's honors thesis title is "Solving Lights Out on Parity Graphs."

Derek's favorite memories from UNI are from his time playing volleyball with the UNI Men's Volleyball Club. "I've always loved volleyball, but I didn't have many opportunities to play growing up. So when I found out that UNI had a men's volleyball team, I joined immediately. We usually practiced a couple of times a week and had a few tournaments that we played at each semester."

Derek was an active participant in a variety of university programs. In the summer of 2013, he spent five weeks in China with ap-

proximately 40 other students from UNI. For three weeks, they taught English to middle school children in Dongguan, and for the other two weeks, they did sightseeing in Beijing, Guilin, and Hong Kong. Some of the tourist attractions that they visited were Tiananmen Square, the Forbidden City, and the Great Wall of China. "My favorite memories include almost getting lost at the Great Wall, riding a train for 28 hours to get from Beijing to Guilin, and using the subway system in Hong Kong" says Derek.

During the summers of 2014 and 2015, Derek served as a mathematics instructor at the UNI-CUE Leadership Academy, a four-week program for students entering the sixth grade, designed to help students who have the potential to be leaders in middle school. "My favorite experience during this program was probably STEM days. Every Thursday, we would drive to UNI's campus and go to the CEEE building to learn about STEM from Patricia Higby. The students got to participate in multiple exciting activities such as building solar cars and miniature wind turbines."

During the 2014-2015 academic year, Derek served as vice-president of the One Iowa chapter at UNI. As a leader of this group, he helped plan meetings to discuss current events and other issues pertaining to the LGBT community. In addition, he was an active member of UNI Freethinkers and Inquirers (a student organization that provides a welcoming environment for students who are secular or skeptical of religion) and of UNI Proud (a social and political organization that focuses on providing an inclusive environment for LGBT individuals at UNI).

Derek was on the Dean's list for seven semesters before graduating from UNI, Summa Cum Laude, in May 2015 with a BA in Mathematics and a Minor in Computer Science.

Derek's dream job is to be an astronaut. His hobbies include biking, hiking, studying geography, and stargazing.



Julia Robinson
By Catherine Miller

"Math class seems to have a negative connotation among many secondary students," according to Julia (North) Robinson. Since she finds mathematics fascinating, Julia indicated that she wanted to find a way to "...reverse this negative mind set and help students see math in a more positive light by making the material I teach and strategies I use relevant and meaningful [to her future students]." This was an underlying goal of Julia's during her time as a mathematics teaching major. Julia graduated in May of 2015 with a mathematics teaching major. After completing her student teaching in Des Moines, she will begin her career teaching Algebra 1 and Geometry at Lincoln High School in Des Moines.

The *Iowa Core State Standards* (Iowa Department of Education, 2012) is based on teaching theories that have been thoroughly researched. In secondary mathematics, the research calls for inquiry-based instruction. Julia will begin her teaching career ready to implement the *Iowa Core Mathematics Standards* in her classroom because of what she learned as a mathematics teaching major at UNI.

In her coursework, Julia cited understanding the difference between high- and low-level mathematical tasks and how to use tasks to achieve learning goals as examples of what she learned as a mathematics teaching major. She was also able to apply this knowledge during field experiences with

host teachers who engaged students in inquiry-based instruction daily. Julia student taught in the Des Moines school district and was able to build on what she learned in previous field experiences by planning and teaching similar lessons on her own. This was one of the ways her experiences at UNI prepared her for her career as a secondary mathematics teacher.

Early in her studies, Julia realized she "...needed to go above and beyond my coursework, to make sure I would be prepared for each of the diverse students who would walk into my classroom." Her commitment to social justice grew as she learned more about what is needed to have an equitable teaching practice. This work included efforts outside of her classes. She volunteered to work with special needs students, attended research presentations about this topic and became involved in the Multicultural Teaching Alliance, serving as its vice president. She also worked toward this goal with the research topic she selected as the focus of her honor's thesis, culturally relevant pedagogy. Because of this extra effort, Julia will be more than a caring, skilled educator – she will apply all that she has learned at UNI to mathematically empower her students. We are confident she is up to the challenge.

Reference:
Iowa Department of Education. (2012) *Iowa Core State Standards*. Des Moines: Authors.



Allysen Lovstuen, a UNI graduate with a BA in Mathematics Teaching (2001) and MA in Mathematics with Secondary Teaching Emphasis, is one of this year's 108 recipients of the Presidential Award for Excellence in Mathematics and Science Teaching (PAEMST) awarded by the White House. Allysen, who is also a recipient of the Robert E. Yager Foundation Excellence in Teaching Award (2014), has been teaching mathematics at Decorah High School for the past 14 years. She currently teaches Algebra 1 to freshmen and sophomores and Advanced Placement Calculus AB to juniors and seniors, which includes co-teaching a joint AP Calculus AB/Physics course. On the PAEMST website, Allysen is quoted saying: "Being honored with the Presidential Award is exhilarating and motivating. This award serves as a validation of the learning and problem solving that I do in the classroom each day and is a testament to the administrators, colleagues, community members, family members, and students that have taught, supported, encouraged, and challenged me along the way. Receiving this honor challenges me to continue to increase student understanding and confidence while expanding my leadership role."

We featured Allysen in last year's edition of our newsletter (available on our department's website www.uni.edu/math). Congratulations, Allysen! We are very proud of you.

Donor Spotlight:

Alan and Barbara Hubbard



Reflecting on our educational experiences, we often remember those teachers who inspired us to dream big, helped us to pursue our dreams, or made a difference in our lives. Alan Hubbard was inspired and helped to pursue an engineering degree by his high school math teacher, Miss Ethel M. Saupe. Ethel graduated from the University of Northern Iowa in 1925 and taught advanced math courses at Tracy High School, in Minnesota, until her retirement in the early 1970's. "Miss Saupe (she was ALWAYS addressed as Miss Saupe) was old school – stern, but with a twinkle in her eyes" remembers Alan. "She showed me that while math was certainly not an easy subject, it could be conquered with support from a great teacher." From an early age, Alan was interested in electricity and radios - he obtained an amateur radio license while still in high school. He won various awards with his science fair projects before graduating from Tracy High School in 1967. He went to college at Iowa State University to pursue a bachelor's degree in electrical engineering. It was there that he met his future wife, Barbara, who was also a student at ISU. Barbara, a Des Moines, IA native, had graduated with honors from Hoover High School in 1969. They were married in the summer of 1971.

After graduating from ISU in 1971, Alan continued his studies at the University of Iowa, graduating in 1973 with an MBA in Finance. Later that year, the Hubbards moved to Peoria, IL where Alan took a job with Caterpillar in the accounting department. Barbara had suspended her college studies when Alan went to graduate school but, after settling in Peoria, she resumed her undergraduate work at Illinois State University. She graduated with High Honors and a Bachelor of Science degree in accounting, passed the CPA exam, and started work at Price Waterhouse in Peoria in June 1977.

In 1985, Alan and Barbara moved to the San Francisco Bay Area, where each held progressively senior positions in finance at various companies in Silicon Valley. They semi-retired

in 2000 and formed a financial consulting practice providing services as part-time Chief Financial Officers for a number of technology startup companies. They fully retired in 2010 and currently reside in Los Altos, CA -- a short distance from the headquarters of many successful technology companies including Apple and Google. Alan and Barbara enjoy adventure traveling around the world. They return to the Midwest often to spend time with family in Minnesota and relax at a vacation home in the Ouachita Mountains of Arkansas.

The Hubbards are determined to encourage students to study mathematics so that they have a solid foundation for studying science and engineering. For this reason and to honor Miss Saupe, they made a sizeable estate gift to the UNI Department of Mathematics that will create the "Alan and Barbara Hubbard Scholarship in Mathematics Education" for future mathematics teachers. "Miss Saupe showed me that if you worked and studied hard, you would learn even the most difficult subjects. Many students would include math in that category. Once a student has mastered math, many careers in science and engineering become attainable – careers in fields that offer good career opportunities that are challenging, interesting, and well-paying" says Alan.

Miss Saupe did not know what an impact she has made on Alan Hubbard's life. Now, almost half a century later, Alan and Barbara are paying it forward, hoping that their generosity will help future teachers to reach their potential and maybe, someday, they will make a difference in other people's lives, as Miss Saupe did. We can all draw inspiration from the example set by Alan and Barbara.

The first spring KME meeting was held on February 23, 2015 at Professor Mark Ecker's residence where student member Parash Upreti talked about his KME paper entitled "Does Religion have an Impact on the Economic Growth of a Country?" The second meeting was held on March 24, 2015 at Professor Syed Kirmani's residence where student member Ben Castle talked about his semester abroad studying math in Europe. Student member Parash Upreti addressed the spring initiation banquet with "Factors that Affect Per Capita Growth of Developing Countries" on April 28, 2015. The banquet was held at Godfather's Pizza in Cedar Falls, where six new members were initiated. In fall 2015, regular KME meetings are scheduled on October 1 and November 3 at Professor Edward Rathmell's and Professor Mark Ecker's residences, respectively, and an initiation banquet on December 8.

Farewell to Three Colleagues

By Douglas Mupasiri

Bin Liu



Jihwa Noh



Matthew Webb

Dr. Bin Liu left the department after accepting a position at a university in his home country, China. Dr Liu received his Ph.D. in Operations Research from the Institute of Applied Mathematics, Chinese Academy of Sciences, Beijing, P.R. China, October, 1995. He came to UNI in Fall 2007 as an assistant professor and earned tenure and promotion to associate professor in 2012.

Bin has strong research credentials, with 25 research articles in peer-reviewed journals. In his time here, he made invaluable contributions to the department, especially to the PSM program. We were very lucky that Bin accepted our offer back in 2007. Given his strong record of accomplishments, it is not surprising that some other university would woo him. His departure is a big loss to us.

On behalf of the department, I thank Bin for his eight years of service to the department and to UNI. We wish Bin well as he starts a new chapter in his life in China. We will miss him.

Dr. Jihwa Noh left us to take a position in her home country at Pusan University, Pusan, South Korea. Remarking on her decision to leave, Dr Noh wrote: "It was a difficult decision to make... like a double edged sword. My time at UNI has been some of the best years of my life. I'm already missing my job and the incredible people I have had the pleasure of working with throughout the years. Thank you for your friendship and professionalism. As I begin my new journey in Korea,

all of the opportunities and experiences I have had during my time with UNI and in the States will be a great strength to me. Be well. Stay in touch!"

Dr. Noh received her Ph.D. in Mathematics Education from Western Michigan University in 2004. She came to UNI in Fall 2004 as an assistant professor and earned tenure and promotion to associate professor in 2010. She spent Fall 2011 on PDA at her alma mater Sung Kyun Kwan University (SKKU), Seoul, Korea (she received both a B.S. in Mathematics Education and M.Ed from SKKU).

In her ten years at UNI, Dr. Noh made significant contributions in all three areas of her assignment: teaching, research and service. She taught virtually every mathematics education course we offer; she built a strong publication record, which includes refereed articles in national and international journals; and she played key roles in shaping the curriculum in the undergraduate and graduate secondary teaching programs; and, as graduate coordinator, she and her mathematics education colleagues revamped the Secondary Teaching Emphasis and revived the Community College Emphasis. She supervised 19 master's papers and was the second reader for three more master's papers. She won the Veridian Credit Union Community Engagement Award for her contributions to the Iowa Cedar Valley community through research and teaching and she successfully nominated Allysen Lovstuen for the Yager award in 2014. Additionally, Dr. Noh

contributed in immeasurable ways to our recruitment efforts, in working with undergraduate students on summer research, and with other mathematics education faculty as research collaborator. She also tenaciously sought both internal and external funding opportunities and was successful in getting a number of her proposals funded.

On behalf of the department, I thank Dr. Noh for her ten years of dedicated service to the department and to UNI. We wish Dr. Noh well as she embarks on a new chapter in her life in Korea. We will miss her.

Dr. Matthew Webb resigned this past summer to take a faculty position at his alma mater, Brigham Young University – Idaho. In an email he sent to the department announcing his decision to leave, Dr. Webb wrote: "Thank you for being a great department to be a part of. The collegiality and professionalism has made this move and decision much harder, thank you I have learned from and enjoyed being a part of this group. You have set a very high standard for my next department to meet up to."

Dr. Webb received his Ph.D. from the University of Missouri at Columbia in 2010. Before going to graduate school, he taught mathematics at Washington High School in Fremont, CA, for three years (2000-2003). He joined our department in Fall 2010.

In his five years in the department, Dr. Webb made his mark in all three areas of his assignment: teaching, research/scholarship and service. For his contributions to teaching, Dr. Webb was one of four recipients of the highly coveted University Book and Supply Teaching Award (for pre-tenure faculty) in 2015. The award confirmed what his students had been saying about Dr. Webb, which is that he was a highly effective instructor. With respect to scholarship, Dr. Webb had clearly found his footing and had papers published in excellent journals. And for someone in the early stages of his career, he made significant service contributions to the department. He was particularly effective at recruiting students into the mathematics minor for Elementary Education majors. He was also a very active member of the Recruitment and Retention Committee, and the Scholarship Committee.

On behalf of the department, I thank Dr. Webb for his five years of dedicated service to the department and UNI. We wish Dr. Webb well in all of his future endeavors. We will miss him.



Augusta Schurrer

In Memoriam

Augusta Schurrer, a former professor for 47 years in our department, passed away on Thursday, January 1, 2015, at the age of 89, at Sartori Memorial Hospital, surrounded by her loved ones.

She was born on October 11, 1925 in the Bronx, New York, daughter of Carl and

Louise (Kaintz) Schurrer. She attended New York City Public Schools throughout elementary school and was selected to attend the prestigious Hunter Junior-Senior High School, subsequently receiving her Bachelor's degree from Hunter College in 1944. She spent the year after graduation working for the U.S. government. Says Diane Baum, Augusta's long-time housemate and friend, and UNI Emeritus Professor: "She later found out that the math problems she was working on contributed to the development of sonar. Augusta had a paper congratulating her on helping the United States win the war, and they did not even know they were contributing to that." In 1945, Augusta moved to Madison, WI, where she received her Doctoral degree from the University of Wisconsin.

In 1950, she began teaching mathematics at the Iowa State Teachers College. "She was hired at UNI because they wanted women on the faculty" says Diane. "She had three jobs available to her, but she chose this one. Originally she didn't plan to stay and intended to move on to a larger place, but ended up staying 47 years because she liked it so much. She loved the Iowa State Teachers College, the State College of Iowa, and the University of Northern Iowa, through all the name changes." During this time, Augusta was an active member of the American Mathematical Association, American Mathematical Society, National Council of Teachers of Mathematics, and the Iowa Council of Teachers of Mathematics. She received the Dean's Award for superior achievement as a faculty member and served on many university committees, including one of the presidential search committees and the committee to reorganize the departments into colleges, before retiring in 1997. "Augusta was a very good teacher" recalls Diane. "I had her as a professor every day, for two full years, because I was an elementary education major and started taking a lot of math courses. When I came back to UNI to teach, I lived in an apartment and so did Augusta. Augusta wanted to become a homeowner - she had never owned a home before, as she grew up in New York City. So Augusta offered me cheap rent, a space in the garage, and I had to teach Augusta how to be a homeowner. The rent amount never changed for the 49 years we lived together."

In retirement, Augusta lived her life to the fullest - traveling all over the world, **visiting every continent, supporting and attending numerous fine arts events of all kinds**, enjoying the company of her beloved pet family, as well as being an active philanthropist. At UNI, she funded the "Augusta Schurrer Endowed Scholarship for Mathematics Excellence" and the "Augusta Schurrer Endowed Mathematics Grant" that support both current and incoming mathematics majors. According to Diane, "Augusta loved her students and she loved teaching. This is why she wanted to have a scholarship. So both Augusta and I took out insurance policies with the school as **the beneficiary so that we could get a sizable amount.**" Says Emily Wellman: "From my short time working for Augusta, it didn't take long to figure out she was very willing to donate to a good cause, as there were many that she gave to regularly, because she was an incredibly compassionate and caring individual."

Augusta left our department a generous bequest of about \$475,000 that will be used to provide scholarships, facilitate faculty development, and support the UNI chapter of Kappa Mu Epsilon.

Contributions to an Account – Recognition*

210174 - E.W. Hamilton Quasi-Endowed Scholarship

Donald & Ardelle Brown
Russell B Campbell
Iva Dailey
Betty Danielson
Gregory & Carol Dotseth
David & Helen Duncan
Dorothy R Frank
Mary L Franken
Carmen & Gaylon Halverson
Marilyn & Roger Hanson
Margery & Aubrey Herrick
Gary & Mary Ann Hesse
Donna Hoffman
Kevin L Junck
Dorothy Kelso
Donna & Glenn Kroeger
Joan Loslo
Audrey & Kenneth Lowin
Pat & Mary Lyman
Alice McCollum
Dan & Harriett McMahill
Ruth Millar
Ronald & Judith Moehlis
Jan & Steve Moore
Phyllis Oberhauser
John M Orth
Mrs. Karen Page
Darlene Prashak
Ed & Julie Rathmell
Suzanne Riehl
Susan Rock
Virginia & Robert Rule
Jane Ryan
Anna W Schuessler
Judith & Samuel Seymour
Phyllis Steele
Diane L Thiessen
Mrs. Betty Voldseth
Jack & Carole Wilkinson

210474 - Wanda & Carl Wehner Mathematics Teaching Endowed Scholarship

Dow Chemical Company
Nancy J Hoing
Lois & David Kail

210591 - Diane Lee Sorenson Baum Fund

Dr. Daryl Basler
Diane Lee Baum Revocable Trust

210976 - Patricia Lange Memorial Mathematics Endowed Scholarship

Reuben & Nancy Collins
Robert Lange
Stephen & Karrie Mullenberg

211124 - Fred W. Lott Endowed Scholarship in Mathematics

Frank & Kathryn Hase
Jurschak Family Foundation
Ronald & Judith Moehlis
Carol & James Nymann

211292 - Augusta Schurrer Endowed Scholarship for Mathematics Excellence

Randall & Julie Holmes
IBM Corporation
Pamela Liegl
Chun-Kwan & Colleen Yee

211516 - John F. & Ruth Cross Endowed Scholarship

Terry & Janice Gambaiani

211718 - Michael Millar Endowed Scholarship

Lanny C Buls
Gene & Ellen Carey
Ann & Robert Ewan
Terry & Janice Gambaiani
Pamela Liegl

212220 - Rich and Dee James Secondary Mathematics Teaching Endowed Scholarship

Rich & Dee James
Wells Fargo Foundation

212396 - Principal Financial Group Actuarial Scholarship

Principal Financial Group

212418 - Robert A. and Carol L. Hendrickson Crane Scholarship in Secondary Math Education

Carol & Robert Crane

212528 - John C. Peterson Mathematics Education Graduate Student Scholarship

John & Marla Peterson

212639 - Bonnie Litwiller Mathematics Teacher Endowed Scholarship

Bonnie Litwiller
Robert & Marjorie Nelson

212664 - George and Mary McCoige Math Education Scholarship

Jeffrey A McCoige
Nationwide Insurance Foundation

212673 - Athene Actuarial Scholarship

Athene USA

212828 - Robert R. Johnson Endowed Scholarship for Mathematics

Robert R Johnson

212909 - Thiessen Elementary Mathematics Education Scholarship

Diane L Thiessen

212924 - Nathan McCay Mathematics Scholarship

Nathan S McCay

220127 - Math Quasi-Endowed Fund

Russell B Campbell
Alexa Warwick & Marshall Cowell
John S Cross
Richard & Vicki Dillon
Gregory & Carol Dotseth
David & Helen Duncan
Ann & Robert Ewan
Roger & Karen Fread
Joel & Linda Haack
Marilyn L Hala
Rebecca & Patrick Hanlon
Barbara & Robert Hanson
Nancy J Hoing
IBM Corporation
Austin & Kim Jones
James & Mary Lou Krueger
Patricia Larson
Margaret & Tom Magner
Robert & Barbara Mittman
Mary Mumm
Principal Financial Group Foundation Inc
Paul & Joyce Scherner
Norman & Linda Schmidt
Jon & Laura Scoles
Suzanne M Shontz
Kim Sprain
Pamela & Marshall Swan
David & Deborah Tschiggfrie
Charles & Nancy Weber
Vicki A Williams
Chun-Kwan & Colleen Yee

221015 - Mathematics Education Leadership Endowed Fund for Excellence

Fidelity Charitable Gift Fund
Matthew Hanawalt
IBM Corporation
Bryan & Christine Redemske
James & Sharon Scherbring
Paul & Joyce Scherner
Kim Sprain
Scott M Urbatsch
Chun-Kwan & Colleen Yee

221162 - Math Leadership

Dr. Daryl Basler
Marshall & Theresa Blaine
Galen & Katherine Howsare
Bryan & Christine Redemske
Bud & Joyce Smith
Kim Sprain

221288 - Actuarial Science Fund

Marshall & Theresa Blaine
Ann & Robert Ewan
Ann & Vy Ho
Randall & Julie Holmes
IBM Corporation
Prudential Foundation
Andrew & Jennifer Schafer
Kim Sprain
Jason & Mary Theilen

221293 - Augusta Schurrer Endowed Mathematics Grant

BM Corporation
Jurschak Family Foundation
James & Sally Lockwood
John M Orth

222452 - Mathematics Undergraduate Research Assistant Fund

Kim Sprain

222460 - Dr. Hyo Myung Family Endowed Mathematics Faculty Enrichment Fund

Kim Sprain

242963 - Augusta Schurrer Memorial Fund

Walter E Beck
Russell B Campbell
John S Cross
Lowell & Mary Doerder
Gregory & Carol Dotseth
Stephen Fortgang
Len & Gail Froyen
Patricia L Geadelmann
Gary & Mary Ann Hesse

A. John Holstad
Richard & Beatrice Koontz
Jacqueline & Larry Leutzinger
Marleta Matheson
Ruth Millar
Ronald & Judith Moehlis
Judith A Moody
Kevin C O'Kane
Mrs. Karen Page
Ed & Julie Rathmell
Melvin & Viola Reimer
Cheryl Ross & Fred Heinz
Virginia & Robert Rule
Marlene & Robert Schmidt
Jody Streicher
Diane L Thiessen
Stanley D Whelchel
Joanne Wolfe

Competition Fund

Greg Dotseth

* We tried to include everyone who contributed to Mathematics Department Funds. It is possible that we may have missed some donors. To them we apologize.

UNI's Teaching Educators About Mathematics (TEAM) took its annual Math Fair on the road this past February. Nearly 30 UNI teaching majors brought over 20 mathematics games to Lou Henry Elementary in Waterloo. They set up their games in the lunchroom, gym, and hall. Between 5 and 6:30 pm, kindergarten through 5th grade students and their families were free to move from game to game at their own pace. They played Rat-a-tat-cat, Rush Hour, Tangrams, and more. The event is a win-win-win, giving Lou Henry students an opportunity to expand their math skills and discover their math strengths by playing hands-on, math-focused games. Parents often joined in to play the games as well, with many commenting that the games were new to them too. UNI Education Majors, most of whom were minoring in mathematics, gained expertise in teaching specific mathematical concepts and working with students of different ages and abilities, and small groups. In all, seventy-five students and their families participated in this year's Math Fair.

Says Marcy Seavey, UNI STEM Coordinator: "The UNI preservice students did an amazing job. They had to shift between explaining the same game to a 5th grader at one moment and then maybe a 1st grader and her father the next, and then two to three second graders. We are really grateful for our partners at Lou Henry for supporting the event and giving our future teachers this experience."

This year marks the 9th year for the UNI Math Fair but the first year that the Fair was held off campus.

According to Brian Townsend, faculty sponsor for TEAM, "This event has always served as a wonderful opportunity to engage young students in mathematics in fun and meaningful ways, and to get these future mathematical minds onto our campus at UNI. This year, we wanted to branch out and reach students who might have previously been missed. We were thrilled that the leadership at Lou Henry Elementary partnered with TEAM to host and facilitate the Fair. We look forward to future collaborations."

Department of Mathematics Funds

The following funds and scholarships are named for UNI emeritus faculty members:

Diane Sorenson Baum Fund – scholarships for elementary education majors with a K-8 mathematics minor (21-210591)

E.W. Hamilton Quasi-Endowed Scholarship – scholarships for students enrolled in any mathematics program (20-210174)

Bonnie Litwiller Mathematics Teacher Endowed Scholarship – scholarships for students majoring in Mathematics-Teaching (30-212639)

Fred W. Lott Endowed Scholarship in Mathematics – scholarships for incoming freshmen who are mathematics majors (30-211124)

Michael H. Millar Endowed Scholarship – scholarships to graduate students (30-211718)

Augusta Schurrer Endowed Scholarship for Mathematics Excellence – scholarships for students majoring in Mathematics – Teaching (30-211292)

Augusta Schurrer Mathematics Grant – scholarship for math majors with 65 hours of completed work at UNI; preference to secondary teaching major (30-221293)

Thiessen Elementary Mathematics Education Scholarship – scholarships for elementary education majors with a K-8 mathematics minor (30-212909)

Carl and Wanda Wehner Math Teaching Endowed Scholarship – scholarships for juniors or seniors majoring in Mathematics – Teaching (30-210474)

The following funds have been established by alumni and friends of the Department of Mathematics:

Robert Allender Mathematics Teaching Endowed Scholarship – scholarships for sophomore, junior, or senior students majoring in Mathematics-Teaching (30-211638)

American Society for Quality Control-Endowed Math & Computer Science – scholarship for juniors or seniors majoring in mathematics (30-210419)

Athene Actuarial Scholarship – scholarships for students majoring in Actuarial Science (21-212673)

Conrad and Jeannette Baumler Mathematics Education Scholarship – scholarship for juniors or seniors in mathematics education (21-212506)

Carol Woolson Beck Endowed Scholarship – scholarship for junior or senior in mathematics education (30-212611)

Robert W. Bettle Math Education Endowed Scholarship – scholarships for seniors in mathematics education (30-211269)

Glenn Boysen Endowed Math Scholarship – scholarships for students majoring in mathematics (30-211136)

Alice & George Brown Endowed Math Scholarship – scholarships for a declared major in the Department of Mathematics (30-211526)

Irvin and Dorothy Brune Mathematics Education Endowed Scholarship – scholarships for mathematics education majors (30-211613)

Robert and Carol Hendrickson Crane Scholarship in Secondary Math Education – scholarships for juniors or seniors in secondary mathematics education (21-212418)

John F. and Ruth Cross Endowed Scholarship – scholarships for Statistics and Actuarial Science majors (30-211516)

Rich and Dee James Secondary Mathematics Teaching Endowment – scholarships for juniors or seniors in secondary mathematics education (30-212220)

Robert R. Johnson Endowed Scholarship for Mathematics – scholarships for juniors and above majoring in mathematics teaching with a concentration in statistics (30-212828)

Patricia Lange Memorial Endowed Math Scholarship – scholarships for juniors or above in any mathematics major (30-210976)

George and Mary McCoige Mathematics Education Scholarship – scholarships for sophomores and above majoring in Mathematics-Teaching (21-212664)

Gladys Mittman Endowed Math Scholarship – scholarships for juniors and above majoring in mathematics (30-212708)

Prem Sahai Actuarial Science Endowed Scholarship – scholarships for actuarial science majors (30-211550)

Principal Financial Group Actuarial Scholarship – scholarships for juniors or above majoring in Actuarial Science (21-212396)

Myrtle Wiese Smith Memorial Endowed Scholarship – scholarship for juniors or seniors in mathematics education (30-212498)

Marcia E. Traer Endowed Scholarship Fund – scholarships for juniors or seniors in any mathematics major (30-211199)

Charles & Dorothy McLeod Tubbs Math Education Endowed Scholarship – scholarships for students majoring in mathematics education (30-211553)

Department of Mathematics Contribution Form

Would you like to support a Mathematics student and/or the Mathematics Department?

If so, please fill out the form below and return it to: **UNI Foundation Financial Services**
121 Commons
Cedar Falls, IA 50614-0239

Name _____

Address _____

City, State, Zip _____

E-mail _____

Phone home cell business

Please check if new address, phone or e-mail.

I/we would like to support the following fund(s).

\$_____ **Mathematics Department Quasi-Endowed Fund** (provides Alumni Scholarships, faculty development and travel, equipment, and support for all programs) 20-220127

\$_____ **Mathematics Education Leadership Endowed Fund for Excellence** (discretionary fund for all mathematics education programs in the UNI Department of Mathematics) 30-221015

\$_____ **Actuarial Science Fund** (provides John E. Bruha Award in Actuarial Science, Northwestern Mutual Scholarship, non-endowed scholarships, and covers student fees on successfully completed actuarial exams) 21-221288

\$_____ **Mathematics Leadership Fund** (for the enhancement of teaching secondary mathematics) 21-221162

\$_____ **Mathematics Undergraduate Research Assistant Fund** (for general undergraduate research assistance) 21-222452

\$_____ **Dr. Hyo Myung Family Mathematics Faculty Enrichment Endowment Fund** (provides faculty enrichment support for young (3-5 years) pretenured mathematics faculty members at the University of Northern Iowa) 30-222460

Online: If you prefer, you may give via the UNI Foundation secure website: <https://www.uni.edu/math>. Use the "Donate to Mathematics" button on the right side. This will take you to a secure site with three mathematics funds choices. Please enter your donation amount in the boxes, or click "Take me directly to the giving page" to contribute to any other project (enter the project name or gift intention in the area marked "Please specify designation" in the "Other" category).

Additional funds, established by alumni and friends, provide scholarships to students in our programs. These scholarships are described on the reverse of this page.

\$_____ directed to _____

My (or my spouse's) company, _____ (name), will match my gift.
(Please contact your HR office for details and matching gift form to be submitted with payment.)

Type of Payment:

Check: enclosed, payable to the UNI Foundation **Credit Card:** please charge my card
\$ _____ beginning (mo/yr) ____/____
Please complete card information below.

Signature (required) _____ **Date** _____

Credit card information will not be kept on file

100340

Charge my: VISA MasterCard Discover American Express (please check one)

Card Number: _____

Expiration Date: _____

Department of Mathematics
University of Northern Iowa

Wright Hall 220

Cedar Falls, IA 50614-0506

Alumni info request — *Let us hear from you...*

Let us know what you have been up to. You can email us at mathematics@uni.edu or return this form to:

Department of Mathematics
University of Northern Iowa
Wright Hall 220
Cedar Falls, IA 50614-0506

First Name _____ Last Name (maiden) _____
Address _____
City _____ State _____
Email: _____

Please share any news about you or your family to be included
in the next Mathematics Newsletter.

No person shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination in employment, any educational program, or any activity of the University, on the basis of age, color, creed, disability, gender identity, national origin, race, religion, sex, sexual orientation, veteran status, or on any other basis protected by federal and/or state law.

The University of Northern Iowa prohibits discrimination and promotes affirmative action in its educational and employment policies and practices as required by Title IX of the Educational Amendments of 1972, the Americans with Disabilities Act of 1990, Section 504 of the Rehabilitation Act of 1973, Title VII of the Civil Rights Act of 1964 and other applicable laws and University policies. The University of Northern Iowa prohibits sexual harassment, including sexual violence.

The following person has been designated to handle inquiries regarding the non-discrimination policies and serves as the University Title IX Officer: Leah Gutknecht, Assistant to the President for Compliance and Equity Management, Office of Compliance and Equity Management, 117 Glichrist Hall, UNI, Cedar Falls, IA 50614-0028; 319-273-2846, leah.gutknecht@uni.edu

In compliance with the Jeanne Clery Act, UNI publishes an Annual Security & Fire Report. The report contains information regarding campus safety and security including crime prevention, crime reporting policies, drug and alcohol abuse, sexual assault and student disciplinary procedures. The report also contains the three previous years' crime and fire statistics for on campus locations and certain off campus locations owned or controlled by UNI. To obtain a copy of the report, contact the UNI Department of Public Safety located at 030 Glichrist Hall, Cedar Falls, IA 50614, call 319-273-2712 or visit www.vpaf.uni.edu/pubsaff/crime_stats/clery.shtml.