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Math Department Newsletters

Math Department

2021

Σ-ARY

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Σ-ARY

Mathematics Department
NEWSLETTER 2021

Always Jobs in Mathematics

The pandemic has upended our lives in so many different ways over the past year. One of the largest challenges that Americans have faced is unemployment or underemployment. In many different sectors across the nation, we have seen businesses contract and people finding themselves without a paycheck and often without a career that was a fulfilling part of their lives.

However, conversations with alumni of the MSUM Mathematics department reveal that jobs in mathematics, especially those in Actuarial Science and Mathematics Education, the two primary focuses of our majors, have not experienced the same decline that jobs in other industries have. In fact, we are receiving more calls for Math Teachers and Actuarial Scientists this year than we have in the last five years.

Preliminary data suggests that there are around two job openings for each Mathematics Education Major graduating this year. The Bureau of Labor Statistics gives a perspective job growth over the next ten years of 4% for High School Teachers in general, but for Math Teachers the demand is much higher due to fewer graduates choosing Math Education as a major.

The actuarial science profession is growing even faster at a rate of 18% over the next ten years. The vast majority of actuarial science majors easily secure internships during their undergraduate career and most turn those internships into full time positions.

So what is it like being a Math Teacher or Actuary? We speak to a few Alumni to find out.



Marnie Peterson (co 2017 Masters in 2020) is a 9th grade teacher at Sheyenne High School in West Fargo. While teaching during the pandemic has been quite challenging, she also loves her work. She says that being a math teacher is a new adventure every day. "I like all the different skills we talk about. A lot of the time students will have a question about a topic, how it works, why we do it like this and not like this, and it'll make me really step back and think, 'That is such an excellent question.'" This opportunity to grow in her work is definitely one of the most rewarding parts of her job. "The school environment is a place where you learn and grow." And as Marnie

sees it, that applies to both the teachers and the students.

When asked why there is such a need for math teachers, Marnie replies that it has to do with the fact that many people have negative experiences with math and grow up thinking that there are math people and non-math people. "[We] need math educators who are passionate about it because most negative experiences probably happened in the classroom. Having math teachers who are enthusiastic about it and who can help students by explaining [math] in different ways is extremely important. To create teachers who are good teachers and passionate teachers, you need to have that experience modeled for you."

Being a Math teacher is about more than being passionate about math. Marnie says that "education is really about the relationship piece. Anything you're doing with building relationships and classroom management, really focus on that. Math is great and wonderful, but it's really important to focus on developing skills to be a facilitator in the classroom." In order to reach people, developing a relationship with them first is key. Marnie finds that students are less likely to resist learning math if they feel that she cares about who they are as people, not just how they perform in her classes. Being a math educator is an incredibly fulfilling career that involves creativity, relationship building, and openness to challenge and learning.

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Both Jacob and Logan described being an actuary as rewarding, and one of the best parts of the job, like teaching, is developing relationships and feeling like an integral member of a team. Logan describes an actuary as “somebody that people in the company go to for tools and to provide analysis.” Jacob felt that even as an intern he felt “appreciated and valued throughout the company by all sides of the business, underwriters, claims adjusters, business managers. The actuarial skill set, which encompasses understanding of insurance and the insurance process and the math and data analysis side are valued within the company.

Similarly a career as an Actuary is about creativity and relationship building. Insurance and data analysis can sound like a dry industry, but there is a ton of room for creative thinking and exploring data. **Jacob Pawlowski** (co 2021) and **Logan Rennemo** (co 2020) shared their experience as interns and as newly minted actuaries.

Jacob says, “I didn’t envision a desk job; I originally wanted to be a police officer. However, after I got exposure to what an actuary does, I found that, instead of what seemed like a boring desk job, actuaries actually solve puzzles all day, intellectually challenging puzzles. You work together with other people who are smart and find the best solution to

that puzzle.” This kind of puzzle solving is exactly what students learn how to do when studying actuarial science at MSUM and the applications in the world of actuarial science are endless.

In fact, Logan relates an experience in his job where they were looking at trend rates. “People might think, ‘Oh, we’re going to look at all of the data we have.’ We were actually considering things beyond the scope of the numbers: the current administration, different prescription drugs that have been put out, where health care is going, population density. You can think of it as a cut and dried job, but in reality you are going to be looking at a much wider range of factors that you might expect.”

It’s rewarding because people at the company value what you are doing.” Logan agrees, “While you may be given some tedious tasks as an intern, you will also be given valuable tasks, which gives you unique opportunities.”

The truth in both of these fields is that these are rewarding careers that defy the stereotypes of what doing mathematics is like. Math Educators and Actuarial Scientists spend a great deal of time working in teams, developing relationships and solving puzzles. The careers are rewarding and in desperate need for more people.



Mathematics Department

Mathematics Awards for Outstanding Students

The faculty of the Mathematics Department annually selects outstanding students in mathematics for recognition of their achievements. This year 39 students were recognized and over \$27,000 was given out in scholarships and awards. This year's Outstanding Senior Awards go to

Lindsey Brownell, Gavin Canlas-Rinke, Carl Amos Lee Knutson, Jacob Pawlowski, and Logan Rennemo.



Lindsey Brownell is from Fall City, WA and is the daughter of Lynn and Lori Brownell. She graduated in December 2020 with a B.S. in Computational Mathematics. Lindsey was a member of the Women's Collegiate Soccer Team during her time at MSUM. VISION Bank is where she has begun her career.

Gavin Canlas-Rinke is from Wheaton, MN and is the son of James and Tracie Rinke. Gavin received a B.A. in Mathematics and plans to attend graduate school. While at MSUM, Gavin worked as a Learning Assistant in the mathematics department.

Carl Amos Lee Knutson is from Hudson, WI and is the son of Craig and Mary Knutson. Carl received a B.A. degree in Mathematics with a minor in Graphical Communications. While attending MSUM, Carl was employed as a Manager Bartender at Wurst Bier Hall in Fargo, ND. His future plans are not yet solidified. Carl would like to apply both his math and creative skills in a career and is thinking about applying for an internship in the Augmented Reality / Virtual Reality market or possibly graduate school. "I fully enjoyed my time at MSUM. The professors were far more personable and caring than anywhere else I've attended." – *Carl*



Jacob Pawlowski son of John and Julie, is from Rogers, MN. He graduated with a B.S. degree in Math: Actuarial Science, B.S. in Mathematics (Computation Emphasis), and B.A. in Criminal Justice with minors in Finance and Statistics. While at MSUM, he was involved with the Actuarial Science Club, Math Club,

Club Tennis, Wind Ensemble, and Pep Band, and worked as a Math Tutor, Dragon Ambassador, Student Orientation Counselor, Moorhead Police Department Data Analytics Intern, OneBeacon Actuarial Intern, and SCOR Global Life Americas Actuarial Intern. He'll begin his actuarial career this summer with Intact Insurance Specialty Solutions (formerly OneBeacon) in Plymouth, MN. "I am excited to work with the professionals I spent the last two summers with. I will take the remaining seven actuarial exams over the next few years as I learn the intricacies of pricing and reserving techniques." – *Jacob*



Logan Rennemo is from Baudette, MN and is the son of Wade and Tina Rennemo. Logan graduated in December 2020 with a B.S. in Actuarial Science and a minor in Statistics. As a student at MSUM he participated in Math Club and Actuarial Club as well as Lutheran campus ministries and many volunteer activities. Logan spent

his last semester interning with PartnerRe in Maple Grove, MN and was offered a full-time position which he began in March. He is currently working online, but has plans to move to Maple Grove. "The hard work paid off during my internship..." – *Logan*



Scholarships & Awards

Bette G. Midgarden Scholarship awarded to Mathematics major **Kaylie Breid**.

Carl Carlson Scholarship awarded to Biotechnology/Mathematics major **Anna Elgersma**.

James Wallen Scholarship awarded to Computer Science/Mathematics/Physics major **David Wichmann**.

Katherine Leonard Scholarship awarded to Mathematics/Mathematics Education major **Sophia Sowada**.

Ken Garland Scholarship awarded to Mathematics Education major **Emma Houska**, Mathematics Education major **Luke Meyer**, Mathematics Education major **Alexa Lien**.

Marion V. Smith Scholarship awarded to Actuarial Science major **Landon Metzger**.

Rothmann Family Scholarship awarded to Actuarial Science major **Renzen Caughey**.

Shelda Warren Scholarship awarded to Mathematics/Mathematics Education major **Gudrun Hall**.

Tim and Kathy Peil Mathematics Scholarship awarded to Mathematics Education major **Emma Houska**, Actuarial Science major **Landon Metzger**, Actuarial Science major **Emily Ketelsen**, Mathematics Education major **Luke Meyer**, Computer Science/Mathematics/Physics major **David Wichmann**, Mathematics/Mathematics Education major **Jena Backes**, Mathematics/Mathematics Education/Health Services Administration/Business Administration major **Heather Sauve**.

Bill Ritchie Award for Excellence in Mathematics awarded to Mathematics/Mathematics Education/Psychology major **Gavin Canlas-Rinke**. The Ritchie is awarded to a student graduating during the academic year who has been accepted to study mathematics at a graduate school.

Other Awards

Junior Mathematics Award:
Cole Mahler

Sophomore Mathematics Award:
Jack Carver, Clay Rasmussen, Eric Johnston

Freshman Mathematics Award:
Tessa Primus, Kathleen George, Grace Heying, Nadin Qaqos, Gavyn Bruesewitz, Jenna Lee

Incoming Freshman Essay Contest Winner:
Emma King, Joelle Bounds

Incoming Freshman Award:
Abby Baker, Emma King

Outstanding Performance by a Mathematics Minor:
Rachel Loberg, Chloe Lear

Outstanding Secondary Mathematics Education Major:
Jena Backes, Heather Sauve

Outstanding Senior Elementary Education Major:
Julia Wallace

Mathematics Department

News and Notes 2020-21

Actuarial Science Exams Passed

Congratulations to the following students for passing Actuarial Science Exams this year. **Landon Metzger** passed the P exam. **Lola Boldbaatar, Renzen Caughey, and Eric Johnston** passed the FM exam.

Student, **Eric Hernandez**, presented research on estimates of potential cycles in the Collatz Conjecture at the Student Academic Conference this spring.

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Virtual MCTM

The Minnesota Council of Teachers of Mathematics Conference held April 16th and 17th met virtually this year. There were over 70 live sessions and 40 on-demand sessions. This was the first MCTM conference that we know of where most of the attendees showed up in their pajamas.

Professors **Tammy Fitting** and **Tim Harms** both presented at the Conference. Tammy presented a session titled “Little Things Can Make a Difference” that connected how findings in neuroscience can be addressed in classroom instructional practices. Tim presented a session titled “Desmos for 1st – 5th grade students” that addressed how teachers can reach students where they are during distance learning.

Additionally, Mathematics Education Majors **Jena Backes**, **Heather Sauve**, and **Sophia Sowada** attended.

Faculty Professional Activities

Ashok Aryal was extremely busy this year. He attended the Workshop on Methods in Nonlinear Analysis organized by the Department of Mathematics, Kennesaw State University November 14-15, 2020; the Joint Mathematics Meeting (JMM), January 6-9, 2021; the SIMIODE EXPO 2021, February 12-13, 2021; and the Tenth Ohio River Analysis Meeting (ORAM 10), March 20-21, 2021.

Ashok submitted the paper, “*An approach for recovering initial temperature via a bounded linear time sampling*”, for publication. This paper is coauthored with Dr. Ramesh Karki.

Ashok also reviewed two papers, “*Boundary layer of transport equation with in-ow boundary*” and “*The double-power nonlinear Schödinger equation and its generalizations: uniqueness, non-degeneracy and applications*”.

Finally, as secretary of the Association of Nepalese Mathematicians in America (ANMA), he is assisting in organizing the Third ANMA Workshop on Collaborative Research in Mathematical Sciences, to happen virtually on May 29, 2021.

Ed Chadraa passed the Actuarial Exam SRM (Statistics for Risk Modeling) while spending his sabbatical at the College of William & Mary in Williamsburg, VA. The five-year long Vitamin D clinical trial conducted by Harvard School of Public Health, on which he served as an independent statistician

member of its Data Safety and Monitoring board, has been completed and the results were published in the New England Journal of Medicine, July 2020.

Damiano Fulghesu had the paper “The integral Chow ring of the stack of smooth non-hyperelliptical curves of genus three” accepted for publication. This is a collaboration with Professors Andrea Di Lorenzo and Angelo Vistoli.

Adam Goyt attended the virtual Permutation Patterns Workshop in Summer 2020.

Justin James continues to participate in a SEED Leadership workshop and helped secure a grant with the Moorhead Public Schools to train faculty, staff, and community members. “SEED is a peer-led professional development program that promotes change through self-reflection and interpersonal dialogue and builds capacity for more equitable curriculum, campuses, workplaces, and communities.... In their local, year-long SEED seminars, SEED leaders and colleagues use their own experiences and those of their students and children to widen and deepen school and college curricula and make communities more inclusive.”

Megan Jensen attended the Banff International Research Station Workshop on Dynamical Algebraic Combinatorics.

Retirement Parties!!

Save the date for a retirement party on Friday August 27, 2021. We will be celebrating the careers of two of our esteemed faculty members. **Drs. Bette Midgarden** and **Kris Montis** retired in Summer 2021 and **Dr. Sayel Ali** will be retiring in Summer 2022.

Alumni Picnic

While you’re saving the date for the retirement party, please also save the date for the Alumni Picnic on Saturday August 28 from 11:30 – 2:30. We will be meeting at Gooseberry Park in Moorhead. Main course and sides will be provided, please bring a dish to pass if you wish. Please RSVP Jo Berg at bergjo@mnstate.edu by August 25 if you plan to attend. We hope to see everyone there!



PROBLEM CORNER 2021

How Many Children?

“I hear some youngsters playing in the backyard,” said Jones, a graduate student in mathematics. “Are they all yours?”

“Heavens, no,” exclaimed Professor Smith, the eminent number theorist. “My children are playing with friends from three other families in the neighborhood, although our family happens to be the largest. The Browns have a smaller number of children, the Greens have a still smaller number, and the Blacks the smallest of all.”

“How many children are there altogether?” asked Jones.

“Let me put it this way,” said Smith. “There are fewer than 18 children, and the product of the numbers in the four families happens to be my house number which you saw when you arrived.”

“Jones took a notebook and pencil from his pocket and started scribbling. A moment later he looked up and said, “I need more information. Is there more than one child in the Black family?”

As soon as Smith replied, Jones smiled and correctly guessed the number of children in each family.

Knowing the house number and whether the Blacks have more than one child, Jones found the problem trivial. It is a remarkable fact, however, that the number of children in each family can be determined solely on the basis of the information given above!

Taken from Gardner, Martin. *My Best Mathematical and Logical Puzzles*. Mineola, NY, Dover Publications, 1994.

Solution for PROBLEM CORNER 2020

1. The number of edges and vertices is known. If this graph is to be planar, how many faces must it have? $F - 9 + 6 = 2$, so $F = 5$.
2. Explain why each face must have four edges. *Any face must have an even number of vertices because none of the houses are adjacent and none of the utilities are adjacent. Thus each face must have at least four edges.*
3. How many edges does this mean the graph must have? Remember that each edge is part of two faces. *Since we have 5 faces then we have 20 edges. However, each edge is part of two faces, so we get that we must have at least 10 edges.*
4. Explain why the graph for the utility problem cannot be planar, and hence must have at least one pair of crossing edges. *We have a contradiction. We can't have 9 edges and at least 10 edges. Thus, one pair of edges must cross.*



Mathematics Department

2021 Alumni News

'48 Virginia (Trowbridge) Stangeland '48
No news this year. The governor said “Stay home” so I did!! I’m still able to live on my own, I do a lot of reading and counted cross-stitch. I drive – but I don’t go very far (makes my kids happy)! I have a place on Lake Lizzie (about half an hour from my home in Barnesville). I’ll be spending time there this summer.

I hope this pandemic will soon wind down (I’ve had my vaccine). I miss going to the sporting events at the high school.

I’ll be 95 this fall – if I live that long!!

Gary A. Woodward '51

Taught Mathematics in Alexandria, MN for 36 years. Great school and city. Enjoyed being the shortstop on the north region baseball champions! = 1947 for MSTC.

'53 Donna M Anderson '53
Donna passed away November 30, 2020. She was always grateful for the education she received at Moorhead State. She used her degree to teach mathematics at Wheat Ridge, CO for three years 1957-59. After that she became a homemaker and volunteer at many facilities in the Denver area. She was a wonderful wife to Don for 67 years, great mother and friend to many. Greatly missed by all.
Don Anderson

(Our deepest sympathies to you Don).



'54 Kenneth E. Garland '54
As a 1954 graduate (67 years ago) from MSUM; 2020 has been one of the most unique years of my life. The Covid Pandemic caused isolation and activity curtailment for us retirees. I for one wonder what effect it will have on university students. It had to be one of the most unusual school years in the last 100 years.

I hibernated and isolated most of the year, but being a veteran it was possible to receive two doses of the Pfizer Vaccine by the end of January 2021. With my family, including two grand kids that were at Universities, having escaped Covid; I feel blessed and hope that most MSUM students and staff were also spared.

I continue to be interested in supporting MSUM math students, and will be enhancing the “Ken Garland Math Scholarship Account”. I still reside in Phoenix, and will try to do a trip to MN, including Moorhead, in July 2021.

Kenneth E Johnson '55

Deceased on May 30, 2020. Faith Johnson

(Our deepest sympathies to you Faith).

'56 Charles E Harwood '56
After graduation from Moorhead State, I attended the University of Minnesota, where I obtained a Masters Degree in Industrial Education. My first teaching position was for the Roseville School District, teaching 9th grade math and metal shop. I had various positions for the Roseville, MN schools.

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While teaching and living in Roseville I obtained an EDD from the University of MN. In 1973 I became the Director of the Rochester Area Technical Institute. When I retired in 1990, my official title was President of the Technical College in Rochester.

My wife, Glory, and I built a home in the country north of Rochester and lived there until 1999 when we purchased a home on Loon Lake near Vergas, MN and moved there. We share our time between the lake and Mesa, AZ where we have a home on the 18th fairway of Apache Wells Country Club. We golf in the winter and enjoy gardening in the summer. I still love to hunt and fish, although I am not as agile as I was so am not able to do much.

At this point in life we reflect on our lives and are Thankful. God has been very good to us. Among our many blessings is our family. We have four sons and their wives. Also fifteen grandchildren and twenty-three great-grandchildren. What more could a man want?

Robert Schumacher '57

Retired 1995, member and service in Guard/Reserve. Retired 1996 from teaching due to a back disability

'59 Jerome "Jerry" Arzdorf '59

I taught math to grades 7-12 in Colorado Springs, CO from 1959-64. Then I received a Masters Degree at NDSU in Fargo, ND in Guidance (1964-65) and taught math again at Roosevelt Jr. High in Blaine, MN from 1965-66. Also at Roosevelt, I was a Guidance Counselor from 1966-70 and lastly a Counselor at Anoka Tech College, in Anoka, MN from 1970-95.

My retirement was in June 1995. It has been 25 years since then during which time I have traveled, fished, and enjoyed friends. I have lived in the same house for 55 years.

Marie (Tri) Finney '62

Al and I are living on Rush Lake north of Ottertail. It's a very friendly area with lots of restaurants and activities on the lake. My times at MSU were great and I was involved in many organizations.

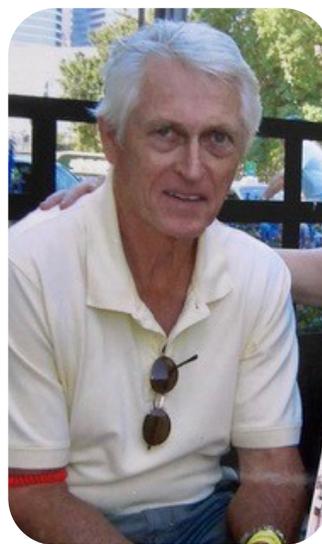
'64 David Jorgenson '64

Taught high school Algebra, Algebra II, and Geometry at Fosston High School, Fosston, MN from 1964-1993; Graduate Studies at Bemidji State, University of Oregon, and University of Minnesota; and was

an adjunct at University of Minnesota, Crookston, Crookston, MN. Currently retired.

Diane (Holthusen) Lopez '66

Andy and I just returned from two months in New Mexico and are looking forward to obtaining our second COVID-19 shots. I am on the Governor's Council for making Minnesota an Age-Friendly State. Our bill is now in the legislature. As Co-chair of our Age Friendly organization in Alexandria, I am excited about lots of great projects that are helping our rural elderly citizens make it through the pandemic - from iPads to repairing homes to helping with transportation to doctors, meetings or the grocery store.



'67 Everett Underlee '67

I worked for Control Data Corp as EIC of the group maintaining Commercial Mainframe Computer Systems in Minneapolis/St. Paul; for Magnetic Peripheral Systems in Peripheral Hardware Support and Cyber 7xxx Mainframe System Support; and for Seagate Technology where I programmed in C, Fortran and Cobol as well as managed

Hardware/Software on Systems – Apollo Token Ring, HPUX, Sun Solaris and Linux.

After working for 40 years, I retired in 2009. Now I spend my summers in Minnesota and winters in Sun City, Arizona.

William (Bill) Capp '70

Retired in 2010 from teaching math and coaching after 38 years, with the most recent 20 years at Minnewaska Area High School in Glenwood.

During retirement I recently enjoyed 3 years working with my sister at our Vintage Shop in Alexandria until 2019.

In December 2019 my wife, Cheryl, and I (married 47 years) moved to Plymouth to be closer to 2 of our 3 kids and 4 of our 6 grandkids. The other daughter and family live in Florida. We're enjoying watching our grandkids play sports.

'70 **Greg Kruger '70**
Taught 7-9th grades math and woodworking in Mildura, Australia (1973-75) and taught Math and GED prep to 7-12th grade boys at Thistledeew Boys Correctional Program in Togo, MN from 1976-2003.

I retired on March 3, 2003 and have lived in Florida for 17 years. Also in 2003, I homeschooled two students in Algebra II in Crato, Brazil.



Lyle Thorstenson, MD, FACS '70
Married to my beautiful bride, Pam Reardon (NDSU '72), nearly 48 years, our grown children, Leah works for government and son, Luke works for a university. Both are independent, but sadly, we do not have grandchildren to brag about in this newsletter.

2021 marks my final year of work, after 25 years of private practice medicine, 5+ years of VA surgery and clinics, and more than six years of Locum Tenens, I am ready to retire.

We have remodeled our one level, down sized home on a golf course in the DFW area.

I read the Fargo Forum daily. Recently, the Forum had an article involving Dragon contemporaries, B. A. Schoen and John Tandberg. They were in the news 55 years ago for protesting the "Sound of Music" movie at the Moorhead Theatre.

Fortunately, the math department was a good bit more sedate.

I wish all Dragons good health and happiness.

Vince Felchle '71

I have no significant update – maybe next year. The world's pandemic has changed life dramatically.

'72 **Don Kurpiers '72**
Welcomed our 4th grandchild in October, so being retired since 2017, we are spending a lot of time being "gardener" and "nanny" for our children.

I taught high school Math for 45 years, with the last 33 at St. James, MN, where we still live. I also was glad I did not need to teach remotely during the latest school years. Times have sure changed.

John Lindstrom '73

I am still working part time for the ND University System where I have been employed for 43 years. I work in IT as an Application Developer helping to support and enhance the University System's Oracle/Peoplesoft HCM System. I still enjoy working for the University System but have time to pursue my interests. I live in Fargo with my wife Marie Fiandaca Lindstrom (class of 1976).

'74 **Steven Gerjets '74**
I graduated in 1974 with a major in Math and a minor in Computer Science. I combined my love of problem solving and writing computer code into a 38-year career as a Software Engineer for Sperry Univac/Sperry/Unisys/Paramax/Loral/Lockheed Martin in Eagan MN.

In 2012 I retired from the Lockheed Martin Corporation when they decided to close the Eagan facility. The last position I held was as the Software Integration and Test Lead for the Common Submarine Radio Room program. Over the years I was able to work on several very interesting programs, including: The Automatic Direction Finder; The Airborne Battlefield Command and Control Center; The Canadian Message Handling System; The Naval Modular Automated Communication System, The Rapid Optical Screen Tool and The Voice Information Processing System.

Since retiring, my wife Gail and I have enjoyed traveling, spending time with our families, especially our 4 grandsons, and relaxing at our cabin along the North Shore of Lake Superior.

Also, during my years at Moorhead State I was a 4-year letter winner on the Track and Field Team. Two of the teams I was a member of have since been inducted into the MSUM Athletic Hall Of Fame.

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Gary Krenz '78

Gary received B.S. degrees in Mathematics and Computer Science in 1978 from Moorhead State University. He received his Doctorate in Applied Mathematics from Iowa State University in 1984 under the direction of Dr. Richard K. Miller. Gary has taught math, statistics, and computer science courses at Marquette University since 1985, although now he primarily teaches math courses. From 2009 to 2015, he was department chair for Marquette's Department of Mathematics, Statistics and Computer Science.

In 1996, he received his university's highest teaching award and in 2001, its Ignatian Pedagogy Award. In 2004, the Helen Way Klingler College of Arts and Sciences honored him with its Faculty Award for Excellence in Advising. These awards would not have been possible without the wonderful students and colleagues he has had the honor of working with during his years at Marquette.

For over twenty years, in collaboration with practicing physician/scientists, physiologists, cell biologists and biomedical engineers, Gary studied various non-respiratory functions of the lung; that is, what the lung does besides gas exchange. In particular, he modeled lung cellular metabolism and hemodynamic properties. These investigations involved several approaches, such as incorporating available vessel morphometric data within the framework of deterministic homogeneous vascular networks, as well as nondeterministic heterogeneous vascular networks. In addition to the hemodynamic studies, he investigated the uptake and interaction of drugs with the endothelial cells of the lung capillary bed. That research was funded by the National Institutes of Health and the Department of Veteran's Affairs. Now, he is working on the National Science Foundation S-STEM project entitled COSMIC -- Change Opportunity - Start Masters In Computing.

'80

David Jacobson '80

After over 30 years as a statistician at IBM Rochester, I'm enjoying my second career as a tenured faculty member at Metropolitan State University in St. Paul. I teach courses in mathematics, statistics, and data science. In addition, I serve as the internship coordinator for the Department of Mathematics and Statistics as well as the Chair for the College of Sciences Industry Advisory Board.

My wife (Deb) and I are looking forward to traveling again once the pandemic is over. In particular, we look forward to seeing our children in Texas (Justin) and Michigan (Emily).

Claudia (Brainard) Wiebold '81

My husband, Don, and I have been working at home in our "Computer Programming" positions for our companies, Trane & Securian Financial, respectively, for over a year now / since the pandemic hit the US. We both work on "agile" development teams -- and between the Jira & Zoom tools, work has continued very smoothly. I will celebrate my 40th service anniversary with Securian (aka, Minnesota Mutual / Minnesota Life Ins Co.) mid-July. Truly thankful for this "Great Place to Work"!

Please stop in and see us Rebecca, we'd love to show you around the Department.

'86

Kathryn (Carlson) Choi '86

My maiden name is Carlson, previous married name Noel, and I was a member of the Class of 1986. I graduated with a BS Math Education - Secondary.

In December 2018 I moved to Canada and married Rev./ Dr. Sang Rog Choi. I now have Permanent Resident status in Canada. I work as the manager/accountant/co-owner of Saddle Lake Bottle Depot (beverage container recycling) here in Alberta, Canada. The COVID restrictions have altered everything up here and life is not anywhere near normal yet. My husband had kidney transplant surgery in October 2020 and we are dealing with that positive transition in our lives. We are doing a lot of prep work to continue to do church mission work in Nicaragua and to be able to continue the programs my husband has been working on for 24+ years in Nicaragua.

We are eagerly waiting for the border between USA and Canada to open up so that we can go back to visit my son, Trent, and his wife, Alicia; along with other friends and relatives.



'86

Rebecca (Lewin) LeDocq '86

This is my 30th year as a professor in the Department of Mathematics and Statistics at the University of Wisconsin -- La Crosse. The past year has had many challenges as we all know... teaching online has been a new experience for me, and I definitely prefer teaching face-to-face!

My daughter, Ella, graduated from high school in 2020 and missed out on so many things, including prom and a graduation ceremony. She is now a freshman Film Production major at MSUM (MSU as I remember it!) She discovered MSUM entirely on her own and wanted to visit campus based on their film program...she didn't know at the time that it was my alma mater! It has been fun rediscovering campus and reliving some of my college memories. I can't wait for her to be able to experience the campus and community in a more "normal" fashion.

(Please stop in and see us Rebecca. We would love to show you around the Department.)



Beth (Bauman) Thompson '88

I attended MSU from September 1984 to May 1988 and graduated with a BS in Math Education. I have been teaching in Fargo Public Schools for the last 32 years. I currently teach 8th grade math and Algebra at Ben Franklin Middle School.

I married my college sweetheart Bruce Thompson (Economics major May,

1987). We have three children and our youngest graduates from Fargo North this year. I will retire this spring also. Looking forward to wintering in Sun City, AZ and spending spring through fall in Fargo and at the lake.

'89 Karla (Rothmann) Herz '89

I will be retiring from the United States Postal Service on April 30th after almost 25 years. During this time, I moved from Clerk to Postmaster to Human Resources management. I am looking forward to spending more time with my husband, Glenn, and daughters, Kaitlyn and Morgan. Morgan will marry fiancé, Kyle, this summer and lives in Anchorage, AK. Kaitlyn, husband Tim, and our Math loving grandson, Thomas (6) live in Grand Forks.

Theresa "Terri" (Falling) Friebohle '90

After 7 years teaching 7th grade math, I got my master's degree in library science. I have been working as a library media specialist at Raytown High School in the Raytown (Missouri) School District ever since. After 31 years in education, I am happy to announce that I will be retiring at the end of the 2020-21 school year. In retirement I plan to do lots of traveling and work seasonally at any National Park that will take me.



'90 Veronica (Johnson) Lunde '90

Veronica graduated from MSUM in 1990 in Math Education. She has been teaching Mathematics at Apollo High School in St. Cloud, MN since 2006. Veronica has been an Advanced Placement Statistics reader since 2012. Prior to working in St. Cloud, she taught Mathematics in Door County, Wisconsin.

Her husband is also a MSUM graduate. They have 3 boys, love camping, reading and visiting state parks. Quote from Einstein, "Education is what remains after one has forgotten what one has learned in school."

Michelle Mahoney '90

Employed for 26 years at the Mayo Clinic, Michelle collaborated in the conduct of national and international oncology clinical trials as a Statistician and Assistant Professor of Biostatistics. Among her work, Michelle presented "The Fight Against Colon Cancer: Past, Present, & Future" as an invited guest speaker for the 2018 NDSU College of Science Mathematics annual Community Lecture. In late 2020 and following the completion of a MBA in Healthcare Administration at Concordia University - St. Paul (CSP), MN, Michelle joined one of the top three global Contract Research Organizations (IQVIA, Durham, NC). Through their Full Service Partner model, Michelle supports Janssen Pharmaceuticals (a company of Johnson & Johnson Pharmaceuticals) as an Associate Director of Statistics and working with clinical trials in hematology. As of 2021, she is also Adjunct Faculty for the MBA program for CSP. She and her fiancé are planning their wedding.

'91 Rodney Oman '91

CEO/Owner/Photographer of "The Imagery" in Burnsville, MN.

continued >>



Debra (Frank) Haglund '93
Debra moved to Denver, Colorado in August '93, and married Dave Haglund in April '94. She was hired by the Colorado Department of Transportation in December '93 and is currently assisting the Division of Human Resources as a Technician V. Her duties include

lead-working three employees, updating HR's website, data analysis, and supporting enhancements to SAP Human Capital Management (HCM). They moved to the Denver suburb of Parker, CO, in June 2012. They have a cat.

'93 Jeffrey Ryerson '93

October 2020 – named Senior Coordinator-Installations with Banfield Pet Hospital, Vancouver, WA

April 2021 – voted Journeyman, IATSE Local 28, Portland, OR

Flynn Dustrud '94

I've been teaching math and computer science at Madison Area Technical College in Madison, Wisconsin for almost 20 years.



Connie Skarphol '94
I just celebrated my 20th year as a Math Center Coordinator. I work at South Central College in North Mankato, Minnesota. I really appreciate the education that Minnesota State University, Moorhead provided which built a strong foundation for a mathematics career that I love.

'98 Joella (Ackerman) Mesa '98

Joella is employed at Stanford University School of Medicine located in Palo Alto, CA. She was promoted within the Department of Biochemistry in March 2020 from Student and Postdoctoral Affairs Administrator to Director of Finance and Administration.

Angie Hodge-Zickerman (Hodge) '02

Angie Hodge-Zickerman is an associate professor in the Department of Mathematics and Statistics at Northern Arizona University. She lives in Flagstaff, Arizona with her husband, two step-sons, and two year old son. She spent the pandemic teaching mathematics and mathematics education courses remotely with her two year old, Austin, by her side.

'04 Udip Rayamajhi '04

I started a new job last May as Sr Scrum Master for Humana, Inc. in Arlington, VA. It has been a crazy year with the pandemic. My first daughter is now 5 and smaller daughter almost 2.

Being optimistic for a future without COVID.



Jessica (Mavis) Devine '08

I am currently, and have been for almost 9 years now, a stay-at-home mom to our 5 boys! We have 2 biological, 2 adopted, and 1 foster (soon to be adopted) son.

My husband Dan ('08) teaches Visual Arts at Pequot Lakes Middle/High School.

Utilizing my teaching and math background, I have been tutoring through the school's American Indian Education program! It keeps me using my teaching brain and engaging with students and families in our community!

We also stay quite busy with Devine Ink, our custom screen printing adventure! We mostly print for local schools, businesses, and friends. Managing the business side of things allows me to use some of my math skills as well!

'12 Nicole Anderson '12
Nicole lives in Moorhead with her husband, Eric Hendrickson, and their cat (Coley) and dog (Tardis). Nicole currently works as the Project Manager with MSUM's Office of Institutional Effectiveness.

The last couple of years have been difficult with the death of her grandmother, Grace, and other family members, but have also had happy road trips to the Upper Peninsula of Michigan and visiting in-laws in Arkansas, as well as the recent birth of her niece Natalie Grace.

Despite the COVID-19 pandemic, Nicole maintained her streak of participating in at least one Fargo Marathon event each year since 2012 – including now five 5ks (one 'virtual'), four 10Ks, and one half marathon.

In her spare time, Nicole enjoys going for walks with her family, gardening, working on home improvement projects, and spending time with her niece.

Jennifer Glenski '13
Jennifer enjoys working as a Data Scientist, where on a recent project, she led a team using natural language processing to analyze cancer research portfolios. This spring, 2021, she enjoyed participating as an invited speaker and mentor for a global Girls in AI Hackathon, and completed her Masters of Science degree in Analytics from Georgia Tech.

'13 Megan (Nygaard) Jensen '13
In the fall of 2014, I began the graduate program in Mathematics at North Dakota State University. While completing my courses, I served as a Teaching Assistant and was able to be a primary instructor as well. I finished my Master's degree in the summer of 2019. Two weeks before the Fall 2019 semester began, I was hired at MSUM as a fixed term faculty member. The change from student to colleague took some time, and I still occasionally call them Professor. Fall 2021 will be the start of my third year here. I always wanted to teach at a college like MSUM, but actually teaching at MSUM is a dream come true.

During my time at MSUM, I was dating Alex, who is now my husband of five years. The summer of 2019 was a busy time for our family as we bought a house in Moorhead and adopted a puppy named Hobie. We spend our time playing a lot of volleyball, sailing on Ottertail Lake, spending time with family and friends, and relaxing in our backyard.

'20 Rachel Schmiess '20
Rachel graduated from MSUM in 2020 with a Bachelor of Arts degree in Mathematics. She is currently working remotely for Saga Education as a Math Fellow. The students she tutors are located in Broward County, Florida.



Zoljargal Boldbaater '20
I started working as an Actuarial Analyst at Mercer. I am working at Mercer's Government Human Services Consulting sector within Health and Benefits business. I am currently working from home with a plan to move to Minneapolis since our office is located there. I will be moving to Minneapolis when the office is back open. I will be taking exams while working to pursue Actuarial Credentials.



18 ONLINE

A GRADUATE PROGRAM FOR HIGH SCHOOL TEACHERS

18 Online provides the 18 credits teachers need to become qualified content area concurrent enrollment instructors.

It's the result of HF 3326 and SF 3026 - Northwest Regional Partnership, which appropriated \$3 million to provide curriculum development for the Northwest Regional Partnership continuing education program.

It's a collaboration between Lakes Country Service Cooperative, Northwest Service Cooperative and MSU Moorhead.

Fourteen content areas have been identified as high need for Northwest Minnesota. Legislative funding provides this program free (up to 18 credits in a content area) to qualified teachers in participating cooperatives. Teachers outside of the cooperatives may be enrolled, space permitting.

At this time, MSUM is offering courses in nine of the 14 content areas, including Math. Students, teachers and school districts will benefit greatly from this program. For teachers, the benefits of enrolling now:

- ▶ **\$100/credit for up to 18 credits in a content area**
- ▶ **100% online delivery**
- ▶ **Streamlined admission for 18 Online participants**
- ▶ **Flexible classes delivered by MSUM faculty**
- ▶ **Ensure you have the proper teaching credentials by 2023**

Learn more about the partnership and how to enroll at mnstate.edu/18online.



"This year I would like to try something new that I learned about in my summer course (MATH 626). I would like to introduce my students to Polya and Schoenfeld's problem solving."

- Katie Byer, 2015
Teacher in Perham, Minn.





REFER A STUDENT:

We know our mathematics alumni have been transformed by their MSUM experience. Your commitment to staying in touch and sharing your stories are proof that MSUM has had a profound and lasting impact. You can help continue to shape and build the Dragon community by referring a student you think would be a great fit at MSU Moorhead.

You can refer students in several ways.

- ▶ **Complete the “Request information from MSUM Moorhead” form for the student at:**
<https://www.mnstate.edu/admissions/request-information/undergraduate/>
- ▶ **Email your recommendation to:**
admissions@mnstate.edu
- ▶ **Encourage the student to check out MSUM:**
www.mnstate.edu/visit/
- ▶ **Call today to learn more:**
1.877.678.6463 or 218.477.2161



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Want to help support the Math Department?

We encourage you to make a contribution to the MSUM Alumni Foundation when they contact you in their annual appeal. Please consider designating your donation to a mathematics department scholarship (there are several) or to the mathematics department discretionary fund. In fact, we now have an endowed fund for actuarial among them. The phone volunteer may not ask if you want to designate, but your expressed wishes will be honored. Thanks.

