



New Sheriff in Town



There is a new sheriff patrolling third floor Rarick as Dr. Keith Dreiling took over the duties of chair for the Mathematics Department and Computer Science Department. Dr. Mohammad Riazi relinquished his badge after eight years of service. According to a reliable source, Mohammad is quite happy to be back in the teaching saddle and spending his free time solving problems on <https://math.stackexchange.com/>. Rounding up faculty and attending meetings with the authorities is certainly not an entirely new experience for Keith, as he was acting/interim chair for the Department of Computer Science since Fall 2016. Many of you have known the new sheriff and always enjoy his pleasant conversations, his cheerful personality, and his witty sense of humor but do you really know Dr. Keith Dreiling, Department Chair? We think not!

Keith was born and raised in Hays. As a child he was fascinated by tools and machinery, and considered a career as an auto mechanic. (In college, he also considered Chemical Engineering and Computer Programming as a career path but knew he would need better grades for that ...). Keith's passion for mathematics finally won him over, completing his Bachelors (1983) and Masters in Mathematics (1990) both from Fort Hays State University. His teaching career started out west at Healy High School in Healy, Kansas. After teaching and coaching young outlaws for sixteen years and catching his very own woman of the Wild West, Keith returned to the old Fort as an instructor. He started his Ph.D. program at Kansas State University finishing in 2007. Some of Keith's fondest memories come

from the long rides in the stagecoach (or the Bat Mobile – depending on who was driving) with his partners in crime, Lanee Young and Jeff Sadler. Although the plan was to discuss course development, teaching pedagogy, and have deep intellectual discussions about the coursework, it usually ended up with some far-fetched tale of the old west, food, and damsels in distress, which may have been some of the funniest stories ever told. Weekly trips out east were one of the best things they all enjoyed, making the bond between them stronger, of which the department is still benefitting.

The Tiger Family is Important and Always Welcome

Great things continue to happen in our department. We cannot succeed without alumni and friends. Your gifts, information, hiring of graduates and interns, and even simple things like cheerleading and spreading the word about the strengths of our department, our students, and faculty, **are all important**. You are **always welcome** to stop and visit with faculty and students!



When Keith is not researching free lunches at the chuck wagon, he is researching his other interest, Geometry. He loves to create and show new graphs that he makes with Geometer's Sketchpad. Keith also does research in the area of teacher education in collaboration with the Department of Teacher Education.

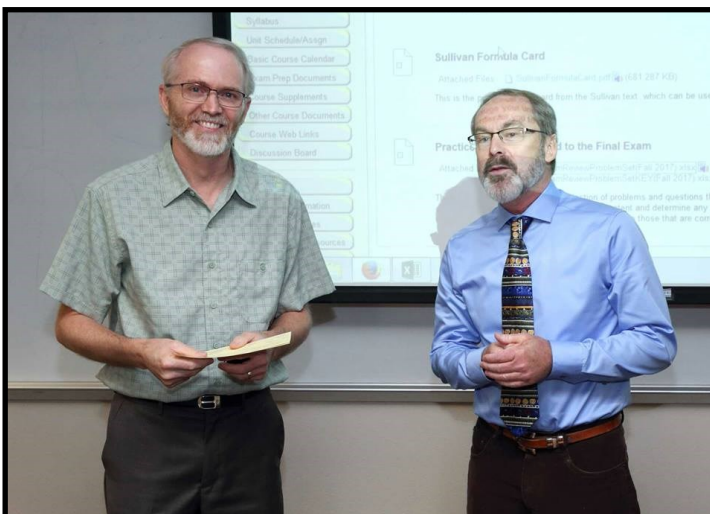
Keith has been happily married to his pioneer woman Pam for 31 years. They have three "amazing" children: Jenna, Levi, and Darci. Jenna married Kyle in 2015, and now live in Houston with Keith's first granddaughter, Lucy, which Keith reports is "the most wonderful thing in his life." Levi transferred to KSU from FHSU to pursue his degree in Golf course management. Darci is in 7th grade at TMP.

When not taming the halls of 3rd floor Rarick, Keith likes to build things, fish, kayak, and do yardwork (although he prefers to call it gardening). Keith believes in hard work. His advice to students pursuing a career in mathematics is come to class, work hard, and seek help. He is quite happy with his deputies and how well the departments function. If you happen to be traveling this way, tie your horse at the hitching post outside and have a conversation with the new sheriff in town. Keith is always happy to talk! With your help, Dr. Dreiling is hopeful that FHSU will keep supporting the faculty and nurturing our students.



FACULTY MEMBERS RECEIVE AWARDS

Each Fall and Spring semester, the University presents an award to a deserving faculty member in the area of Teaching, Scholarly Activity, and Service. The University President and other administrators interrupt class to surprise the



Mr. Jeff Sadler and Dr. Greg Farley after being presented with his award.



Dr. Hongbiao Zeng receiving his award from Dr. Greg Farley, Dean of the STEM College.

deserving recipients. During the Fall 2017 Semester Dr. Hongbiao Zeng received the Outstanding Teaching Award and Mr. Jeff Sadler received the Outstanding Service Award. Congratulations to both of you! We are proud of you!

New Faculty — Tom Dunn

My name is Thomas Dunn and this is my first year at Fort Hays State University. I was born in Tampa, Florida. In elementary school, I always had a knack for solving problems and loved competitive math. I did most of high school in Mohall and Minot, North Dakota. There were many math competitions I participated in from Mathcounts, math meetings at Jamestown College and Minot State University, and even the USA Math Olympiad. I moved to Phoenix, Arizona in the middle of my junior year.

I started college at Northern Arizona University in Flagstaff in 2004. I had originally planned on being only a Physics major, but a combination of the Putnam math competition and seeing simple and fun ways of solving physics problems with advanced math helped me decide to also major in Mathematics.

I started graduate school in 2008 at North Dakota State University, mainly because I missed the winters. I specialized in Commutative Algebra, with some side interests in Topology and Linear Algebra. I graduated with a PhD in 2015. From there I taught for two years at Bemidji State University in Bemidji, Minnesota.

My research in Commutative Algebra is primarily about certain numerical invariants. These are numbers that can be computed, either easily or possibly with a lot of computational power. The hope in this case is that these numbers have an important meaning with them; that if two different objects end up giving the same number then in some way those two objects are “the same.”



Advice from a current student — Chelsea Zimmerman

Graduating has always been the scary part of going to school for me. I am always worried about the unknown. I always want to know what I am going to do next, but let's take it back to my freshman year and start there.

As a freshman, my plan was to become an elementary education teacher. I have always known I wanted to teach. Thus, going for elementary education sounded like a great plan to me, but that changed shortly after my second semester. After telling some of my teachers how I enjoyed mathematics, they told me about the Noyce Scholarship, and the tremendous need for mathematics teachers in Kansas. The next day I went to talk to Lanee Young who ended up being my advisor during my time at Fort Hays State University. After starting the program, I learned a crazy amount of things about mathematics that I would never have learned if I had not switched majors.

I am very thankful for the opportunities I have been given while at Fort Hays State University. One of my favorite opportunities I had at Fort Hays State University was being able to continue dancing for for the “Tiger Debs,” the Fort Hays dance team. During my three years on the team, we danced at every basketball game, football game, and MIAA tournament. These moments will always be in my heart. Another opportunity was being awarded the Noyce Scholarship, which is given to eight students planning to teach mathematics or science. I received this scholarship for two years. The Noyce Scholarship gave me some incredible opportunities. One of these was going to Rolla, Kansas to observe and get the chance to teach in a small district. This grew my love for teaching and mathematics tremendously. Also, I got the opportunity to sit with boards of principals, superintendents, and other teachers and ask them pertinent question about what my future might entail.

In conclusion, right now I am student teaching at Hays Middle School. I also have accepted a job at Hays Middle School for this coming fall. Without the amazing opportunities that I have been given at Fort Hays State University and the amazing faculty that supported me through my journey, I would not be prepared for the next step in my life. Therefore, thanks to my amazing time at Fort Hays, I am no longer scared for graduation and what comes next.



Chelsea is a senior majoring in math education.

Undergraduate Research by Keith Dreiling

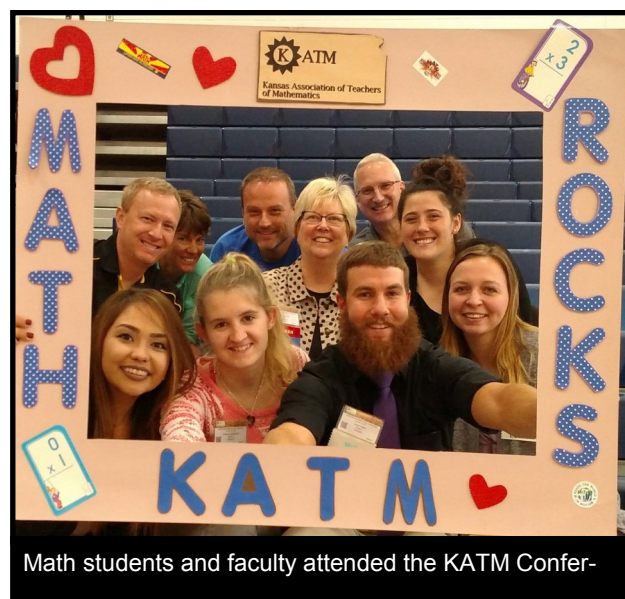
Faculty from the Department of Mathematics and the Department of Computer Science have conducted research with undergraduate students over the last year. The following paragraphs include research projects.

KAMS (Kansas Academy of Mathematics and Science) students Amelia Richter, Brennan Wald, Bruce Davies, and Jisoo Yoo worked under the guidance of Dr. Young. Amelia's research is "Analysis of Bridge Types," and Jin-soo's topic is "Biostatistics." Brennan and Bruce are studying sports analytics on "Winning Formula in Football."

Last spring KAMS students Wanyue Xu, Juntao Zhang, Mingyang Sun, and Rujia Qiu worked on research with Dr. Dreiling. Wanyue studied "Fractals in Architecture," Juntao's topic was "Golden Ratio: Findings and Applications," Mingyang studied a special relationship of the nine-point circle in "Relationship Between the Radii of Outside Circles and the Radius of the Nine-point Circle," and Rujia studied a special relationship of equilateral triangles called "Napoleon's Theorem." In the fall Jenny Zhang incorporated Geometer's Sketchpad to illustrate the orbits of the planets to scale.

Kevin Jones worked with Dr. Dreiling in the fall on applying projective geometry to the Riemann Sphere. While currently student teaching in Dodge City, Kevin has continued refining his ideas of this topic for possible publication.

Dr. Zeng guided several students in their research projects. Jinseo Park won first place in the student showcase and sixth place in the student programming competition at the CCSC MW Conference in Grand Rapids, MI. Jenson Park developed an application to demonstrate the sorting algorithms and produced a website of coding learning. Geon Kim, Jinwoo Park, and Zheng Zoe worked with Project Euler where Geon developed a mind reader game for project Euler and Zheng developed an app for a Morse Code translator. Li Xin Nuo and Seeun Choi worked with Java and Sugju Choi solved math problems using programming in an online math competition.



MATH & CS Faculty Assist with Science Olympiad

Science Olympiad is a national, non-profit organization dedicated to improving the quality of K-12 science education through participation in Science Olympiad Tournaments and incorporation of the Science Olympiad into classroom curriculum.

Science Olympiad competitions are like track meets, consisting of 23 individual and team events. Each year, events are updated to reflect the ever-changing nature of biology, earth science, chemistry, physics, computers, astronomy, engineering, and technology. By combining events from all disciplines, Science Olympiad encourages a wide cross-section of students to participate.

Students who participate in Science Olympiad are taught advanced science through active, hands-on participation. All events involve team work, group planning, and cooperation. There are now over 5,500 middle schools and high schools from all 50 states who participate in Science Olympiad.

The Departments of Mathematics and Computer Science at Fort Hays State University have been actively involved in coordinating, organizing, and judging events for the past several years. Faculty members who assisted with the 2018 FHSU Regional Competition on February 13 and 15 were: Tom Dunn – Mission Possible, Lanee Young and Bill Weber – Fermi Questions, Soumya Bhoumik and Sarbari Mitra – Write It Do It, and Hongbiao Zeng and Jeff Solheim – Game On.

Thank You for Your Support

The Department of Mathematics enjoys this opportunity each year to list the donors who have given so generously to our department. Without your contributions it would not be possible for us to award scholarships to our deserving majors. Please check out the list of students receiving scholarships. We wish to thank each of you who have shared your financial resources with the university, and especially wish to thank those of you who have designated the Mathematics Department as recipient. We also appreciate the employers who matched your contributions.

Joan Albers, Charles and Cathryn Allphin, Patrick and Keri Applequist, Gary and Bernice Bell, Charles and Charlotte Bigler, Rex and Beverly Blanding, Sonny and Therese Blyn, Boing Company, Jerry and Edith Bollig, Susan Bozeman, Jerry and Michelle Bremenkamp, Stephen and Judy Brummer, Darren Brungardt, Cargill, Robert and Nancy Chaffin, Kent and Lisa Colwell, Thomas and Emily Decker, Mary Dinkel, Keith and Pam Dreiling, Kay and Mildred Dundas, Dennis and Diana Echard, Thomas Edgett, Ken Eichman, Dan and Martha Eining, LeAnn Eltze, Ervin M Eltze Trust, William and Debra Fox, Leslie and Karen Freeman, Stanley and Neva Griffin, Jerold and Paulla Harris, Chad and Lora Heckman, Terry and Carol Herdman, Al and Marilyn Herren, Jerrod and Jess Hofaker, Kent Huffman, Rodney and Karen Hunley, Roger and Teresa James, Stuart and Donna Jarvis, Justin and Amy Johnson, Loyal and Wanda Johnson, Regina Johnson, Brad Kearns, Vernon and Virginia Kisner, Richard and Sandra Kratzer, Mike and Carmen LaBarge, Darrell and Sheila Latham, Bob and Kim Lee, Rudy and Maralyn Legleiter, Larry and Donna Leitner, Aaron Lessor, Dee Lessor, Paul and Pat Luea, Jim and Shirley Malcolm, Larry and Connie Masters, Dan and Pamela May, Perry and Maria Mick, Jean Milham, Merrill Milham, Regina Miller, Ronald and Debbie Miller, Bob and Anel Minneman, James and Wanda Morford, Mutual of Omaha Foundation, Wayne and Alberta Neel, Sylvia Nelson, Weeden and Rosalie Nichols, Geoffrey Peter, William Peterson, Donald and Kathryn Petr, James and Sharla Pfeifer, Larry and Darlene Plymell, The Prudential Foundation, Roger and Ruth Pruitt, Mohammad and Seddigheh Riazi-Kermani, Richard and Sharon Ruder, Jeff and Lori Sadler, Ron and Cathy Sandstrom, Robert and Christine Sauber, Ronald and Kim Schmidtberger, Gail Stanley, David and Betty Taylor, Textron, Inc, Ken and Linda Trimmer, Blake and Crystal Vacura, Ellen Veed, Charles and Reta Votaw, Bill and Tiffany Weber, Kenneth Werth, Marilynn Wilson, Rex and Margaret Wilson, Leroy and Sharon Winklepleck, Lori Wittrock, Lanee Young, Hong Biao and Michelle Zeng.



Students are focused during a test at Math Relays.

MATH RELAYS 2017 by Bill Weber

Last November, the FHSU Math Department hosted the 39th Annual Math Relays. We hosted 742 students from 57 schools on that day, and the day went very well!

In class 1A, the team champions were once again St. John's Catholic, followed by Pike Valley in 2nd, and Rock Hills 3rd. In the 2A/3A category, TMP-Marian won top honors, with Trinity Catholic and Minneapolis placing 2nd and 3rd. Within the 4A-6A category, McPherson was the winner, with Hays High 2nd, and Great Bend 3rd. For a complete listing of team placing and individual winners, please check our website <http://www.fhsu.edu/macs/Math-Relays/Past-Winners/>

In addition to the competition, we also had FHSU math faculty available to visit with students about what it means to be a math major at FHSU, as well as games to play and puzzles to solve for students during their non-testing times. We visited with a large number of students; hopefully this will entice some of them to consider a degree in math from FHSU! Our alumni can be a great source of recruiting also, so if you know of a student in your local community who might be a good math major, please have them contact me at bweber@fhsu.edu so we can discuss the possibilities which exist.

MATH/PHYSICS MAJOR WINS TORCH AWARD

Giles Fox a 2017 graduate in physics and mathematics was the recipient of the 2017 Torch Award. The Torch Award is given every year to the outstanding graduating senior. Giles is a very deserving individual as he was active in mathematics, physics, baseball, honor societies, and much research. He is currently working towards a masters while teaching math and physics in Ashland, Kansas. He is pictured with his parents, Deb and Bill Fox.



**Check out our Master of Science in Education with an Emphasis in Mathematics at the following link:
[MASTER'S PROGRAM](#)**

New Adjunct Faculty in Math and Computer Science

Due to the rapid growth of the virtual Computer Science program, it was necessary to hire faculty to satisfy student demand. Three adjunct faculty were hired for the fall semester, another instructor was hired for this semester, and an advisor dedicated to online students was hired in the middle of the fall semester. Demand for more online Mathematics courses required two new adjunct faculty to be hired.

Ruili Lang taught two online sections of CSCI 261 Computer Science I in the fall and is currently teaching one online section of CSCI 361 Computer Science II. Ruili has a Bachelor of Science in Computer Programming Technology and a Master of Science in Geographic Information Systems/Remote Sensing from Purdue University. Ruili was an Application Developer and Analyst at FHSU since September 2014, but she recently moved to Atlanta, GA and has continued to teach for us.

Yang (Ocean) Liu taught two online sections of CSCI 369 Java Programming in the fall and is teaching two online sections of CSCI 261 Computer Science I this spring. Ocean earned a Master of Professional Studies in Web Development from FHSU in 2017 and is able to code in a variety of languages. He was a Maintenance Assistant at FHSU from 2016 – 2017.

Houston Hilton was a 2017 graduate of FHSU with a Bachelor of Science in Computer Science. He taught two online sections of CSCI 160 Orientation to Computer Science in the fall and is teaching two more sections in the spring. Houston moved to Florida where he accepted a position as a middle school ESL Teacher of Game Design, so he may not be able to teach for us much longer.

Dr. Hieu Vu was originally hired to teach at Sias University in China for FHSU this spring, but after complications with the hiring process in China, Dr. Vu graciously accepted our offer to teach two online sections of CSCI 363 Computer Operating Systems, one online section of CSCI 365 Systems Architecture, and one online section of CSCI 461 Programming Languages. Dr. Vu earned a Master of Science in Computer Science in 1989 from Texas A&M and has taught at various universities around the world. He currently lives in Dallas, TX.

Becky Newell is the Computer Science advisor for virtual students. Her SEAC (Student Engagement and Advising Center) position involves advising students in the Agriculture program as well as Computer Science. Becky is a 1996 graduate of FHSU and was an advisor in the Department of Teacher Education prior to accepting the SEAC position.

Erin Deenihan is a 2015 graduate of FHSU and a mathematics teacher at Hays High School. She taught an online section of Intermediate Algebra in the fall and is teaching the same course for us this spring. She is currently working on her Masters of Science in Education degree with an emphasis in Mathematics.

John Gatschet has a Masters Degree in Statistics from Kansas State University and has worked as a statistical analyst, manager, or consultant since 1987. He is currently teaching one online section of Elements of Statistics.

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LIBERAL ARTS MATH MOVES ONLINE by Bader Abukodair

This past summer I received the permission from the Math Department to design and develop a Liberal Arts Mathematics course to be offered online through the Virtual College for the first time at Fort Hays State University. After contacting the course development team at FHSU and signing the required paperwork for this project, we put together a plan to offer the course in the Spring semester of 2018.

I was faced with many challenges throughout the preparation period. One of the challenges was how to balance between the Math contents and the requirements of this course being offered for many undergraduates students that are not majoring in the mathematical, physical, or life sciences. Another challenge was choosing the textbook and the software to use for this course. A third challenge was the way students will post their solutions and ideas on the topics learned, interact with each other and share their experiences, questions, and concerns. A fourth challenge was determining how to monitor students during test taking.

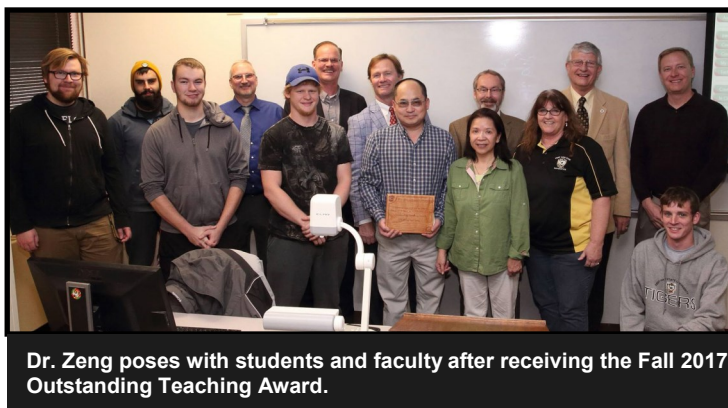
With the coordination of Mr. Andrew Feldstein, Mrs. Seung Gutsch, Mr. Mingohao Taowe, and Mr. Nathan Riedel, and after a couple of meetings we agreed on a framework for developing an online course plan. After reviewing many books, I have decided to go with Hawkes Learning System book and software for this course. I picked Viewing Life Mathematically for this course because "Each topic in the book engages students in developing mathematical skills and techniques that can be applied in their everyday lives and their own programs of study. The unifying theme of the book is the introduction of concepts and ideas that encourage students to view aspects of life by thinking mathematically" (Denley & Hall, 2016). Hawkes Learning System Software which accompanies the book has an adaptive competency-based approach where the students should master the contents to earn the full grade in the assigned topic.

I have decided to use Piazza, a free and easy to use software, to encourage collaborative problem solving. Every student is required to post solutions to a real world application question, then respond to two peers. Piazza has some important advantages such as: Wiki style format, Feature LaTeX editor, anonymous posting, and integrates with our BlackBoard LMS.

Finally, I have decided to use "LockDown Browser" and "Respondus monitor" to be the course proctoring solution. This software prevents cheating during non-proctored online exams by locking down the testing environment within our BlackBoard LMS, and recording students' exam sessions with a webcam. I thought this is an easier solution than a physical live proctor.

Developing Liberal Arts Mathematics was a great opportunity on my behalf to: apply my previous knowledge through "Quality Matters" workshops to design an online course, emphasizing teamwork by keeping up with the requirements and deadlines of my colleagues, incorporating technological advances by using cutting edge software, and last but not least, getting more familiar with the BlackBoard LMS.

I would like to thank Werth College of Science, Technology and Mathematics, Teaching Innovation and Learning Technologies staff at Fort Hays State University for all the help and support provided throughout my Liberal Arts Mathematics course development.



SUMMER MATH CLASSES

On-line

MATH 010 — Intermediate Algebra
MATH 110 — College Algebra
MATH 122 — Plane Trigonometry
MATH 250 — Elements of Statistics
MATH 331 — Calculus Methods

On-Campus

MATH 883 — Concepts of Calculus
MATH 831 — Functions of Complex Variables

2017 Faculty Scholarly Activities (when they aren't teaching)

The Mathematics faculty and Computer Science faculty are actively involved in original research. Faculty worked with 16 KAMS students on research projects, conducted weekly problem solving sessions with students, served as seminar advisors for 26 students, and presented at weekly seminars. The following is a list of scholarly activities by mathematics and computer science faculty in 2017.

Faculty presented at weekly seminar with titles such as **Radio k-Labeling of Graphs**, **Goldbach Conjecture Continues**, **Thinking Outside of the Box**, **Legendre's Polynomials and Rodrigues Formula**, **L(h,1)-Labeling of Circulant Graphs**, **Using Haskell to Refute a Conjecture of Goldbach**, and **Spirograph and Hats**. Three faculty members spoke at the Kansas Association of Teachers of Mathematics Annual Conference in Topeka with presentations of **Box Problem**, **Spirograph and Hats**, and **Locker Problem**. Other conference presentations included **After School Just Got Healthier** and **Bullies and Books: Read4Respect Bullying Prevention Project** at the 15th Annual Hawaii International Conference on Education.

Faculty works accepted for publication were **L(2,1)-Labeling of Circulant Graphs**, *Discussions of Mathematicae Graph Theory*; **On k-Graceful Labeling of Pendant Edge Extension of Complete Bipartite Graph**, *Algebra and Discrete Mathematics*; **Trisecting an Angle Using Mechanical Means**, *MAA Convergence*; and **After School Just Got Healthier** and **Bullies and Books: Read4Respect Bullying Prevention Project**, *15th Annual Hawaii International Conference on Education Book of Proceedings*

A faculty member completed 57 of the 99 Haskell Problems, 90 exercises from Programming in Haskell, and 50 Project Euler exercises in Haskell. Another faculty member published 379 solutions at the Mathematics Stack Exchange earning 1 Gold, 2 Silver, and 21 Bronze medals of honor and securing positions of editor, scholar, teacher, explainer, critic, commentator, and mortarboard. A third faculty member solved math problems on LinkedIn.

Courses developed last year include CSCI 675 as a seminar alternative for Computer Science seminar, online Liberal Arts Mathematics, online Trigonometry, MATH 882 Concepts of Algebra as a graduate class for the MSE-Mathematics, and a five-hour College Algebra course that incorporates Intermediate Algebra and College Algebra into one semester. Additional proof problems were added to the recently developed MATH 301 Introduction to Proof class. Plans are in the works to develop online Precalculus and online Analytic Geometry and Calculus I, and Computer Science is undergoing major program changes.

University research included continued work on the NSF Noyce Grant for the Noyce Scholarship Program and the co-writing, defending, and co-writing of the rejoinder for Council for the Accreditation of Educator Preparation (CAEP) Accreditation.

Dr. Riazi Tops Leaderboard

Dr. Riazi is ranked first in the world for the week of March 12, 2018 in the Mathematics Stack Exchange. He is currently ranked fifth for the month of March and ninth for the year. This places him in the top .09% of all users for the year. According to the Mathematics Stack Exchange website (<https://math.stackexchange.com/>), "Mathematics Stack Exchange is a question and answer site for people studying math at any level and professionals in related fields." Over 500,000 users are members of this competition.

Dr. Riazi began solving mathematical problems in the areas of calculus, real analysis, and linear algebra from the Exchange in January. He has solved problems daily for the last 85 days. His points are earned by submitting correct solutions and receiving votes from other users on his solutions. He has earned 2291 points so far.



What are they doing now??— Houston Hilton

To my fellow students and colleagues of Fort Hays State University:

“Change is a thing you can count on.” Yes, Miley Cyrus was definitely right. I still remember the very first day I arrived on campus, in a nervous, stereotypical freshman-like wreck. I was so tense, in fact, I was known as that guy in the dorms who never seemed to sleep! I also pretty much lived up to the freshman stereotype of not knowing what exactly I was supposed to be doing all the time or really understanding the world around me. Throughout my college career, it was definitely a roller coaster of new experiences and emotions. No matter who you are, you will go through them, and I'm telling you that you, from the get-go, should embrace them and not resist them. Don't let that one test you studied so hard for but still bombed get you down into a crevice. Don't let that one ex-boyfriend who you thought was going to be legally your husband put you in the dark. One door closes, another one opens.

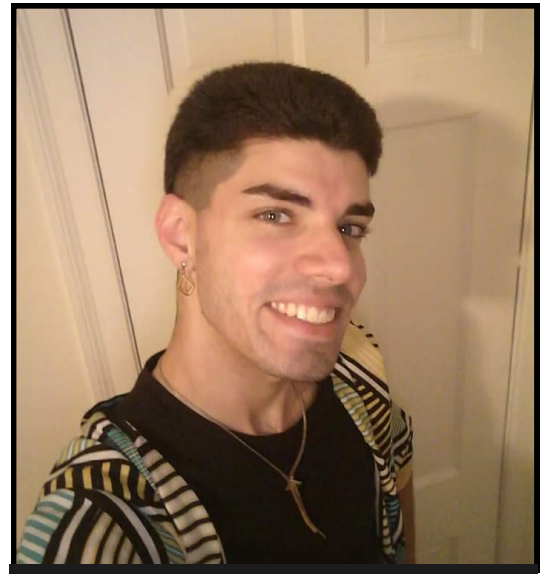
No matter what happens, know that the sun will always rise the next day, brush yourself off, and persevere. It's part of growing up. Nobody really grows up without a little risk and occasionally falling flat on their face. What makes life worth living is being able to pull yourself off the ground and keep going. The roller coaster of my college career at Fort Hays State University taught me to stand up on my own two feet, helped me gain the technical and charismatic skills necessary for my future career, pointed me in the right direction to begin my first amateur career in information technology as a freelance developer of applications for the Android platform on the Android Market – currently known as Google Play. At the same time, I was also learning how to better deal with stress and overall quality of life by eating healthier, exercising regularly, meditating, and visiting the counselor whenever need be - I know what you're thinking, and I promise that I'm not trying to be one of those “be happy get healthy” clichés. Performing these actions really made a night-and-day difference. After graduation, I decided to – with my confidence in risk-taking improved from my FHSU experiences — move from where I generally grew up in Wichita, KS to Jacksonville, FL. This move was not only for a change of scenery, career choice, and life, but to take care of my soon to be retiring parents.

When I arrived in Florida and was looking for a great career, my dearest colleagues of Fort Hays State University's Mathematics and Computer Science departments connected me to education-based work through FHSU. I gained an even broader skillset in information technology but also education. A few months later, I landed my first full-time job as a Career Technical Education teacher for Information and Communication Technologies at Kirby Smith Middle School of Jacksonville, FL.

Like every new twist and turn in life, I was nervous. Very nervous. I can still remember how many butterflies I seemed to have in my stomach on my first day on the job as a teacher. I wasn't sure if I would be able to make it or not. But if there's one thing that Fort Hays State University has taught me, it would be perseverance above all. With that said, I've been improving and becoming more confident about my line of work everyday. I'm also greatly enjoying working with the kids and now know that I will make a terrific parent one day.

With that said, I would also like to emphasize my main points to all of my colleagues, supporting persons, and FHSU students still going through their roller coaster college careers: Life is short, so live it to the fullest. Make mistakes. Learn from them. Become a better person. Break out of the norm and comfort zone. Shine all of your true colors and think nothing of it. I wish you all the best!

Forever a Tiger Alumni,



Houston is a 2017 Computer Science graduate. He is currently working in Jacksonville, FL.

FHSU Math/Science Awarded \$1.5 million NSF Grant for the next 5 years to provide scholarships for future teachers

Some great news came to our department over spring break this year, as FHSU was awarded a Robert Noyce Grant worth \$1.5 million. The primary intent of the award is to provide scholarships to students majoring in math or science education to cover the “cost of attendance” at FHSU. Thus, these awards will be valued near \$13,000 per year, allowing our preservice teachers who receive the awards to focus specifically on their preparation for teaching.

This award is similar to the one received during the previous 6 years, but it will have a slightly different emphasis. This award will solidify our relationships with area community colleges by working to provide a seamless transition to a math/science education degree from FHSU following time at their community college. In addition, we will work to establish STEM education groups at the community colleges similar to the one at FHSU which began during our previous 6 year award, with the purpose of getting like-minded students together (like a learning community) and possibly aid in retention of STEM education majors.

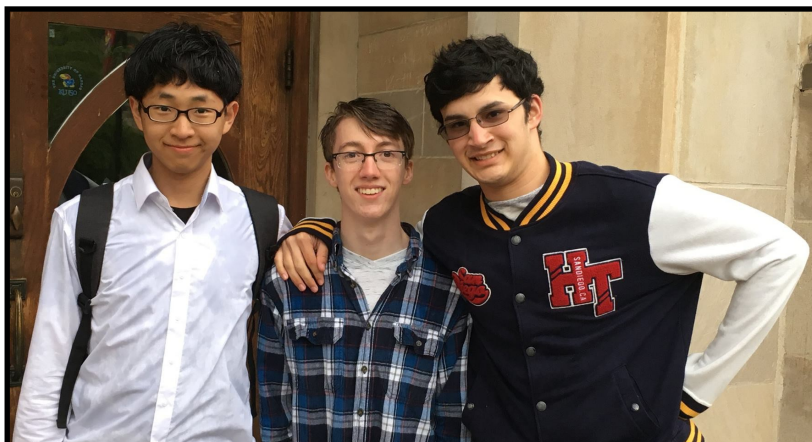
In order to be eligible for the grant, students must be at least of junior status, meaning they must have completed at least 60 credit hours of coursework. Other requirements include a minimum GPA, active participation within the local STEM education group, and a commitment to teach math/science for 2 years after graduation. Specifics can be found at <https://www.fhsu.edu/smei/noyce/>

Additional benefits (besides the scholarship itself) include paid travel to math/science conferences, coursework which directly prepares students to teach in rural school environments, and specialized mentoring both while at FHSU and after graduation, so that each graduate of the program is optimally prepared to enter teaching as well as continue in it for years to come.

During the 2017-18 academic year, FHSU awarded math education majors Perla Camacho-Rosales (Liberal junior via Seward CCC), and Chelsea Zimmerman (Hays senior) with Noyce awards as an end to the previous award cycle. During the previous 6 year cycle, 27 math education majors were awarded scholarships (some for 2 years and some for 1 year) totaling nearly \$330,000 through the NSF Noyce Program.

Of all the math education majors who have been supported through this grant, 12 of them are currently teaching, 1 is student teaching, and 1 is a current student finishing her coursework. The grant has really helped us in recruiting, especially from community colleges, as FHSU has more than doubled the number of STEM education majors in our programs over the past 4 years, in comparison to the 4 years before the grant.

You, as former alumni, are some of our best ambassadors. If you know of any students who might be excellent future math or science teachers, please visit with them, and if further information is needed, contact Bill Weber (bweber@fhsu.edu).... he'd be happy to visit with them about these (and other) scholarship opportunities!



Hoyoon Woo, Patrick Cook, and Rahasya Bharaniah competed at the Kansas Collegiate Mathematics Competition in Lawrence Kansas. They took 3rd place in the April 2017 Event

RANDOM FACTS

Thomas Broxterman ('17) is teaching and coaching track, basketball, and cross country at Royal Valley in Hoyt, Kansas.

Kellen Griffin ('17) is teaching at Shawnee Heights High school and is getting married this summer.

Alex Keehn ('17) has taken an interim job teaching 7th grade math in North Carolina.

Christian Meuli I ('17) is working as Associate Analyst at Daymon World Wide n Hutchinson, KS

Will Pingsterhaus ('17) is teaching in Cimarron KS.

Elle Stein ('17) has taken a teaching position and head basketball coaching position at Ellis High School.

Brianna Wooldridge ('17) is teaching at Wellsville Jr. High and **Clay Kear ('17)** is teaching at Trail Ridge Middle School. They are planning a July 2018 wedding.

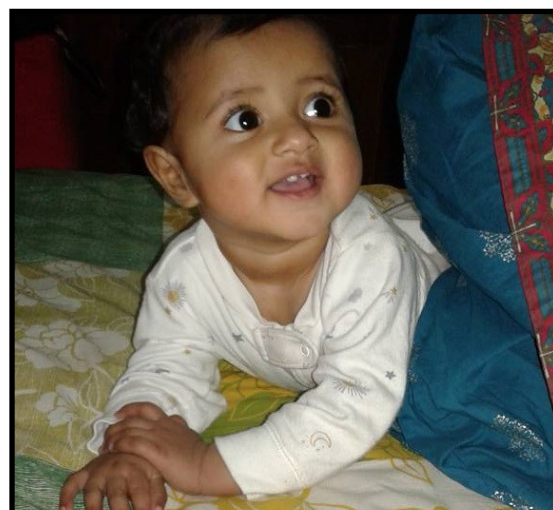
If you would to share any information for the newsletter, please email Lanee at lyoung@fhsu.edu.



Dr. Keith Dreiling and many students enjoyed the solar eclipse.



Nicole (Huber) Fischer ('17) and her husband Jordan were blessed with a baby boy, Gunnar Keith Fischer on February 2,



Soumya and Sarbari, current faculty, welcomed Illora Bhoumik into the world on April 13, 2017.

NEW PROGRAMS IN COMPUTER SCIENCE

The Computer Science Department started its online program in Fall 2016. Currently, there are over 300 students all over the world enrolled in this program to pursue their academic dream. To meet the needs of this new program, the department hired Mrs. Rebecca Newell as the academic advisor for CS online program; hired Dr. Hieu Vu as full time on line instructor, and hired Mr. Houston Hilton, Mrs. Ruili Lang, and Mr. Ocean Liu as adjunct online instructors.

Second, because of the online programs, Fort Hays State University established dual degree programs with the American University of Phnom Penh (AUPP) in Cambodia. B.S. in Computer Science is one of these degrees. The students from AUPP will take CS major courses online from Fort Hays State University while taking general education classes from local universities to fulfill the bachelor degree requirements. Without leaving Cambodia, the students from AUPP can earn a degree from FHSU. Finally, Fort Hays State University extends her cooperation with Sias International University in XinZheng, Henan, China.

Retired Faculty News

Elton Beougher

Keith may faint dead away, since the date today is January 26 and he gave the retired faculty a deadline of mid-February. Now it would be good, if I just had something to write. Ramblings begin.

My activities have been involved with four of my loves- grandkids, Crossroads Gospel singing group, the Smoky Hill Trail Association, and reading, in equal fourths.

First, grandkids. We have (I pause and count on my fingers) 5 (Wendy's) and 8 (mine), and 2 great-grandsons (mine), along with 4 spouses/significant others. Three of mine are high school freshmen and one is eighth grade. We are deeply involved in sports, (that is, the grandkids are). This is, of course, basketball season for 5 grandkids and gymnastics for 1. Like the old saying goes, "if I had known grandkids were so much fun, I would have had them first!" Well, not really, we love our kids, all grown-up, ages 53, 51, 46, and 40. They are all making their mark in the world.

Second, Crossroads. This group of 16 celebrated its 20th year in 2017. It has been a real blessing to me. We consider ourselves to be a family and have lots of fun and fellowship, together. Only one thing spoils the fun, at the end of last year about half of the group decided to leave, due to family and job obligations. We gave our last concert in December, a Christmas Vespers Service at the First United Methodist Church. We advertised it widely and the church was filled, more than 200 people. Over the years we have sung about 10 times a year, all over western Kansas, in Oklahoma, Nebraska, and Missouri, and one gig with a massed choir at Carnegie Hall in New York City. A lot of our fans came to hear us one more time in December. The remaining members, including me, are now seeking to re-form. I have led that task and hopefully we will be singing again in 2018, under a new title, yet to be selected. I suggested "Has Beens," or "Reruns," but that went over like a lead balloon. Hopefully, our title will be something more appropriate.

Smoky Hill Trail Association. This organization was formed in 2007, so we just celebrated our 10th anniversary. The purpose of this association is to promote, protect, preserve and publicize the Smoky Hill Trail. I have just completed a tenure of 4 years as President. In the mid-1800s this Trail was the main road from the States (it started when Kansas was only a territory) to the gold fields in the Denver area of Kansas Territory. Thousands of gold-seekers, suppliers of goods to those seeking their fortune, homesteaders seeking land, buffalo hunters, and many others travelled the more than 600 mile journey from Atchison, Kansas, to Denver. The route generally followed the Smoky Hill River across Kansas and into eastern Colorado where the River had its source. The trail then went across land to the Big Sandy River and followed it up to the Denver area. If you ever travel the E-470 bypass south from I-70 on the east side of Denver, you pass over the Smoky Hill Trail. In fact there is a modern road, marked with a sign "Smoky Hill Trail Road" as you pass it. That is your history lesson for today.

Reading. I want to share a very interesting book that I am reading now. It is not one of those that you read cover-to-cover and then shelve. It keeps drawing me back. My wife gave it to me as a Christmas present, just before we travelled to Denver to visit my daughter and Wendy's son, and their families. I got involved in the book and before I knew it we were at our destination. (Oh, disclaimer, I was NOT driving.) The title is "Things to Make and Do in the Fourth Dimension" (subtitled "A Mathematician's Journey Through Narcissistic Numbers, Optimal Dating Algorithms, at Least Two Kinds of Infinity, and More") Sounds like a page-turner, huh! Not really, but it is one of the most interesting books I have read recently. It's hard to describe, but I will take a shot at it. As I read it I had to have a notebook handy. Every once in a while, I would stop and reread a passage and do some calculating to convince myself that I understood what I had read. The author is Matt Parker. He is described as a "stand-up comedian and mathematician." His writing reveals both of those descriptions. It is delightful and informative. He delves into many famous problems, but at a level which is easily understood. You get a real feel for how mathematics developed throughout history. He leads you through the thinking of famous mathematicians as they developed some new theory and the stops and starts that occurred as they struggled to understand how numbers behaved and why. There is much number theory, geometry, combinatorics, and other branches of mathematics and discussion of unsolved problems. One that appealed to me was the Riemann Hypothesis. I had heard about it, but had never seen it described as Parker did. It basically deals with the distribution of prime numbers. It was interesting to read about the various attempts to solve this problem and the progress that has been made. By the way, it is not yet solved and there is a one-million dollar prize for the solution. If one of the readers of this newsletter decides to tackle the problem, and solves it, I think I should be entitled to a small portion for bringing it to your attention! (Not really.)

G.H. Hardy, a British mathematician, was one who worked on a solution of the Riemann Hypothesis. He spent many years on the problem to no avail. He was somewhat of an eccentric and had a wry sense of humor. There is an interesting anecdote that illustrates this characteristic. He always played an amusing game of trying to fool God (which is rather strange since he claimed all his life not to believe in God). During a trip to Denmark by boat he sent back a postcard claiming that he had proved the Riemann hypothesis. He reasoned that God would not allow the

boat to sink on the return journey and give him the same fame that Fermat had achieved with his "last theorem". (That's another story.) Hardy thought that applied mathematics was not really mathematics and that mathematics did not need to be useful. He was famously quoted as saying, "that nothing (I) had ever done had any commercial or military usefulness." We would describe him as being a number theorist. Hardy plays a major role in a recent movie, "The Man Who Saw Infinity." The Man is Ramanujan. Hardy played a role in discovering and mentoring Ramanujan. His is a very interesting story.....And, that is the end of mine.

Charles Votaw

It's good to still be around to report in the newsletter that we are still around and managing to take care of our own needs. Our known descendants are all alive and well and still willing to communicate with us. We have no grand adventures to report. Of course, it may be that we had some but can't remember now that we're finally getting old. Sometimes I'm amazed at how long it's taken me to get to this age. For now, I wish you all another year of as much joy as you can stand.

Ron Sandstrom

(Composed and written by Ron with critique by Cathy)

It has been several years since we sent out a letter or cards. So think of this as very early or very late. 2017 was not a very good year for us health-wise. After a week in Kauai and a week in Montana in the spring, things went downhill quickly. In June, Cathy had several heart issues. After many visits to DeBakey, visits to the ER, she received a pacemaker this past January. Since she was an energizer bunny, she is not happy with her new normal. Even with those problems, we still found time to make a trip down to Carlsbad Caverns. We had been there about 20 years ago, but a re-visit was still on our bucket list. I'm still substituting, any subject, about 2 days a week either here or over at Otis-Bison. I'm still volunteering as an accountant for two local organization and work at our Museums about once a week. Cathy works two days a week at the museums. So, we do lunch together and do spend some time together. Our museums are only open Memorial Day through Labor Day. The complex consists of the following buildings: Barbed Wire, Depot, Limestone, Bank, and now a one room school house. The kids: Jessica and spouse Ryan live in Hutchinson. Their daughter Bailey is on the Hutchinson High dance team, so we make many trips to games in Hutchinson. Jessica teaches Spanish at Hutch High. Erik, an ER Doc, is still in Havre Montana. Jackson, his oldest, re-enlisted in the army and is stationed in Alaska. He and his wife, Camille, blessed us with a great granddaughter, Savannah. Mason is studying to be a plumber, and Carson is a happy 7th grader who swims summer and winter. Bryna is busy taking care of her boys except when she is off playing Nana. Maybe Cathy's health will improve enough for us to make a trip to Alaska to see our new bundle of joy. Cathy stays busy with a prayer shawl ministry; she has distributed hundreds of shawls all over the US. In September, I cruised the North Atlantic following the path that Vikings would have taken to NewFoundLand. Since retirement we have visited 6 of the continents and 24 countries.

Mary Kay Schippers

Hello to all my friends! I am still very busy, still at the farm, and still very much enjoying my retirement. My winter days are filled with embroidering, quilting, painting (not the artsy kind, the kind where you need a step-ladder and roller pan), and writing (working on my third book. And yes, I know I said that my second would be my last. Changed my mind. This one is my last.)

My summer days are filled with horses, gardening, mowing, watering, weeding, canning, and lots and lots of houseguests.

Most of my travels are to Phoenix to see Brent and family, and Rapid City to see Jared and family. Jared's family will grow by 33-1/3% in early summer when their family grows from 3 to 4. (I'll bet you're all checking my math right now.) They decided to wait till the baby is born to find out the gender. Fun!

The only other trip Danny and I took this past year was a "sister" trip with my two sisters and their husbands to Pennsylvania. We spent three nights in Philadelphia seeing all the historic sights (I highly recommend it to every American. It was quite moving.) and then three nights in Lancaster – Amish country – in rural Pennsylvania. That was also wonderful, and quite honestly, it would be hard to choose as to which setting I enjoyed more.

Till next year, Mary Kay Schippers

Rosalie Nichols

We continue traveling back and forth across the country from coast to coast to visit Scottish festivals while Weeden is president of Clan Macleod USA. He has another year and a half in that office. We attended graduations of two grandsons from the University of Kansas last spring. We play duplicate bridge when we are in Las Cruces and sometimes do well. We appreciate the mild winters here.

Peace, Rosalie

Scholarship News — 2017-2018

by Jeff Sadler

The Fort Hays State University Mathematics Department continues to award substantial financial scholarship funds to many students pursuing a mathematics degree or minor at FHSU to offset increased tuition cost. Donated monies by supporters of the Mathematics Department and funding from other outside sources provided over \$59,500 in awarded student scholarships during this past year. The scholarship dollars awarded to twenty-eight students significantly reduced the cost of their university education.

During this past year, twenty students working on a major or a minor in mathematics received over \$19,000 through both prestigious named-scholarships and departmental scholarships. These scholarships are funded through both endowed funds and other designated contributions, some pledged during the annual Tiger Call Telethon. A few new scholarships (such as the Milham-Wasinger Annual Family Scholarships) were established through supported donations and fund endowments this past year. The following FHSU students received both high recognition and significant scholarship dollars through named-scholarships:

Diana Sabados (Brighton, CO)—Moore Family \$1,000 Scholarship

Ryan Hammerschmidt (Hays)-awarded the Veed \$1,000 Scholarship

Chelsea Zimmerman (Hays)—awarded the E.E. and L. Colyer Memorial \$800 Scholarship

Fernando Guzman (Hays)—Denio \$1,500 Scholarship

Diana Sabados (Brighton, CO)—Dr. Carolyn Ehr \$500 Scholarship

Tyler Bloom (Netawaka)—E. Eltze Memorial \$1,000 Scholarship

Monica Michaud (Hays)—Milham-Wasinger Annual Family \$500 Scholarship

Kevin Jones (Cleveland, TN)—Milham-Wasinger Annual Family \$500 Scholarship

Ryan Hammerschmidt (Hays)—Milham-Wasinger Annual Family \$500 Scholarship

Monica Michaud (Hays)—Baxter \$800 Scholarship

Patrick Cook (Derby)—awarded the F.E. Schockley KAMS \$600 Scholarship

Kevin Jones (Cleveland, TN)—Ruth and Roger Pruitt \$1,200 Scholarship

Fernando Guzman (Hays)—Schippers Family \$1,000 Scholarship

Thomas Broxterman (Hoyt)—awarded the Tebo Family \$500 Scholarship

Ryan Hammerschmidt (Hays)—Ron and Cathy Sandstrom \$1000 Scholarship

Nicole Fischer (Lyons)—Toalson \$500 Scholarship

Kenton Lindsey (Goddard)-awarded the C.W. Lowry \$1,000 Scholarship

Perla Camacho-Rosales (Liberal)—awarded the K. and D. Bahl \$750 Scholarship

Michael Cyr (Clyde)—awarded the K. and D. Bahl \$600 Scholarship

Alexandra Davis (Clay Center)—awarded the K. and D. Bahl \$600 Scholarship

Karla Gomez-Torres (Olathe)—awarded the K. and D. Bahl \$600 Scholarship

Jarred Penton (Verbena, AL)—awarded the P. Miller Math/Physics \$1,000 Scholarship



Dr. Bill Weber presents Ryan Hammerschmidt the Veed Scholarship

Using telethon supporters' contributions, the Mathematics Department was able to award departmental scholarships ranging from \$600 to \$800 to the following students:

Trinh (Ivy) Le (Liberal)

Dani Nay (Bennington)

Lance Hulse (Marquette)

Hannah Hanson (Junction City)

The Academic Opportunity Award (AOA) Scholarship in Mathematics recognizes incoming freshmen to FHSU. Now in its tenth year, this category of scholarship provides a two-tier structure with award amounts of either \$900 or \$500. The award and amount is based upon a student's interest in pursuing a degree within mathematics as well as upon the student's high school academic achievement and ACT/SAT scores. This past year, seventeen AOA scholarships worth \$12,500 were offered to students interested in beginning a degree program in mathematics. From this group of prospective students, eight accepted the awards for a total of \$6,400 in scholarships. Those students included:

Gabriel Baumgartner (Centennial, CO)

Michael Cyr (Clyde)

Jesse DeLaTorre-Rodriguez

Davis Dubbert (Beloit)

Mackenzie Foster (Topeka)

Karla Gomez-Torres (Olathe)

Tessa Kriss (Emporia)

Judson Tillotson (Fort Scott)

The FHSU Noyce Scholarship Program (co-directed by the Mathematics Department's Dr. Bill Weber), and the SEMI-Steffen Scholarships (directed by Dr. Paul Adams through the FHSU Science and Mathematics Education Institute) continue supporting many mathematics majors. Although the FHSU Noyce Scholarship Program was at the end its National Science Foundation awarded cycle, a renewal application was recently awarded with continued funding over the next several years. In the 2017-2018 year, the following students received over \$28,000 in scholarships dollars:

Perla Camacho-Rosales (Liberal)—\$13,000 Noyce Scholarship

Chelsea Zimmerman (Hays)—\$13,000 Noyce Scholarship

Chantal Solorzano (Dodge City)—\$2,000 SEMI-Steffen Scholarship

As in the past, the department is seeking assistance in recognizing and encouraging high school students and non-traditional students with an interest or talent in mathematics education or mathematics. The department has a goal to have at least fifteen well-prepared high school seniors and another five non-traditional students begin their higher education in mathematics or secondary mathematics education at FHSU. We are in great need of assistance from friends and alums to reach this goal. Please take the time to contact us with names of such prospective individuals—then the Mathematics Department will reach out to them and demonstrate the benefit of becoming a FHSU Tiger.

FHSU students and faculty are truly appreciative of contributed dollars from friends of the Mathematics department. If you have questions about departmental scholarships or have the ability to assist in identifying and/or recruiting possible Mathematics majors from your local region, please contact Jeff Sadler by email at jsadler@fhsu.edu or by phone at (785)-628-4416. If interested in contributing either new or continued funds to any scholarship area, please do so by sending a check to the Mathematics department payable to the FHSU Endowment Association—specify the mathematics scholarship fund of interest or the department's unrestricted fund on the memo line.



Kevin Jones receives congratulations from Christian Meuli after induction into Kappa Mu Epsilon.