Child Prodigy Graduates from FHSU

Meet Gilberto, the 13-Year-Old Computer Science Grad

Meet Gilberto, the 13-year-old Computer Science graduate. Gilberto is a remarkable young man who has accomplished extraordinary things in computer science. He began his academic journey at a young age, starting his bachelor's degree in computer science at nine years old. With his natural talent and dedication to learning, Gilberto completed his degree at 13 from Fort Hays State University becoming one of the youngest individuals to ever achieve this feat.

The Tiger Family is important and always welcome!

Now, more than ever, we would love to hear from you!!!!

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 spreading the word about the strengths of our department, our students, and faculty, <u>are all important</u>. You are **always welcome** to stop and visit with faculty and students!

Despite his young age, Gilberto approached his bachelor's degree with the seriousness and dedication of an adult. He easily tackled complex concepts, completed assignments with precision, and engaged in thoughtful discussions with his classmates and professors.

His dedication and perseverance were evident in his perfect 4.0 GPA, a feat that few students achieve. But for Gilberto, it was just the beginning of his journey. He wanted to continue learning and challenging himself, which led him to enroll in the master's program at our university.

Gilberto always excelled in his courses, impressing his professors with his exceptional work ethic, intelligence, and creativity. He quickly became a standout student, consistently earning top grades in his classes and demonstrating a true passion for computer science.

We are incredibly proud of Gilberto's achievements, and his story is an inspiration to us all. He reminds us that age is just a number and that anything is possible with dedication, passion, and hard work. We are honored to have played a part in Gilberto's academic journey, and we look forward to seeing all the incredible things he will accomplish in the future.

New Faculty — Jayme Goetz

Being a Hays native, I am thrilled to join the Fort Hays MACS team! I graduated from FHSU in 2014 with a Bachelor of Science in Mathematics. From there, I entered the Transition to Teaching program and taught 7th-12th grade math for one year in Ellsworth. In 2015, I moved back to Hays to continue my career at Hays High School earning my Master of Science in Education in 2016. I went back to graduate school in 2017 where I earned my Master of Science in Secondary Mathematics Education in 2019. I thoroughly enjoyed teaching Algebra I, Geometry, College Algebra, and Elements of Statistics at Hays High for seven years. Teaching such a wide range of classes allowed me to see a diverse set of needs and learn how to reach every learner in a way that best suits them.

I believe every student can understand mathematics, so long as they have confidence in themselves. I feel that, as educators, it is up to us to boost that confidence and fill in the missing gaps needed for our students to be as successful as they can be. I hope to help the students of Fort Hays tackle their necessary math requirements with ease and come out of each semester feeling accomplished.

On a personal note, my husband is also an FHSU grad and works in town for Glassman Corporation. We have two daughters, Sloane (4) and Maggie (3), who love to read, explore, create, and laugh. As a family, we love to travel and try to see as much of our world as we can.

New Faculty — Jonathan Rehmert

My name is Jonathan Rehmert. I was born in Salina; though, my family moved to Nebraska when I was an infant . I lived there until I graduated high school and went to college at College of the Ozarks in Southern Missouri. After finishing there, I went to graduate school at Kansas State University where I earned my Ph.D. I suppose it's appropriate then that I've come full circle back to Western Kansas.

I wasn't very interested in mathematics until I went to college. Due to a bureaucratic miscommunication, I ended up taking a Discrete Math course my first semester. That course was an extremely new experience for me. It was over things I had never seen before: Graph Theory, Boolean Algebras, Logic, and similar topics. It wasn't focused at all on making computations, and, most importantly, it was the first time I had seen math approached not as a means to an end, but as the subject of interest itself. I enjoyed the course immensely, and when I realized that I was actually excited to try the homework exercises, it became clear what my major should be.

That enthusiasm and curiosity drove me to take every math course in the catalog at my college (it's a small school) and have a few topics courses thrown together. I decided to go to graduate school simply because I was interested in learning more about these topics. At first I had a wide array of interests, but by my third year I had settled in on studying Analysis. In particular, I worked with Dr. Hrant Hakobyan in a corner of Complex Analysis where the interest is in understanding the geometry of various spaces by comparing them to well-understood models. For example, one may have a crazy looking fractal, but could map it onto a circle in a way that preserves angles or where the distance can't be distorted too much. Understanding this mapping then makes it possible to understand the geometry in places where direct analysis is infeasible. This is called Geometric Mapping Theory.

I greatly enjoy continuing to think about math with my students and colleagues here at FHSU. When I'm not working on math problems, I'm usually at home with my wife, Alissa, and my dog, Gauss, reading a science fiction novel or doing a word puzzle. I also enjoy playing board games and video games with friends, and you may sometimes find me playing in a Super Smash Bros tournament with students from the FHSU Esports Club. If you're ever on the third floor of Rarick Hall, feel free to introduce yourself; I'm friendly as long we don't discuss the recent Star Wars sequels.

Hallway Monitor is Finally a Reality

After six years of seeking approval, waiting for the completion of Rarick Hall construction, and trouble-shooting software, a touchscreen monitor has finally been mounted in the hallway near the Department of Mathematics office. The idea for the monitor was to provide a way to publicly display the names of graduates of the Math and Computer Science departments. The Department of Applied Technology has two 4 ft x 8 ft panels with nameplates identifying all graduates from their department by year and city. We opted to build a database of graduates that can be searched using a touchscreen monitor. When the search feature is not used, the monitor displays departmental announcements and messages.

2020 Computer Science graduate Keegan Chapman designed the program that runs the monitor for his seminar project under the guidance of Dr. Zeng. Dr. Hourani plans to update the program and redesign the interface. We look forward to viewing messages on the monitor and welcome others to search for graduates of our two departments.
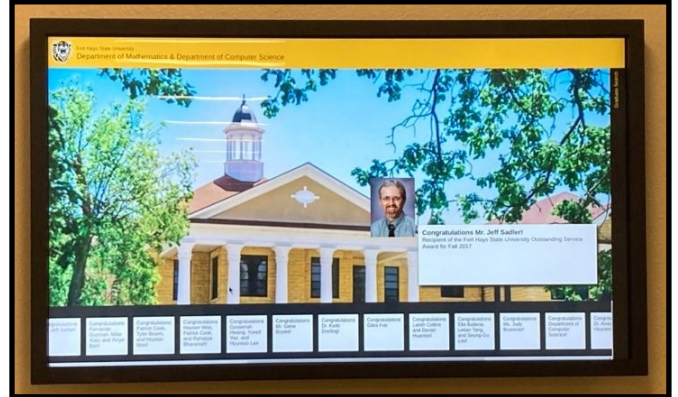
Math Relays 2022   By Bill Weber

Another successful Math Relays is in the books, as the FHSU Math & Computer Science Departments hosted the 43rd Annual Math Relays on November 10, 2022. Our numbers increased from the previous year, as we hosted 545 students from 41 schools that day! Everything went smoothly, and all had a great day

In class 1A, the team champions race ended in a tie between Osborne and St. John's Catholic, with Rock Hills coming in 3rd. Sacred Heart won top honors in the 2A/3A category, with Ellsworth 2nd and Minneapolis finishing 3rd. Within the 4A-6A category, Hays High brought home top honors, with Maize South 2nd, and McPherson 3rd. For a complete listing of team placing and individual winners, please check our website http:// http://www.fhsu.edu/macs/Math-Relays/Past-Winners/

We also enjoy getting to visit with the faculty sponsors during the Relays. They are the best resource we have to convince their students that they also can major in math, and what students can do career-wise with a math degree. If you know of a student in your local community who might be a candidate as a math major, please have them contact me at bweber@fhsu.edu so we can discuss the possibilities.

The 44th Math Relays will be held on Thursday, November 9, 2023. We look forward to another fun day of hosting the best and brightest math students from our area on the FHSU campus!

SUMMER MATH CLASSES BEGIN JUNE 5

UNDERGRADUATE	GRADUATE
MATH 010 — Intermediate Algebra	
MATH 101 — Contemporary Mathematics	
MATH 110 — College Algebra	MATH 671G— Theory of Numbers
MATH 122 — Plane Trigonometry	
MATH 130 — PreCalculus	
MATH 250 — Elements of Statistics	MATH 881— Geometry & Measurement
MATH 331— Calculus Methods	

Graduate Class FALL 2023 — MATH 882 Concepts of Algebra

Faculty 2022 Scholarly Activities

Faculty from the Department of Mathematics and the Department of Computer Science were actively involved in scholarly research, even though Covid travel restrictions conference participation. Faculty worked with KAMS students on research projects, conducted weekly problem-solving sessions with students, served as seminar advisors for 14 students, and presented weekly seminars. The following is a list of scholarly activities by mathematics and computer science faculty in 2022.

Weekly seminars

A Math Exam: Bring Your Phone

The Do Nothing Machine

Math or Magic?

Methods of Fair Division

Lucas's Theorem

Tribonacci Cordial Labeling of Graphs

On the Problem of the Magic Candy Jar

Magic Candy Jar Revisted

Magic Candy Jar Revisited II --- Closed Formula and Generalization

The Friendship Theorem

Making the (Almost) Impossible Possible

A Mathematical Surprise

3 is the Most Chaotic Number

The Impossible is Truly Impossible…Until Made Possible

Ruminations on Mathematical Beauty

Data Mining Techniques (Visualization), A Practical Case Study

Presentations

Tribonacci Cordial Labeling of Graphs, *7th Combinatorics and Graph Theory Conference*

On (a,d)-Irregular Total Labeling of Some Family of Graphs, *53rd Southeastern International Conference on Combinatorics, Graph Theory & Computing*

On k-Cordial Labeling, *Hawaii University International Conference of STEM/STEAM Education*

On the Problem of the Magic Candy Jar, *Hawaii University International Conference of STEM/STEAM Education*

On the Problem of the Magic Candy Jar, *MAA Kansas Sectional Meeting* at Benedictine College

The Do-Nothing Machine, *MAA Kansas Sectional Meeting* at Benedictine College

Tribonacci Cordial Labeling of Graphs, *MAA Kansas Sectional Meeting* at Benedictine College

A Software for Graph Labeling, *MAA Kansas Sectional Meeting* at Benedictine College

Open Education Resources, *OER Workshop* in Lindsborg

Student Presentations of Collaborative Work with Faculty

Tribonacci Cordial Labeling of Graphs, *SIAM Conference on Discrete Mathematics*

Fibonacci Cordial Labeling of Some Unusual Graphs, *International Conference on Algebra and Discrete Mathematics*

Special Numbers in Mathematics, *MAA Kansas Sectional Meeting* at Benedictine College

Faculty works that were accepted for publication

From Automata to Compiler Design, *Proceedings of International Journal of Computer Engineering & Technology*

On k-Cordial Labeling, *Proceedings of Hawaii University International Conference of STEM/STEAM Education*

On the Problem of the Magic Candy Jar, *Hawaii University International Conference of STEM/STEAM Education*

On (a, d) −Total Edge Irregular Labelings, *Discrete Mathematics, Algorithms and Applications*

Cordial Labeling of Graphs Using Tribonacci Numbers, *International Journal of Mathematical Combinatorics*

Tribonacci Cordial Labeling of Graphs, *Journal of Applied Mathematics and Physics*

L(3,1)−Labeling of Circulant Graphs, *Discrete Mathematics, Algorithms and Applications*

Channel Assignment Problem on Circulant Graphs, *International Journal of Computational and Applied Mathematics*

Fibonacci Cordial Labeling of Some Special Families of Planar Graphs, *Proceedings* of *SIAM Conference on Discrete Mathematics*

Other Notable Achievements

Lead Moderator and Panelist for OER Webinar, *Kansas OER Committee*

Science Olympiad 2023 by Soumya Bhoumik

Once again Fort Hays State University successfully hosted the regional Science Olympiad. We had planned to host this event on January 21st but a snowstorm forced us to find an alternate date. Many schools hoped to participate in this Science Olympiad, and the judges had already put so much effort in, so we rescheduled it to February 18th, 2023. Even though it involved a lot of adjusting, it was indeed a success. We had five middle and eight high schools, with more than 70 students, participating in various events covering biology, earth science, chemistry, physics, computers, astronomy, engineering, and technology. It was a great way for the students to demonstrate their understanding of these subjects in real-life challenges. The first three rank holders in Division B were Hill City (1st), Palco (2nd), and Minneapolis (3rd), and in Division C, Sacred Heart (1st), Goodland (2nd) and Palco (3rd).

If you have never been to a Science Olympiad, you should stop by next year and see the students' creativity and excitement during an academic competition. Seeing middle school students running around in lab coats and goggles will brighten any day.

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 2023 FHSU Regional Competition: Soumya Bhoumik and Lanee Young – Coordinators, Jon Rehmert – Codebusters and Fermi Questions, Jeff Sadler – Scrambler and Storm the Castle, Anas Hourani – Write It Do It. In addition to that our math majorsgraciously volunteered to judge numerous events on very short notice.

FHSU Math Education Majors Continue to Receive Benefits through NSF Noyce Program

The academic year of 2022-2023 was another great year of working with our future math teachers! Jonathan Flores (Hugoton junior), Grace Jenkins (West Valley City, Utah junior), Sofia Montoya Ortiz (Garden City junior), Seth Perrett (Hays junior), Emma Reif (Hoisington senior), Keagan Shubert (WaKeeney senior), Nathan Stark (Liebenthal senior), Hannah Urban (Norton senior), Karisma Vignery (Minneapolis senior), and Nicole Voss (Pratt senior) received scholarships for nearly $14,000 each as they continue to work toward their math & education degrees at FHSU. The students continue to meet weekly for their seminar course; discussing issues with teaching in rural school settings.

As part of the grant, some students were able to attend the National Noyce conference in Washington DC, where could network with other Noyce awardees from across the country, as well as attend sessions with prominent math educators. Many had not been to DC before, so we made sure to do a lot of siteseeing. A surprise visit from Senator Jerry Moran was another highlight of the trip. Some students also attended a regional Noyce conference in February in Little Rock, Arkansas, where a group of them presented about aspects of our Noyce program.

In January we had another edition of our Rural Field Experience for the new Noyce members. Each shadowed at least one math teacher for a week before classes started up at FHSU in January. Students commented on how valuable the experience was and how it helped to solidify their interest in math teaching. These experiences will hopefully help our new math teachers to feel more comfortable as beginning teachers and help to retain them for years to come.

A newer element of the grant will again occur this summer of 2023 when we have our next installment of the Noyce summer conference for all current and previous FHSU Noyce awardees. The conference will be a held on Friday, June 16 on the FHSU campus. We look forward to seeing many former awardees, as it is a great opportunity for those teaching in the field to network with our current pre-service teachers. Building a strong community of math teachers is a key component of our grant. Hopefully this conference will provide that avenue. If you are interested in attending, you can contact me at bweber@fhsu.edu and I will pass your name along to get registered.

We are currently wrapping up year five of our now six-year Noyce cycle as we were allotted an extra year due to COVID, so if you know of any students who you think might make great math or science teachers, please give them my contact information at bweber@fhsu.edu; I'd love to visit with them about the program! We have one year remaining in which to award scholarships. To be eligible for the grant, students must be at least of junior status having 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 teaching math/science for two years after graduation. Specifics can be found at https://www.fhsu.edu/smei/noyce/

In summary, during the previous 11 years of awarding Noyce scholarships, 31 math education majors were awarded scholarships (some for two years and some for one year) totaling nearly $675,000 through the NSF Noyce Program. Of all the math education majors who have been supported through this grant, 20 of them are currently teaching, 1 is student teaching, I know of 2 who have stepped aside from teaching to do the most important thing and raise their children, and 8 are current students finishing their coursework. They truly are the next generation of math Teacher-Leaders, and their students will most certainly benefit from their dedication and expertise in teaching mathematics!

Jonathan Flores, Emma Reif, Sophia Ortiz, Nathan Stark, Grace Jenkins, and Reagan Latham presented at the 2023 Regional Noyce Conference in Little Rock, Arkansas on February 24, 2023.

THANK YOU FOR YOUR SUPPORT

The Department of Mathematics/Department of Computer Science 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 thank each of you who have shared your financial resources with the university and especially those of you who have designated the Mathematics Department and/or the Computer Science Department as recipients. We also appreciate the employers who matched your contributions.

Lavern and Cari Andrews, Patrick and Keri Applequist, Gary and Bernice Bell, Wendy Beougher, Darren Brungardt, Neil and Sharon Carlson, Robert and Nancy Chaffin, Robert Clark, Anita Curtis, Merrill Milham and Ann Davidoff, Scott Claassen and Francine Dreiling, Keith and Pam Dreiling, Kay and Mildred Dundas, Dennis and Diana Echard, Opal Flinn, Mickey and Lynnette Frownfelter, Neil and Ann Gottschalk, Jerold and Paulla Harris, Al and Marilyn Herren, Jerrod and Jess Hofaker, Roger and Teresa James, John and Regina Johnson, Edward and Shirley Knobbe, Mike and Carmen LaBarge, Larry and Donna Leitner, Aaron and Sandra Lessor, Thomas Lonnon, Sybil Luea, Jim and Shirley Malcolm, Perry and Maria Mick, Susan Militello, Jim and Regina Miller, Ronald and Debbie Miller, Sharon Nagel, Wayne and Alberta Neel, Weeden and Rosalie Nichols, Donald and Kathy Petr, Larry and Darlene Plymell, Jason and Rachel Purdy, Anita Rodarte, Richard and Sharon Ruder, Jeff and Lori Sadler, Ron and Cathy Sandstrom, Gaylene Shank, Gail Stanley, Jim and Debbie Stelter, Ken and Linda Trimmer, Ellen Veed, Charles and Reta Votaw, Peggy Waldschmidt, Kenneth Werth, Gary and Virginia Wilson. Leroy and Sharon Winklepleck, Lori Wittrock, Frank Younger, Hong Biao and Michelle Zeng, Loren & Phyllis Gugler Trust, Tebo Partnership LLLP, ConocoPhillips, Textron Charitable Trust

2022-2023 Scholarship Recipients

RETIRED FACULTY NEWS

Mohammad Riazi

The good news is that Mina is expecting a boy in May 2023. We plan to go and be with her in Kansas City for a while. Seddi is in Texas these days looking for a house close to Mariam's in the Fort Worth area and I am staying in Hays for now.

Mary Kay Schippers

To be succinct, ("Just the facts, Ma'am"), I will list the highlights from the past year.

- Ciao! Danny and I went to Italy for two weeks with my two sisters and their husbands. Quick story: In Bologna, we ate mortadella, a meat product the locals are *extremely* proud of. It is basically what we call bologna, or boloney. I mentioned to our taxi driver that back in America, we call the meat "boloney" in tribute to where it originated. He raised his eyebrows, sniffed in contempt, then – with an obvious air of condescension – said, "There is no such thing as boloney." (Then why do I have this sudden craving for a fried boloney sandwich?)

- We got another horse. After Zip died in 2021, we decided we would just keep the two horses – BB and BJ. Then we changed our minds in Spring, 2022. The corral just seemed too empty. We purchased Blaze in May, newly retired from a ranch in Nebraska. He came to us skinny and skittish. He is neither of those any longer, and he is thoroughly enjoying his cushy retirement. (Sounds like someone else I know!)

- We got another dog. After Fern died in 2021, we decided not to get another dog until Russell passed away. (He will be 13 in May.) We changed our minds after a friend called in early January and asked if we wanted a female yellow lab puppy. This friend's three adult children thought getting their parents a surprise puppy for Christmas would be a good idea.(Note to self: It is *never* a good idea to get someone a surprise puppy for Christmas.) Thus Victoria (Victoria and Russell, get it? We call her Vicky for short.) entered our lives. She is a really good pup except tshe relentlessly terrorized our aging Russell. Constantly gnawing on him, she actually drew blood on occasion. Finally, Russell had enough, he made her yelp a few times, and now, although not exactly best friends, they are at least peaceful companions. Mostly. (It only took three very, *very* long weeks.)

- We are looking forward to a trip to Scotland in late June/early July 2023. Our youngest son, Jared, and his wife, Marli, invited us to go to Scotland with them on their vacation. Aside from the anticipation of the trip itself, this also signifies a milestone for Danny and me. We survived Jared's rebellious teen years, his eye-rolling twenties, and now in his late thirties, have finally become the "cool" parents who get invited to go on vacation with them! (At least that's my story, and I'm sticking to it.)

Till next year, best wishes to everyone on Third Floor Rarick!

Rosalie Nichols

We've been occupied with the effects of a black widow bite on Weeden's hand. We had two delightful trips: one to Two Rivers, Wisconsin, a lovely small town on Lake Michigan. The second to St. Augustine, Florida. An addition to our family: a granddaughter (35 years old) and her son, a great-grandson. Discovered through the miracle of DNA technology.

We are feeling effects of aging but still enjoying life.

Peace, Rosalie

Check out Weeden on his skateboard taking Rosalie out for a spin.

Charles Votaw

I don't have any significant activities to report for the past year. It does feel pretty good to have survived another year and still be able to take care of myself around the house.

Ron Sandstrom

25°F is too cold for me to be outside, so I'll take a break from my puzzle board to jot down a few random thoughts. For Christmas, I bought myself a puzzle board that fits on a card table and has six small drawers to help sort pieces. At our age we buy our own presents. Thus far this season I have completed 14 different puzzles. Many of them are of National Parks that we have visited.

What does one do after a second retirement?? After teaching Mathematics at Otis-Bison for three years, I finally said that's enough. For one thing I had a three-year -ong honey-do list which I think has been completed. Other neglected items included cutting down three big trees (one was 36" in diameter). I had to use all of my ingenuity and an 8-ton jack to keep it from falling on our house. I was fortunate, but I did lose a fence gate. I just finished working on fencing projects that were put on hold. Lots of practical geometry to provide support for corner posts. The last two days I worked on refining some tire chains that I put together for my 1969 John Deere 1020 15 years ago. These three sets of car tire chains were my dad's from the 1940s or earlier. So again I used 48"times $\prod$ and 30"times $\prod$ to get everything to fit. Obviously I'm having fun.

Our summer travel starting in late August took us to North Carolina for a wedding. Cathy's twin died in April so this trip was bittersweet. The wedding was her twin's youngest. While in NC we spent an afternoon with our two great-granddaughters, Savannah (5 now) and Maggie (3 this month). After a week's rest we visited Western Colorado to see Cathy's brother. On our way home we got a call from some friends that they had a week's cabin at Branson that was available. So, with just one night in our own bed we were off to Branson. The highlight for us was the JESUS multimedia production. ONLY 5000 miles in the car for this time period.

Halloween week found us in the Indianapolis area to visit our "oldest daughter," whom we had not seen since about 1982. Now for the rest of the story: In 1978 I was teaching at Illinois Wesleyan University and helping with summer orientation. We had afternoon, evening, and morning sessions. I worked with Pre-Med, and Math students. On the calculus placement exam part two, one student got 100%. Great, ready for calculus II. Unfortunately she did not want to do any more calculus. According to her, I gave the test back to her and I told her to change four answers. Thus, she had completed her Mathematics requirements. So I asked her what she wanted to do with her life. She said she wanted to work with little children. At that time Cathy owned and operated a day-care, nursery school center for 40 children. I asked her if she wanted a job. Of course, she said yes. So that is how the friendship started. She became our most important employee and "adopted daughter". Now she is the director of a 90-child care facility in a suburb of Indianapolis.

After Thanksgiving we traveled to Northern Montana, because Carson, Erik's youngest, had a music recital, He plays several different saxophones and wants to be a college professor teaching saxophone. We stayed warm and the day we left it was -18° without the windchill. It made Kansas seem warm.

I almost forgot all of our side trips to KOCH Arena at WSU to watch Bailey, Jessica's daughter, dance with the Shocker Dance Team.

Our overseas travel over, Cathy counted that we have visited 23 countries. So, my advice to you, if travel is on your bucket list, is to do it while you can.

Cheer, my password is the last 8 digits of $\prod$.

BTW — We love hearing from our alumni! Roger Shuster does a great job of keeping us updated! Thanks for the notes Roger! We look forward to hearing from all of you!

2022-2023 Department Scholarships

By Jeff Sadler

Financial support from multiple sources provided more than $180,000 in scholarship dollars for FHSU Computer Science Department and Mathematics Department students during the 2022-23 academic year. The funding sources included gifts of alums and friends of the departments and the National Science Foundation Noyce grants. Over fifty students of these departments continue to be blessed by the scholarship dollars made available, reducing their cost of higher education. Also, endowed scholarship funding is expanding by alumni and friends of the departments, including the more recently established Foster-Dieckhoff Mathematics Scholarship and the soon to be awarded Gary Younger Memorial Scholarships.

This past year, students working on a major or a minor in mathematics or computer science were awarded over $45,000 in both prestigious named-scholarships and general department scholarships. These scholarships are funded through both endowed funds and other designated contributions, some pledged during the annual Tiger Call. The following FHSU students received both high recognition and significant scholarship dollars:

- Eric Moon (Phillipsburg)—Foster-Dieckhaff Mathematics $1,000 Scholarship
- Lorenz Manabat (Topeka)—Milham-Wasinger Annual Family $3,500 Scholarship
- Ryan Lalicker (Goodland)— Milham-Wasinger Annual Family $3,500 Scholarship
- Seth Perrett (Hays)— Milham-Wasinger Annual Family $3,000 Scholarship
- Hannah Bailey-Urban (Norton)—Moore Family $1,000 Scholarship
- Karisma Vignery (Minneapolis)—Moore Family $1,000 Scholarship
- Nathan Stark (Liebenthal)—Moore Family $1,000 Scholarship
- Clay Kear (Edgerton)—Rice Graduate $300 Scholarship
- Crystal Davis (Wichita)—Rice Graduate $300 Scholarship
- Noah Fisher (Elmwood, NE)—Rice Graduate $300 Scholarship
- Jason Peters (Hesston)—Rice Graduate $300 Scholarship
- Rebecca Downing (Wamego)—Rice Graduate $300 Scholarship
- Lakin Werth (Oakley)—Rice Graduate $300 Scholarship
- Kassidy Stewart (Billings, MO)—Rice Graduate $300 Scholarship
- Samantha Voorhees (Hays)—Rice Graduate $300 Scholarship
- Nathan Morse (Dodge City)—Rice Graduate $300 Scholarship
- Henry (Hank) McVeigh (Lincoln, NE)—Etter $1000 Scholarship
- Karisma Vignery (Minneapolis)—Elton & Wendy Beougher $1,500 Scholarship
- Drayton Pletcher (Sharon Springs) —Veed $800 Scholarship
- Andrew Neuman (Cimarron)—E.E. and L. Colyer Memorial $800 Scholarship
- Trevor Fischer (Sharon Springs)—Ron and Cathy Sandstrom $1,000 Scholarship
- Nicholas Zimmerman (Hays)—Ruth and Roger Pruitt $1,000 Scholarship
- Margaret (Maggie) Speno (Hays)—Marshall $750 Scholarship
- Abigail Schlatter (Smith Center)—Ogle $800 Scholarship
- Daniel Hauntes (San Antonio, TX)— P. Miller Math/Physics $1,000 Scholarship
- Cameryn Kinderknecht (Ellis)—Schippers Family $2,000 Scholarship
- Cadence Ohl (Maize)—Zeng $750 Scholarship
- Margaret (Maggie) Speno (Hays)—Denio $1,000 Scholarship
- Keagan Schubert (Wakeeney)—Dr. Caroline Ehr $1,000 Scholarship
- Nicole Voss (Pratt)—E. Eltze Memorial $800 Scholarship
- Hunter Moore (Hiawatha)—Baxter $1,000 Scholarship
- Henry (Hank) McVeigh (Lincoln, NE)—Tebo Family $1,000 Scholarship
- Matthew Hogan (Wichita)—Toalson $1000 Scholarship
- Cade Boxberger (Hoisington)— C.W. Lowry $750 Scholarship
- Levi Hickert (Hays)—K. and D. Bahl $750 Scholarship
- Clay Burk (Hays)—K. and D. Bahl $750 Scholarship
- Ethan Beckman (Grinnell)—K. and D. Bahl $750 Scholarship
- Ronnie Young (Nashville, TN)—K. and D. Bahl $750 Scholarship
- Kira Luethe (Eugene, OR)—K. and D. Bahl $700 Scholarship

Johan Jaeger (Gilbert, SC)—K. and D. Bahl $700 Scholarship

Vincent McLaughlin (Zurich)—Mathematics Department $750 Scholarship

Emma Reif (Dodge City)—Mathematics Department $750 Scholarship

Rebekah Porter (Hays)—Mathematics Department $750 Scholarship

Donna Tiu (Las Vegas, NV)— Computer Science Department $750 Scholarship

Isaac Howard (Hays)—Computer Science Department $750 Scholarship

Alex Hampton (Ocean Park, WA)—Computer Science Department $750 Scholarship

Bryan Gomez (Hoxie)—Computer Science Department $750 Scholarship

Griffin Davies (Holton)—F.E. Schockley KAMS $300 Scholarship

Chunlin Feng (Sanhe, Langfang, Hebei, China)—F.E. Schockley KAMS $300 Scholarship

Gideon Fox (Hays)—F.E. Schockley KAMS $300 Scholarship

Janis Jarboe (Topeka)—F.E. Schockley KAMS $300 Scholarship

The FHSU Noyce Scholarship Program (co-directed by the Mathematics Department's Dr. Bill Weber) supports many mathematics education majors and other natural sciences education majors. This second round FHSU Noyce Scholarship Program for FHSU is approaching a cycle end in the next year, but Dr. Weber working with other faculty is currently writing a new grant application for a possible third round of future funding. The following students received $135,000 in NSF funded scholarships dollars:

Nicole Voss (Pratt)—$7,500 Noyce Scholarship (Fall 2022)

Karisma Vignery (Hays)—$15,000 Noyce Scholarship (AY 2022-2023)

Keagan Shubert (Wakeeney)—$15,000 Noyce Scholarship (AY 2022-2023)

Emma Reif (Dodge City)— $15,000 Noyce Scholarship (AY 2022-2023)

Nathan Stark (Liebenthal)—$15,000 Noyce Scholarship (AY 2022-2023)

Sofia Montoya Ortiz (Garden City)—$15,000 Noyce Scholarship (AY 2022-2023)

Jonathan Flores (Hugoton)—$15,000 Noyce Scholarship (AY 2022-2023)

Hannah Bailey-Urban (Norton)—$15,000 Noyce Scholarship (AY 2022-2023)

Grace Jenkins (West Valley City, UT)—$15,000 Noyce Scholarship (AY 2022-2023)

Seth Perrett (Hays)—$7,000 Noyce Scholarship (Spring 2023)

Incoming freshmen scholarships are "automatically" awarded through a scholarship program titled the Automatic Scholarship Opportunity (ASO). This scholarship award amount is determined through a matrix that recognizes incoming freshmen to FHSU through one of four scholarship levels and is based on an incoming freshman's ACT/SAT score and high school GPA. The levels are "Tiger Pride Scholarship--$3,750", "Victor E. Scholarship--$2,750", "Black & Gold Scholarship--$2,000", and "Hays City Scholarship-$1,500". For more information on this scholarship program, please visit the FHSU web pages at https://www.fhsu.edu/admissions/scholarships/freshmen . The two departments had several incoming freshman students awarded funds through the ASO scholarship program.

As in the past, both departments seek alumni and friends of the departments assistance in recognizing and en-couraging high school students and non-traditional students with an interest or talent in mathematics, computer science, or mathematics education. The Mathematics Department aims 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 would like assistance from friends and alums to reach this goal. Please take the time to contact us with the names of such prospective individuals—then the Mathematics Department will reach out to them and illustrate the benefit of becoming an FHSU Tiger.

FHSU students and faculty truly appreciate contributed dollars from friends of the Computer Science and Mathe-matics departments. If you have questions about departmental scholarships or have the ability to assist in identi-fying and/or recruiting possible Mathematics or Computer Science 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 funds to any scholarship area, please send a check to the desired department payable to the FHSU Endowment Associa-tion—specify the mathematics or computer science scholarship fund of interest or one of the department's unre-stricted funds on the memo line.

Using Open Educational Resources in

# General Education Mathematics Classes by Bader Abukhodair

The Mathematics Department at FHSU is dedicated to providing an affordable and enriching learning experience for all students. Every three to five years, the general education math faculty engages in a systematic review of textbooks and software. The attempt is to strike a balance between having well-written textbooks, affordable prices for students, quality software technical support, and consistency in concept terminology across our multiple courses.

In 2018, I was offered the opportunity to develop an online course serving the non-STEM major student population. The class at the time was titled, Liberal Arts Mathematics. In the process of developing this course, I came across an open-license College Algebra textbook from the OpenStax nonprofit initiative based at Rice University while attending an Open Education mini-conference workshop at FHSU's Memorial Union. Unfortunately, the publisher did not publish a book specifically for Liberal Arts Mathematics at that time. As a result, I ended up adopting a commercial textbook and homework system for the students.

In the Spring of 2021, I attended a TILTed Tech mini-conference about Open Educational Resource (OER) initiatives at FHSU and across the state of Kansas. I saw how faculty use OER and Open Homework Systems within their courses. At one of the sessions, Dr. Andrew Bennett, co-founder of the Open/Alternative Textbook Initiative at Kansas State University and head of K-State's Mathematics Department, provided a presentation that discussed his experiences using MyOpenMath. MyOpenMath is an open online course management and assessment system for calculus and differential equations classes.

In August of 2021 after getting the approval and support from our department chair, Dr. Keith Dreiling, I signed a contract with FHSU to redevelop the existing Liberal Arts Mathematics course materials to use OER resources instead of Commercial Education Resources (CER). We also decided to rename the course Contemporary Mathematics. After trying the OER for a year and discussing the process with some of my colleagues, Dr. Dreiling and Michelle Zeng joined the task force in the Fall 2022 semester to transfer the Precalculus course to OER in both the face-to-face and online modalities. In that same semester, Michelle and I secured a Z-course FHSU grant to pilot three College Algebra sections using OER instead of CER. For the Spring 2023 semester, Michelle transferred her online Trigonometry sections to OER, while all face-to-face and several online sections of College Algebra have been assigned OER materials.

The main goal of OER usage is cutting the cost of books and supplies for the students attending FHSU. The estimated cost of books and supplies for FHSU undergraduate students taking 30 credit hours on-campus during the 2022-2023 academic year was estimated to be around $606; this amount is lower than the estimated cost of books and supplies for equivalent students in the other five Kansas public universities, as Figure 1 shows.
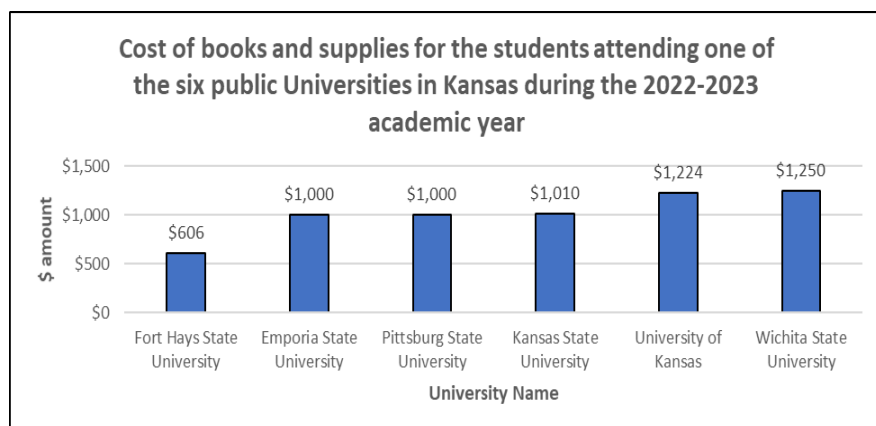
Figure 1: Cost of books and supplies for the students attending one of the six public Universities in Kansas during the 2022-2023 academic year. All numbers are taken from each school's official website.

The total cost savings for students who registered in FHSU Mathematics Department courses in the Fall of 2022 and Spring of 2023 was around $38,171 if they purchased a digital access code, or around $57,514 if they opted to acquire both a physical textbook with a digital access code, as Figure 2 shows.
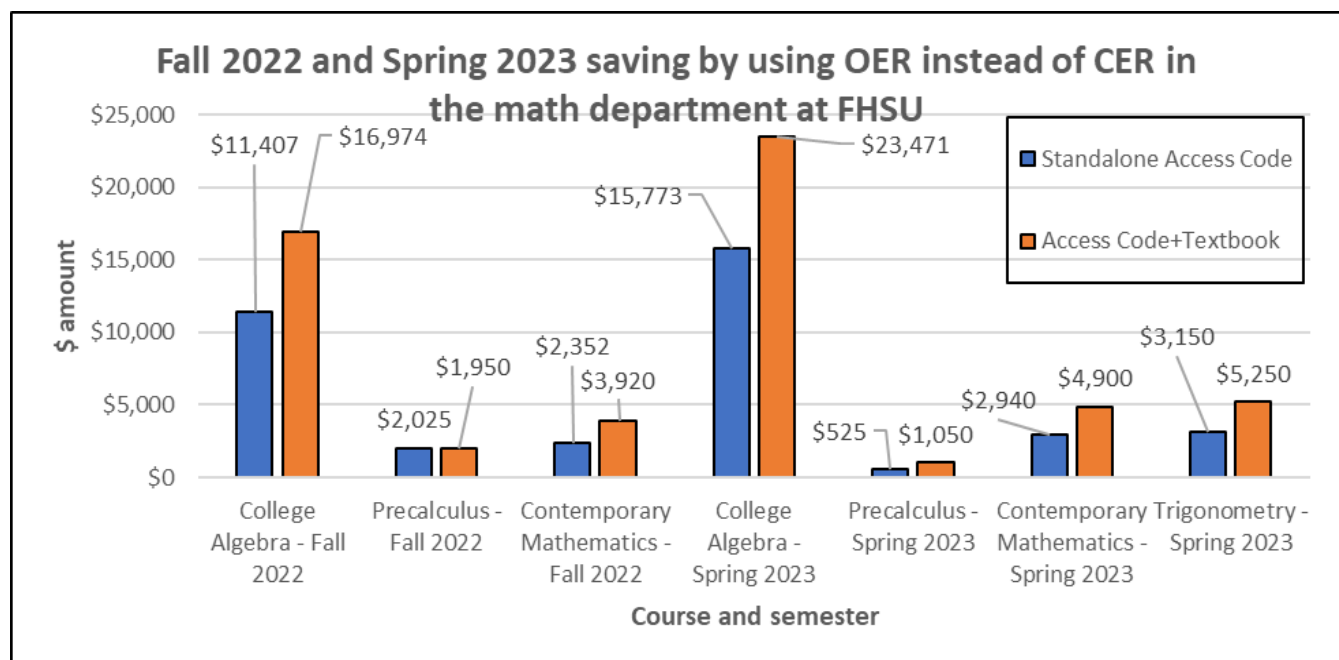
Figure 2: Fall 2022 and Spring 2023 total savings for students in FHSU Mathematics Department sections with OER materials.

The usage of OER materials has allowed faculty the opportunity to add, remove, modify, or update the assigned textbook when needed. Also, it has provided the flexibility to use different innovative pedagogical approaches. Faculty can adjust the material to be accessible to students by accounting for the unique experience most students have experienced given the rural traditions within the local community of Hays, as well as the broader context of life in the Midwest Kansas culture.

Of course, the transformation of courses from CER to OER is not without some obstacles. Helpful assistance and encouragement were always provided by the Teaching Innovation and Learning Technologies (TILT) team, the Librarians from the Forsyth Library, and colleagues within our university and the Open Education community at other institutions. For faculty members interested in the OER transformation, please remember that such a step doesn't have to be complicated, and that the Kansas Open Education community is always available to provide support. The following is a URL to access The Kansas Board of Regents Open Educational Resources:

https://www.kansasregents.org/academic_affairs/open-educational-resources