Wayland Baptist University

Fall 2019

Math & Sciences

WAYLAND BAPTIST UNIVERSITY

Dean's Corner

Dr. Adam Reinhart
Dean, School of Math & Science

Connections are important. Connections to the past, connections to the future. Connections between people, or between people and Jesus, between Cowboys fans and Redskins fans. To a great extent, our connections define us and our sphere of influence.

Let me introduce myself as the new Dean of Mathematics and Sciences at Wayland. I have been connected to WBU since the fall of 1999, when Dr. J. Hoyt Bowers believed in me enough to give me a shot as an Assistant Professor of Biology. I had just completed about 1 year of postdoctoral research after finishing my Ph.D. at TTU-Health Sciences Center, and viewed Wayland as a perfect way to connect my passions for Jesus, biology, and mentoring students. Through the next 20 years, I have learned to love and treasure the WBU family and what we represent. In short, in my new role as Dean, I feel more connected to WBU than ever, and want to challenge you to become more connected as well.

There are many ways to become more invested in WBU and our mission. Homecoming is a great opportunity to reconnect with other alumni, faculty and staff that hopefully made a lasting impression on you. This year, Dr. Vaughn Ross is our honored guest, and will speak to our School at 1:30 Friday, November 1st. If you have not been to Homecoming, or it has been a while, we would love to see you and let you know about the exciting plans we have for the School of Mathematics and Sciences.

Another way you can connect with us is to become a "Wayland evangelist." While this may sound a bit strange, one of Webster's definitions of an evangelist is "an enthusiastic advocate." I have witnessed the deep impact WBU has had on countless students over the years, including my own children. Hopefully, you have been touched in the same way. I encourage you to be an evangelist for WBU as you talk with high school students in your church, family, or in your sphere of influence. As you do, you can have confidence that students in our School will be taught in a way which emphasizes a rigorous, ethical approach to the study of mathematics and science, and they will be provided with valuable experiential learning opportunities. For example, students have opportunities to get out of the classroom and travel for course field experiences, conferences, and international mission trips. Students are also given opportunities to conduct research, which I believe is one of the very best ways to teach students how to think, work, and communicate as a scientist or mathematician. If you interact with students that you believe would be a good fit for WBU, please let me know and we will certainly reach out to them.

The third way I would like to challenge you to connect with WBU is through giving. Our school is in the home stretch of a fundraising campaign to renovate our building and build a new laboratory sciences building and greenhouse. This is a wonderful time to begin to invest in the School and our mission. If you would like to give towards the Impact 2020 campaign, go to https://give.wbu.edu/ today and make your pledge towards the Impact 2020 campaign and to the Moody Science Building. Remember, small gifts from a bunch of people have a huge impact!

Whatever your level of connection is to Wayland and more specifically, the School of Mathematics and Sciences, I encourage you to deepen your connections. If you have other ways we can work together, consider this an open invitation! Let's connect.

Meet, Greet & Eat - Moody Science Building

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2019-2020 Calendar

September 6:	Moody Science Building - Meet, Greet & Eat
September 11-15:	Texas Hill Country - Biology
	Southern Colorado and Northern New Mexico - Geology
September 19:	Moody Marsh - The School of Math & Sciences 14th Annual Cookout, 6:00-8:00 p.m. All math & sciences majors and minors and families are welcome to join us for free food, games and prizes!
September 22-26:	Phoenix, Arizona - National Geological Society of America Meeting
October 14:	Scholar's Day
October 17-20:	Fall Break
October 25-26:	University of Texas, Tyler, Texas - Texas Undergraduate Mathematics Conference
Oct. 28 - Nov. 1:	WBU Spirit Week
November 1-2:	Homecoming
November 8-9:	WBU Gold Rush
December 14:	Harral Auditorium - Plainview Graduation
February 28-29:	Nacogdoches, Texas - 123rd Annual Texas Academy of Science Meeting
March 26-28:	University of North Texas, Denton, Texas - Texas Section of MAA
March 27-29:	WBU Big Weekend
April 20-24:	Creation Care Week
April 24:	School of Math & Sciences 11th Annual Spring Research Day
May 8:	School of Math & Sciences Graduation Banquet
May 9:	Plainview Graduation

Honduras Medical Missions Trip

As Christians we are charged to venture outside of our comfort zones to preach the gospel. It is near impossible for us to keep the good news to ourselves and we are compelled to share all that we have learned and experienced. This is a calling that is indwelt in each of us, as believers. I believe that we have also been given gifts and talents that allow us to have success in our careers. This is what I would call an occupational calling. This past summer, I had the opportunity to combine both my indwelt calling as well as my occupational calling on a medical mission trip to Honduras. I am reminded of the following quote from Kirk Cameron, “If you had the cure to cancer wouldn’t you share it?...You have the cure to death... get out there and share it.” I, along with a team of fellow students, professors, a Wayland alum who is now a practicing medical doctor, and another medical professional, shared the love of Christ to the people of Honduras through medical diagnosis and treatment, but most of all, prayer.

Every patient that we encountered was given anti-parasite medication and then assessed further for more critical medical conditions. Each patient and their family were prayed over before we left their home. We would return a few days later with medication in hand as well as more of our favorite method of treatment: you guessed it, prayer! My fellow pre-health pupils and I were immersed in the entire process. We took blood pressure readings, we drew blood to check the patient’s blood sugar, and we prayed with boldness. Not only were we able to assist those with medical needs, but we were also able to help a well-established ministry, Tree of Life International.

Joe Denton and his wife Belkis facilitate a thriving children’s ministry that meets every week, where local children come, learn about the gospel, fellowship, and eat a meal together. The child-like faith and innocent joy of the children put many smiles on our faces. In the midst of this week of hard work, we also experienced God’s creation by taking a day and hiking in La Tigra National Park, a breath-taking cloud forest in the heart of Honduras.

Watch our Honduras video at https://youtu.be/o4vnsyJvN2g

Through this trip, I was reminded that our God is more powerful than any illness, political unrest, or language barrier. This experience not only allowed our team to grow spiritually, but it also allowed many of us to see a glimpse of what exhibiting our faith in our field of work is going to look like. We returned with full hearts, eager to serve those in need in our own communities. I know that I speak for our entire team when I say that we are incredibly grateful for Wayland Baptist University's School of Mathematics and Sciences, the Mission Center, and the unique opportunities that they provide for students. This trip will happen again in the summer of 2021. If reading this awakened your desire to serve people both physically and spiritually, begin praying now! The Lord may be preparing you to embark on this journey that will change your life forever and I promise you that you will not regret it!

Luke Brown
Senior, Biology Major

14th Annual M&S Cookout

Science Majors claim victory in annual tug-of-war between math and sciences!

2019 Homecoming Speaker

P. Vaughn Ross, Ph.D.

Emeritus Professor of Biology

School of Mathematics and Sciences

Wayland Baptist University

1994-2009

Dr. Paul Vaughn Ross graduated from Wayland Baptist College (now University) in 1967 with dual majors in Biology and Religion. He continued his formal education with an M.S. in Biology from West Texas State University in 1972, and a Ph.D. from Kansas State University in 1987. Always maintaining close contact with Wayland, Dr. Ross and his wife Johnene have dedicated their lives to missions work and education.

After teaching high school science and working part-time as a field biologist from 1968 to 1975, Dr. Ross and Johnene answered the call to the mission field. Dr. Ross served for 19 years in Kenya as Director of Community Health for the Nyanza Baptist Clinics, and later as the Coordinator for Human Needs Ministries. During this time, Johnene provided discipleship training from their home and assisted with community health clinics.

In 1994, Dr. Ross returned to Wayland as a full-time faculty member in biology, serving as Dean of Mathematics and Sciences from 2005 to 2009. During his tenure on the faculty and as Dean, Dr. Ross continued to provide leadership in missions work, helping to establish Wayland's first international campus in Kenya in 2000. He led several mission trips, taught there, and served as Director of the Kenya campus until 2008. Dr. Ross also guided the development of the nursing program from its inception on the San Antonio campus through its establishment as a separate School of Nursing in 2009. Additionally, new majors in geology and molecular biology were added to the School of Mathematics and Sciences during his term as Dean.

Upon retiring in 2009 and being named Professor Emeritus in Biology, Dr. Ross noted that: "In many respects Dr. Wayland's vision became our story. Out here in West Texas, God continues to use the resources of faithful people to equip others to serve Him."

Integration of Faith and Science

"God made it, we study it"

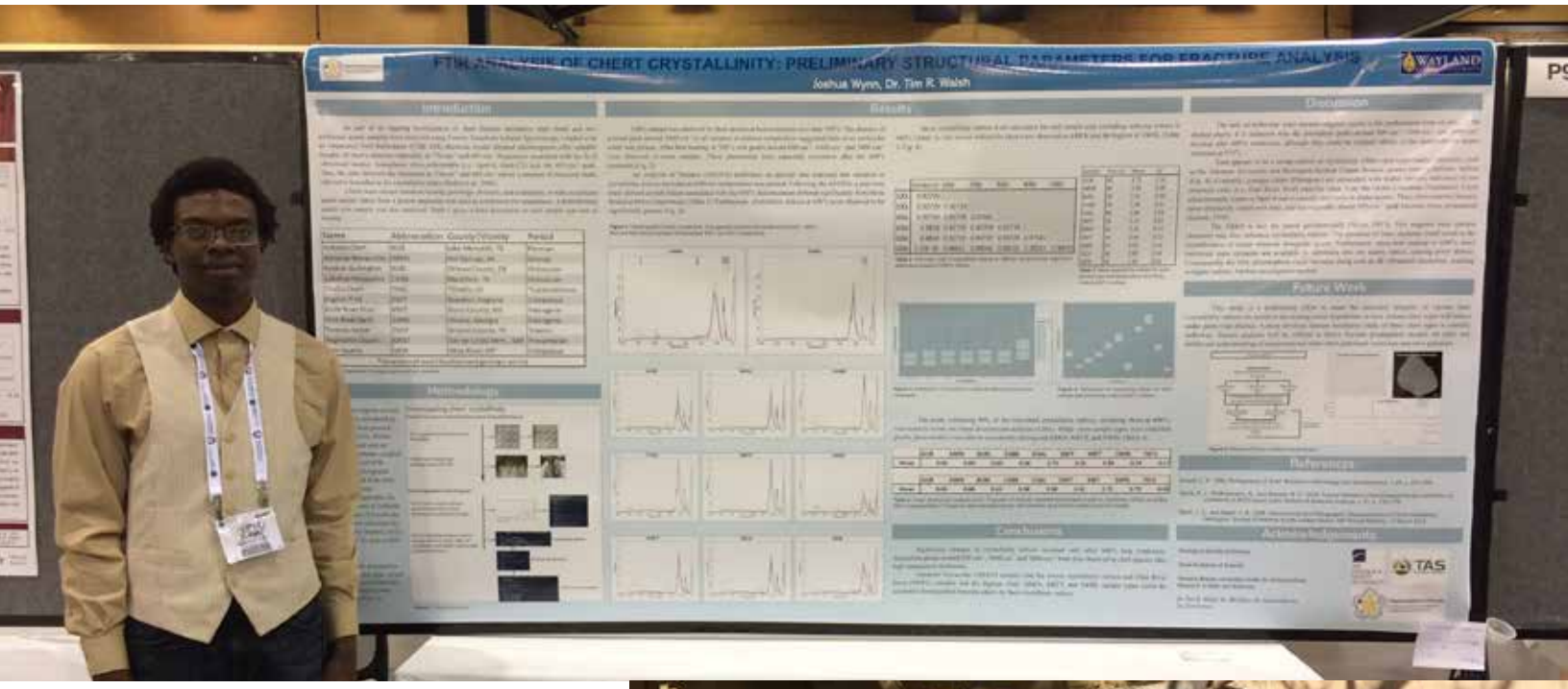
As a Christian institution, it's important that our faith play a role in each area of our lives, but in the School of Math and Sciences, we take deliberate steps to integrate our faith into our programs. Every math and science major participates in a Faith and Science seminar which trains our students to confront difficult issues that can arise as a scientist, mathematician, or engineer working as a Christian in their field. Our professors also openly share their faith in the classroom and how it inspires their curiosity to learn more about God's creation.

Student Travel

Our students learn in the field as well as in the classroom! Numerous travel experiences are offered throughout the entire year, including field trips and research conferences.

Science isn't just done in the lab or in the classroom, which is why we take several trips across the region every year, from local playa lakes to state and national parks to wildlife conservatories.

Geology Travel



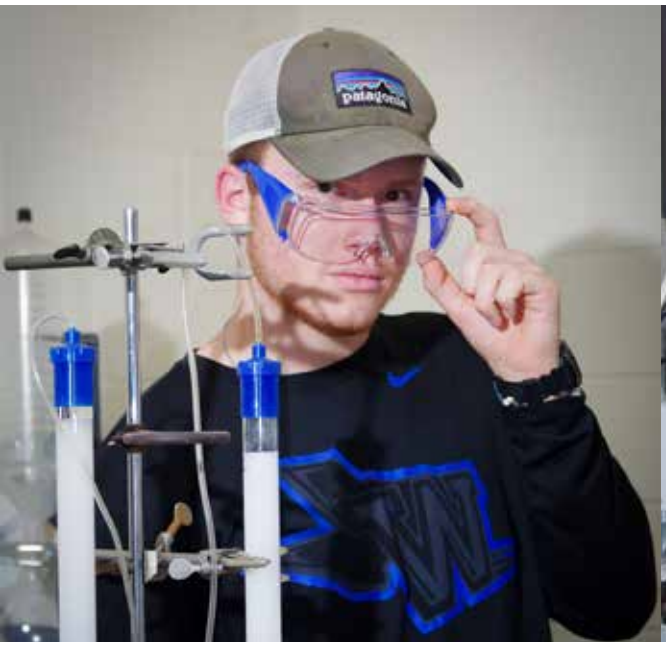
Travel is an integral part of the WBU geology curriculum, whether it be to field locations, professional meetings or other trips. In the last year students and faculty have traveled to Texas Academy of Science, Geological Society of America and American Association of Petroleum Geologists meetings in Kansas, Texas and Arizona, making field, research and museum stops on the way. Andrea Bond, Josh Wynn and WBU alum Hunter Green traveled with Dr. Walsh to a regional GSA in Kansas stopping at the Strataca salt mine during the trip. Among other field excursions, Geology participated in a joint field trip with the natural resource management class to the Wichita Mountains of southern Oklahoma in April. Most recently, in September, Josh Wynn traveled with Dr. Parker to the National GSA meeting in Phoenix where he displayed a poster presentation of his research.

Undergraduate Research

What's special about our undergraduate research program is that it is centered on student learning and driven by student participation. The student starts, develops, and finishes the project as the central player in the research. Every year, we have numerous students complete research projects and present them at regional and national conferences.

Welch Research

Ellie Hamzy continued work on a project investigating the repair protein RecA and its potential involvement in tuberculosis mutagenicity and drug resistance. Previous work done by students in Dr. Moore's group showed that RecA bound more weakly to the tuberculosis DNA at the location where mutations lead to isoniazid resistance compared to surrounding areas. This suggests that RecA would be more likely to tolerate mutations and unfaithful repair, if it was used to repair damaged DNA in that region. Results from very preliminary work indicated that the same may be true around the region where rifampin resistance occurs. Ellie has begun exploring this further and hopes to move on to other drug resistances as well during the fall semester.



Jai'Cee Tudman, Luke Brown and Dr. Reinhart have been working to uncover the biochemical pathways ginger and its bioactive components activate in breast cancer cells. This year, through a collaboration with the Center for Biotechnology and Genomics at TTU, we have performed an initial proteomic comparison of expressed proteins using mass spectrometry in mouse and human breast cancer cells in response to bioactive molecules from ginger root. Initial results in mouse breast cancer cells have identified over 700 proteins differentially expressed upon treatment. Expression levels of selected proteins of interest revealed in the proteomic analyses which are reported to be involved in the progression of cancer and cell death are currently being verified and evaluated using Western blot analysis and quantitative real time PCR techniques.

Summer Field Camp

Josh Wynn
Senior, Geology and Mathematics

Upon finishing my final exams of the 2019 spring semester I ventured to the University of Arkansas at Fayetteville to begin another term of school. For six weeks, starting at the end of May and into late June, my sole goal was to survive the unyielding gauntlet of every aspiring geoscientist's undergraduate career known as field camp. Unlike traditional lecture and lab courses, our classroom was the mountainous terrains of Montana. The majority of our assignments consisted of producing geologic maps of a particular area, deriving structural cross-sections from said maps, and writing detailed reports of the geology at hand. Field tests were administered to assess how well we were learning these essential skills. Needless to say, it was a course filled with brutish head scratching over many geologic conundrums.

Although field camp was markedly intense, it has benefited me greatly as a geologist. I left with a new arsenal of tools and insights to take on future work.

Once I returned to Plainview I began working in the Moody basement, or better known as "The Dungeon". Down in the abyssal space I obtained infrared interferograms from 90 plus rock samples as part of an ongoing research project. These analyses were momentarily halted mid-August, as I made an excursion to Atoka, Oklahoma and Bella Vista, Arkansas to obtain more research samples. The chert I was in search of outcropped beautifully, allowing me easy access and removal. This trip marked the conclusion of my summer, and the beginning of the 2019 fall semester.

Andrea Bond
Senior, Geology and Environmental Science

This summer I had the opportunity to do geology field camp with Stephen F. Austin University for six weeks. The first week was a rigorous process of driving through Texas and New Mexico only stopping to make and break camp with the goal of getting back on the road quickly. Most of the field camp we were camping, and we only spent about a week and a half in a dorm or hotel. We would stop at outcrops on the side of the road and practice how to use our tools to prepare us for the upcoming projects. Our projects included identifying rock types and determining where faults were. We would be given a map and a list of the rock types, with a color for each type, and then we would go explore the entire mapping area to record where each rock type and fault were by coloring within the perimeter of the map. We would figure the thickness of each layer of rock. Another one of our projects was to map a basalt flow.

This trip took me to some amazing places that I might not have had the chance to see if I did not go on it. We went to Carlsbad Caverns, White Sands, the north and the south side of the Grand Canyon, Jacob Lake, Zion, Parowan Gap, Bryce Canyon, and Arches. I think that my favorite place that we went to was Zion National Park. When we got to the entrance of the park it started to rain, and we were all upset about setting up camp in the rain; however, our attitudes changed when we entered the park. Driving through Zion we were awestruck what would normally be walls of cross bedded sandstone turned into waterfalls on every surface. Everywhere you looked there was a waterfall that seemed to come out of nowhere. Then you drive through a long tunnel and once you get out the other side it's like you get transported to Jurassic Park, without the dinosaurs. One of our professors has been going to Zion for years and this was the first time he has ever been there when it rained. Being able to be there when it was raining was the memory that stands out more than anything on this trip. I was able to see the park when it was dry and when waterfalls were everywhere, and that is something that I am so glad that I got to experience.

Summer Zoology Research 2019

Sarah Macha
Sophomore, Biology

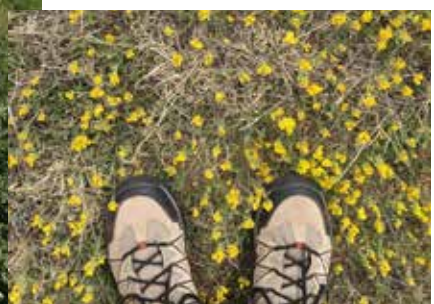
Sarah Macha completed her first field season studying the ecology of Texas Horned Lizards using VHF radio telemetry to track the location of marked lizards. Lizards were also marked with PIT Tags in a capture-mark-recapture study that has been ongoing for 4 years. Morgan and Sarah both received funding to support their projects from the Center for Undergraduate Research in Math and Science.

Morgan Bennett conducted her second year of field work on the nesting ecology of Painted Bunting in Caprock Canyons State Park as part of their prairie restoration and habitat management efforts. Morgan is working to identify what kinds of habitat areas are used by nesting buntings. See a video about Morgan's research at https://www.youtube.com/watch?v=3tulKh3ZQjI

Morgan Bennett
Senior, Biology

Summer Botany Research 2019

Krista Epley
Senior, Biology



Krista Epley and Dr. Matthew Allen continued their work on a flora of the Running water Conservancy in Hale County, TX. During this field season they've added 45 plant species to the list bringing the total to over 100 for the site. At least 8 of the species they've encountered have not previously been documented in Hale County.

Math & Science News

Meet the Dysons

Biology Professor

Dr. Matthew Dyson

Matthew Dyson joined the Wayland Baptist University School of Math and Sciences in the fall of 2019 as an Assistant Professor of Biological Sciences and Chemistry. Using molecular biology and functional genomics approaches, he has pioneered research in the epigenetic mechanisms affecting reproductive development, health, and disease. In 2010, after completing his Ph.D. in Molecular Biology at the Texas Tech University Health Sciences Center, he moved to Chicago as faculty at Feinberg School of Medicine at Northwestern University. In addition to developing a passion for deep dish pizza, his career as a research scientist fostered the desire to see students and clinicians alike appreciate the value of scientific thinking in their education. This led Matthew to developing team-based strategies for investigating research questions, and he is excited at the opportunities to incorporate research as an element of teaching and instructing students at Wayland.

Lab Manager/Safety Officer

Emily Dyson

Emily Dyson received a Bachelor of Science degree from Wayland Baptist University in 2002, majoring in Chemistry and Biology and minoring in Religion. Emily later earned her M.S. in Biotechnology at Texas Tech University Health Sciences Center. Emily, along with her husband and 4 children, have recently moved from Chicago to Plainview and are eager to get involved with the community of Plainview. Newly employed as the Lab Manager and Safety Officer for the School of Math and Sciences, Emily will be coordinating lab safety training for faculty, staff, and student workers as well as maintaining records of safety training completion. Additionally, she will be tracking and maintaining laboratory inventory and safety equipment, and will be providing technical support for laboratory, stockroom, and classroom activities in cooperation with the needs of the Math and Science faculty and other staff.

Fall Scholarship Recipients

Louise Joachim:

Yaniel Vargas

Dr. Dorothy McCoy:

Jacob Adams, Wyatt Edwards, Emily Franklin, Lizette Garcia, Maxine Garza, Eziquiel Gonzales, Chase Jones, Robert Jones, Levi Kasner, Eugene Mutware, Matt Ontiveros, Jared Rea, Kyle Rickman, Yaniel Vargas, Christian Vaughn, Josh Wynn

Dr. James Mosher Memorial:

Kyle Rickman

John D. and Phyllis Sanders Mathematics:

Josh Wynn

Cary and Sally Eaves:

Elizabeth Reinhart

Hearst Math and Science:

Josh Wynn

Harold Reese:

Andrea Bond, Josh Wynn

Joe and Jennie Richardson:

Andrea Bond, Terry Condren, Krista Epley, Brittany Hall, Sarah Macha, Emily Madrid

Dr. Gerald and Marilyn Thompson:

Jillian Blanchard, Brittany Hall, Sarah Macha, Evelynn Simmons

J. Hoyt Bowers:

Sarah Macha, Elizabeth Reinhart

Joanne Bowers:

Jillian Blanchard, Emily Madrid

Eldon Milstead:

Andrea Bond, Josh Wynn

Phyllis Joslin:

Josh Wynn

S.E Housley Medical Wayland:

Allison Alvarez-Garcia, Lucy Chavez, Evelynn Simmons

Dr. J.H. Wayland Medical:

Luke Brown, Ellen Hamzy, Kamri Knippa, Evelynn Simmons

Dr. L.C. Wayland Memorial:

Morgan McIntosh, Iris Nevarez, Jai'Cee Tudman

Norman and Louise Wright:

Jai'Cee Tudman

Harold and Audrey Temple:

Terry Condren

Jeane and Barbara Browning:

McKayla Ramirez, William Watkins, Chloe Winegeart

Endowed Scholarships

David and Elise Adamson
Endowed Scholarship
2018

Philip and Marian Almes
Endowed Scholarship
2017

Dr. Robert Lee & Janet Butler Sartain
Endowed Scholarship
2017

Mike Melcher
Endowed Scholarship
2017

WBU Science Legacy
Endowed Scholarship
2017

WAYLAND BAPTIST UNIVERSITY

School of Mathematics and Sciences
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With small class sizes and a strong family atmosphere, students in the School of Math and Sciences are part of a community that strengthens their learning experience and prepares them for graduate school and for their future careers.

Impact 2020 seeks to raise $7.5 million for renovations and an addition to the School of Math and Sciences