Department of Mathematics & Statistics
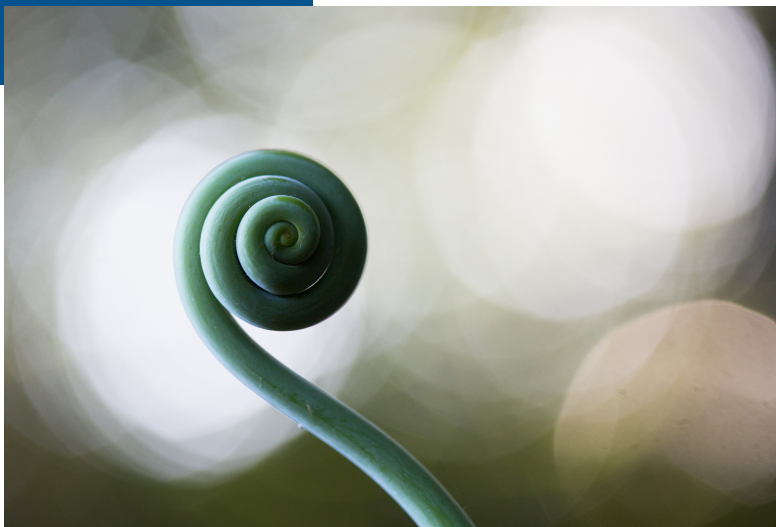
NEWSLETTER

Department Mission Statement

We invite and welcome students from all educational and cultural backgrounds to join us in creating an active, collaborative learning community that celebrates the complexity, beauty, and applicability of Mathematics and Statistics.

SONOMA STATE UNIVERSITY

School of **Science and Technology** *Mathematics and Statistics*

DEPARTMENT CHAIR

This has probably been the wettest winter we have experienced in Sonoma County since I began teaching here 24 years ago. California definitely needed the water, but I am hopeful that this spring will bring some sunny days. After a 10-year hiatus, I have begun my second term as chair, but this time I am sharing the position: Dr. Martha Shott is serving as co-chair. The university has also seen a change in leadership: Dr. Judy Sakaki resigned as president last summer and was replaced by Dr. Mike Lee, who will be continuing as interim president next year.

This winter brought tragedy along with rain: On February 11, Dr. André Minor was killed in an accident at his property in the Mayacamas mountains. Over the past 10 years, André shared his love for mathematics and learning with thousands of students. He was the kindest, most enthusiastic and most knowledgeable teacher a student could wish for. André's passing leaves an impossibly large void in our community and also in our lives. He will be deeply and sincerely missed.

Due in part to the pandemic and also to the changing demographics in the state, SSU has seen a dramatic decrease in enrollment, down from over 9,000 students before the pandemic to around 6,000 currently. In spite of this, the department has continued to attract and recruit mathematics and statistics majors, and there has been no change in the department's course offerings. The Math club has returned to its active and vigorous pre-pandemic state.

This Spring 2023 semester the department brought back the Student-Faculty seminar that was discontinued many years ago. The purpose of the seminar is to allow students to make short presentations of their research and research experiences, and for faculty to present their research with the hope that students will become interested in the research topic and join the faculty member in forming a research group.

The department continues its work with the NSF funded TIPS (Transformative Inclusion in Post-secondary STEM) project. The aim of TIPS is to increase the participation and success of Latinx students in STEM by transforming STEM department cultures to become truly "Hispanic Serving." Starting in our department and then followed by other STEM departments, our faculty are developing, testing, and ultimately will publish a two-year departmental pathway that will address persistent marginalization and underrepresentation of Latinx students in STEM.

We are having our annual Math Festival Awards dinner at Sally Tomatoes in Rohnert Park, on April 26 beginning at 5:30 PM. All alumni from our department are invited and welcome! We hope to see many of you there.
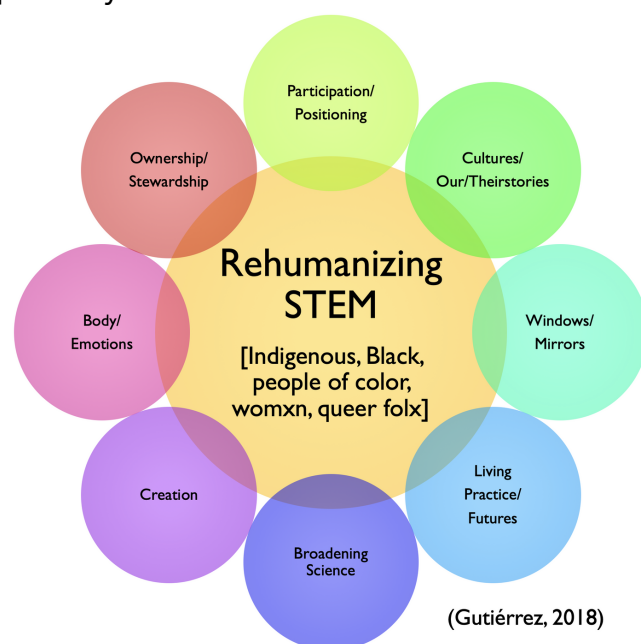
Sam Brannen
Professor & Department Chair

TIPS TOWARDS JUSTICE PATHWAY - YEAR 2

In the 2022/23 academic year, the math and stats department continued along their 2-year journey to transform the departmental culture of teaching and learning to embrace the "Serving" aspect in SSU's "Hispanic-Serving Institution (HSI)" designation.

In 2020, the Math and Stats Department was awarded a $2.2 million grant by the National Science Foundation (NSF) to develop, research, and publish a pathway that guides STEM departments in creating STEM teaching and learning conditions that promote a sense of belonging among Latinx students in the community and the profession.

Year 1 of the pathway consisted of professional development, which included learning about the experiences of Latinx students in our classes and incorporating rehumanizing mathematics practices through lesson studies. The year was capped by a lesson study conference, where four groups shared their experiences of deeply diving into one dimension of rehumanizing mathematics and designing a lesson around this dimension. Two groups for statistics courses and one group for calculus chose the dimension of "Windows and Mirrors." The statistics groups designed lessons exploring questions around the assets that first-generation students bring as mathematics learners and to compare pass rates pre/post pandemic. The calculus group designed a lesson where students told stories about their trip to school and used them to learn about integration. The lesson study group in Math 220, Reasoning and Proof designed a lesson around the dimension "Body and Emotion," where students used their bodies as a resource to learn about proof by induction.

Participation/
Positioning

Ownership/
Stewardship

Cultures/
Our/Theirstories

Body/
Emotions

Rehumanizing
STEM

[Indigenous, Black,
people of color,
womxn, queer folx]

Windows/
Mirrors

Creation

Living
Practice/
Futures

Broadening
Science

(Gutiérrez, 2018)

Positioning/Participation	Cultures/Our/Theirstories	Windows/Mirrors (In Lak'ech)	Creation	Body/Emotions
Status, hierarchies in the classroom/society, legitimate participation, belonging, teacher aware of positioning	Funds of knowledge, algorithms from other countries, ethnomathematics, place-based and land-based science; politics	Appreciation, not just difference; standing alongside of others, seeing new things, new axioms, goal is not always consensus; fostering respect/dignity; becoming the best person in their own eyes	Not just reproducing what has come before (e.g., invented algorithms, new ways of naming/seeing patterns, breaking rules)	The body and senses matter for any real world problem (can't just pretend); aesthetics, a critical element is joy.
			Students inventing new (to them) forms of science in relation to others Students as authors	Invitations to and examples that draw upon other parts of the self (e.g., voice, vision, touch, place, spirituality, intuition over logic)
Authority shifts from text/teacher to other students; students as meaning makers, other-than-human teachers	Students recognizing that science has actors/ancestors/roots, aesthetic choices	Students being able to see themselves in curriculum & in others; connecting with **others**		

During the second year of the TIPS Pathway (2022–23), we are continuing this work with a second round of lesson study exploring more dimensions of rehumanizing mathematics, such as "Cultures/Our/Theirstories." In addition, the department is investigating institutional barriers and opportunities to better support Latinx students during their education at SSU. One example is learning about issues involving financial aid and making recommendations to the university about improving the process for our students. For example, providing financial aid materials in Spanish would allow many students to share the information more easily with their families.

In parallel with the TIPS Pathway activities of cohort 1, colleagues from five STEM departments joined the project as cohort 2. About 20 faculty members from biology, chemistry, computer science, geology, and physics and astronomy engaged in the Year 1 pathway activities of TIPS, which were adapted from the first round by including physics educator Dr. Ximena Cid from CSU Dominguez Hills as part of the professional development team. Dr. Cid joined Drs. Winger and Gutiérrez in leading the summer and winter professional development workshops around equity and rehumanizing STEM.

This year, the TIPS research team, led by Dr. Luis Leyva from Vanderbilt University and Dr. Martha Byrne from SSU, together with SSU and Vanderbilt student researchers, continues with their study of Latinx students' experiences of support and marginalization in mathematics courses associated with the TIPS Pathway. In addition to analyzing students' and faculty's journaling about interactions perceived as marginalizing or affirming for Latinx students in introductory mathematics classes, the research team conducted interviews with faculty and students and even had a chance to observe classroom interactions during a campus visit in the fall. The goal of the research is to give mathematics faculty actionable guidance to make their teaching truly inclusive, particularly in better serving Latinx students in STEM.

The project leadership team consisting of Ben Ford, Brigitte Lahme, Luis Leyva, and Omayra Ortega have been very productive sharing work from the TIPS project. The PD and leadership teams presented at the Conference of the Association for Interdisciplanry Studies at SSU in November 2023, the Joint Math Meetings in Boston in 2023, and the CSU STEM-Net Conference

in March 2023. Dr. Leyva has presented about TIPS in three invited talks. Different members of the research and professional development teams have presented or are scheduled to present 7 refereed talks at local and national conferences. The research team also has published their work in two conference proceedings (one for the Psychology of Mathematics Education-North America conference [1] and another for the Research in Undergraduate Mathematics Education conference[2]), along with several more manuscripts in preparation for journal peer review.

[1]Leyva, L. A., Mitchell, N. D., McNeill, R. T., Byrne, M. H., Ford, B., Chávez, L. A., & Abreu-Ramos, E. D. (2022). Faculty and student perceptions of instructional servingness in gateway mathematics courses at a Hispanic-Serving Institution. In A. Lischka, E. B. Dyer, R. S. Jones, J. N. Lovett, J. Strayer, & S. Drown (Eds.), Proceedings of the 44th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (pp. 444-452). Nashville, TN.

[2] McNeill, R. T., Leyva, L. A., Byrne, M. H., Mitchell, N. D., Lewis, R., & Abreu-Ramos, E. D. (in press). "Looking outside of my bubble": Whiteness-at-work in mathematics faculty sensemaking about serving Latin* students. To appear in the Proceedings of the 25th Annual Conference on Research in Undergraduate Mathematics Education. Omaha, NE.
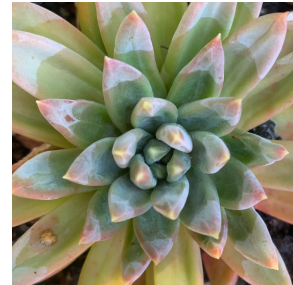
THE 83RD ANNUAL WILLIAM PUTNAM MATHEMATICAL COMPETITION

Five Sonoma State Math and Stats students participated in the rigorous Putnam competition: David Evans, Mason Golden, Bryce Iversen, Salvador Ochoa Zavalza, and Katie Pell. These students will be honored at Math FEST in April.

Says Ochoa: "I took the Putnam because I like fun challenges (and free pizza). I think this experience was exciting but also nerve wracking—but that is to be expected from the most challenging mathematics competition. The advice I would give to future test takers is to not be afraid to score a 0 and try the competition at least once, by trying you are already doing more than many. If you really want to prepare, watch some youtube videos on previous competitions and skim over your book proofs, but again, don't stress too much about it, remember you are doing the test because you want to practice your skills in math and have fun."

The William Lowell Putnam Mathematical Competition is the preeminent mathematics competition for undergraduate college students in the United States and Canada. The Putnam Competition takes place annually on the first Saturday of December. The competition consists of two 3-hour sessions, one in the morning and one in the afternoon. During each session, participants work individually on 6 challenging mathematical problems.

"Mr. Osborne, may I be excused? My brain is full."

MATH CLUB EVENTS

MATH & STATS CLUB
2022-23
YEAR IN REVIEW
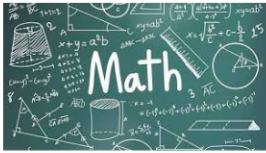
SEPT. 21 - CLUB KICK-OFF

The Math & Stats Club had its first meeting of the academic year on Wednesday, Sept. 21, 2022. Club meetings continued every other Wednesday for the duration of the semester. Many of these meetings featured FOOD, GAMES, and of course a love of all things MATH and STATS-related.

OCTOBER 9TH - LATINX HERITAGE

The Club joined in our department's celebration of Latinx Heritage Month by posting bios of current and former SSU Math & Stats community members to the Club's Instagram page.

OCTOBER 15TH - DAY OF THE DEAD

We celebrated the lives of our departed loved ones by building an Ofrenda in Darwin 108, the Math Lab. Students and faculty alike contributed photos and other memorabilia to honor those who had passed on.

FEBRUARY 2ND - SPRING KICK-OFF

The Math & Stats Club members reconvened after a well-deserved Winter Break, and began to plan Club events for the semester.

When you purchase a Math Mug, all proceeds go to the Math & Stats Club! Only $10.

FEBRUARY 25TH - MAA GOLDEN SECTION

Several of the Club members volunteered to assist with the MAA Golden Section Meeting, which was held at the Santa Rosa Junior College campus. They also heard research talks and saw cool pieces of math-inspired art!

MARCH 14TH - PI DAY

The Club had big plans to throw pies at each other as a way to de-stress before midterms, but the rainy skies had other ideas. Instead, we gathered for pizza and dessert pies to honor the day.

WHISKEYTOWN LAKE MATHEMATICS CONFERENCE

For the second year post-pandemic, we returned to the beautiful Dry Creek Group Campground at Whiskeytown Lake National Recreation Area for the Whiskeytown Lake Mathematics Congress, held on the weekend of Sept 30—Oct 2, 2022. Once again, we found many reasons to be grateful and to celebrate our return.

This year, our very own Martha Byrne prepared the afternoon Discussion under the Oaks with an interactive workshop titled "Grading—It's Now Pointless." Martha effectively argued that percentage-based and points-based grading systems are problematic for many reasons, and described her shift to "pointless" grading. She described how specifications/standards-based grading works; what it is, how it's going in her classes, and why we should all make our grading pointless.

Other talks covered topics on graph learning in data analytics, with applications in analyzing geographical, biomedical, and social networks (Jane Guo from CSU Chico). Brandon Ashley from Southern Oregon University discussed how transformations and symmetry groups play a fundamental role in the geometric (coordinate-free) study of differential equations. Elaine Newman is one of the co-organizers of the event.

Food and fun are also essential to any Whiskeytown event. Continuing a proud tradition, our Sonoma group organized a taco-bar potluck dinner for the whole crowd. Sharing food is a great way to rebuild community after the pandemic and reconnect with our friends from northern California and southern Oregon. Many folks took advantage of the warm afternoon to hike, swim or kayak.

Traditions can be hard to rebuild after such a disruption like a global pandemic. Our second year back found more hearty campers ready to dive into math (or the lake) while taking in the dappled sun through the oak trees. But we are still working to rebuild a robust student presence. Prior to the pandemic, year after year previous student attendees were able to share their experience and bring newer students to the next congress. That generational sharing and mentoring helped overcome nerves about camping and hanging out with faculty. First-hand experience that the talks were interesting and accessible to students helped overcome concerns that a math conference would be intimidating. We will have to do a better job encouraging student attendance for the next Congress in 2023.

The Whiskeytown Lake Mathematics Congress is held each year on the weekend with the first Saturday in October. The 2023 Congress will be held Oct 6—8. You can find many photos of past events and information about upcoming programs at https://sites.google.com/view/wlmc/home?authuser=0

MATH MODELING

Predicting Wordle Results - Mathematical Contest in Modeling

If you were paying attention to social media in late 2021, you almost surely know about Wordle, the web-based puzzle game that was recently acquired by the New York Times. In this game, players try to guess a 5-letter word in at most 6 guesses. After their first guess, the game application highlights each letter in the initial guess based on whether the letter is not found in the solution (gray), if the letter is in the solution but in a different position within the word (yellow), or if the letter is in the solution in the same position as the player's guess (green.) An example of how a player's guesses might progress throughout the game is shown below.

The simplicity of the game's rules, combined with the dopamine rush of guessing the day's singular Wordle solution, allowed it to become instantly popular especially during a time when many of us were continuing to shelter-in-place. And since people were excited to share their Wordle accomplishments but did NOT want to spoil the day's puzzle for their friends, the game allowed you to share your progression of colored boxes to Twitter, Facebook, and other social media platforms.

As the Wordle craze spread throughout our networks, players began to share their strategies and discuss the merits of each; for example, some pay homage to their Wheel of Fortune training and choose an initial guess that contains many of the letters R, S, T, L, N, E, while others opt for a word like "ADIEU" or "OUIJA" to quickly determine the vowels contained in the solution. Some players will choose a second word that contains none of the letters from their first word, just to narrow down as many options as possible early on -- this approach is not generally allowed in the game's "hard mode," which requires users to use the yellow and green letters in subsequent guesses.

The huge interest in this puzzle game, along with a large amount of data shared by users to social media, created a perfect opportunity for mathematical and statistical analysis to enter the Wordle arena. The Consortium of Mathematics and Its Applications (COMAP) took advantage of this opportunity by posing a Wordle themed problem as one of the six options that its Mathematical Contest in

MATH MODELING CONT.

Modeling (MCM) participants could choose for the topic of their contest submission. The MCM ran from Thursday, February 16th through Monday, February 20th, 2023. Over these five days, student teams of up to three students focused on an open-ended, applied problem in mathematics and data analysis.

This year, Sonoma State had one team participate in the MCM, and its three team members -- Joseph Immel, Misty Moore, and Salvador Ochoa Zavalza -- chose to tackle the Wordle task. The primary goals of the problem were as follows: to predict the number of Wordle posts shared to Twitter on March 1, 2023; to determine whether the number of posts shared by players in Hard Mode could be reasonably predicted on that same date; to determine criteria for classifying the difficulty of a Wordle solution; and to generally describe any other interesting features of the Wordle data set.

"The contest taught me teamwork, perspective and perseverance," Misty Moore said, continuing: "I enjoyed learning about Wordle, a word game I had never played before. I also got to utilize some probability skills with my classmates in a setting where we could just explore and not have to worry about being graded…it required me to think outside the box and I learned many new concepts about math and about Wordle."

To classify the difficulty of a Wordle solution, the team developed a formula for the expected number of guesses that a player would need to solve the puzzle. This formula used metrics such as the number of "word neighbors" (that is, words that differ from the solution by only one letter, such as "stove" and "shove"), the Scrabble score of the word, and the number of distinct letters in the solution. The contest instructions specifically asked each team to use their classification scheme to comment on the difficulty of the word "EERIE," which this team determined would take users about 4.5 guesses on average to solve.

Salvador Ochoa said, "After the MCM I feel like I have a better understanding of what real world applications mathematics has. The experience was as fun as it was challenging, and collaborating with my peers made the experience even better. We did math, but also analysis on data sets, discussed different approaches, did some paper research, and created a model that was as close as we could to the actual values. I had the opportunity to do other things during the weekend, but participating in the MCM and turning in our work is definitely a highlight from my time at Sonoma State University. I would sign up again for the competition in a heartbeat."

JMM / MAA CONFERENCES

Conferences are back!

Now that we are returning to a more normal life post-pandemic, the faculty and students in the math and stats department are again traveling to professional conferences across the country and close to home. Drs. Lahme and Ortega as well as students Salvador Ochoa Zavalza and Connor Albright attended the Joint Math Meetings in Boston in January 2023. Salvador and Connor both presented research from summer REU (research experiences for undergraduates) projects on "The Kalman Filter on Time Scales With Exponential Weighting" and "Closed formulas for Kostant's Partition Function for sl4(C)." Dr. Lahme gave two talks about a lesson study in calculus 1 and about the stretch calculus program, co-presented by TIPS Co-PI Dr. Luis Leyva from Vanderbilt university. Dr. Ortega was particularly busy. As the current president of the National Association of Mathematicians (NAM) she presided over a business meeting and banquet. She also co-organized the SIAM Minisymposium on Quantitative Justice (a NAM-SIAM Joint Session) and gave the invited MAA-SIAM-AMS Hrabowski-Gates-Tapia-McBay Lecture titled "Who Are We Serving With Our Scholarship: A Covid Model Case Study." Last but certainly not least she was honored as a 2023 fellow of the Association for Women in Mathematics (AWM) for her "sustained commitment to the support and advancement of women in the mathematical sciences."

The Golden Section of the Mathematical Association of America held their 2023 annual meeting at SRJC in February and was well attended by about 15 SSU Math and Stats students and faculty. Connor Albright participated in the undergraduate poster session. Two of the invited talks featured SSU colleagues. Dr. Ortega presented "Who Are We Serving With Our Scholarship: A Covid Model Case Study" and professor emeritus Rick Luttmann capped off the day with "The Brocard Miracles".   https://events.santarosa.edu/mma-2023

JMM / MAA CONFERENCES CONT.

EXPANDING YOUR HORIZONS (EYH)

Sonoma County's Expanding Your Horizons (EYH) event returned to an in-person format this year after two years of remote programming during the COVID-19 pandemic. This annual event aims to promote interest in Science, Technology, Engineering, and Mathematics (STEM) in young women. On April 15, 2023, roughly 50 middle-school aged girls from the local area came to SSU's campus for a day of interactive workshops hosted by women from nearby STEM industries.

This year's workshop topics included a session on using wind power to combat climate change, building a paper dome that could sustain a maximal weight of "Cuties" tangerines, learning about heart pathologies and related surgical procedures, and programming a computer to play tic-tac-toe.

Drs. Brigitte Lahme and Martha Shott of the Math & Stats department serve on the planning committee for EYH, along with Dr. Mark Gondree of Computer Science. The Math & Stats dept. Admin. Coordinator Robbin Cortez assisted in organizing the food services for the event participants. Several other SSU community members volunteered on the day of the event to guide students around campus and assist with the STEM workshops. These SSU volunteers include math majors Victoria Lambert, Bryce Iversen, and Bella Bibayoff, as well as SSU faculty Jordan Rose (Nursing), Lisa Bentley (Biology), and Nicole Myers (Geology).

Several student clubs organized fun lunchtime activities for the attendees, Among them were students for sustainability, the chemistry club and the society of women engineers.

ALUMNI

Wendy Rawlinson~
After graduating with a BA in math from SSU in 1988 and then traveling in Europe for an extended time, I attended graduate school at the University of Oregon in Eugene. I finished my MS in math at UO in 1991, and have lived in Eugene ever since.

After teaching at UO for two years as a Graduate Teaching Fellow, I became a part-time math instructor at Lane Community College in Eugene. I continued in a part-time capacity from 1991 through 2014, while raising three kids (now ages 26, 29, and 31). I have been a full-time math faculty member at LCC since 2014. My hobbies include hiking the beautiful PNW trails and riding my Vespa.

I am currently on my first-ever sabbatical, and am very lucky to be hosted by SSU while I research the recent reforms in California higher education mathematics. It is a delight to be back on the SSU campus, to reconnect with some of my former SSU study buddies, and to attend the weekly M*A*T*H Colloquia while at SSU!

Travis Hayes~
I graduated from Sonoma State University in Fall 2017 and went directly to a graduate program at California State University, Los Angeles. After graduating from CSULA in Fall 2019, I migrated north to Sacramento and began teaching at Sacramento State University's Mathematics & Statistics Department.

I have been teaching at CSUS for 3 years and plan to continue teaching here into the foreseeable future. My class load is different every semester, but currently I'm teaching Calc2 and Differential Equations. I'll be teaching Precalculus and Differential Equations next semester. In addition to teaching at Sacramento, I teach at Sacramento's Municipal Utility District's incoming employees over summer on basic algebra and trigonometry.

Giancarlo Puccini~
I've been working as a Senior Instructional Assistant of Mathematics at the Tutorial Center aboard SRJC. I assist students with their course endeavors in the entire Calc series, Diff Eq's, Linear Algebra, Discrete Mathematics, Statistics, Proof writing, and anywhere else there may be mathematical ideas in their coursework.

I've been taking this time to become stronger so I can continue on with graduate work as I aspire to teach math at the community college level.

Outside of that I've been doing my stuff as a dad, getting my son Vince enrolled and going in soccer, fostering my daughter Isabella's proclivity for art and music, ensuring they're on track academically, and for myself I've been trying to study and apply JiuJitsu a bit more realistically.

ALUMNI CONT.

Fabian Ramirez~

I am currently in my second-year of a Ph.D. program at the University of California, Irvine, where I am working with Nathan Kaplan. So far, I am loving it here. Mathematically, I spend most of my time thinking about elliptic curves. At the time of writing, I have been thinking a lot about how this fascinating interplay between modular forms (a complex analytic object), modular curves (a geometric object), and elliptic curves (an arithmetic object). Modular curves encode group theoretic information of elliptic curves (namely their torsion points) as points on a three-dimensional object (namely a Riemann surface). Around the middle of the 20th century, mathematicians began to notice that there was a relationship between this torsion information of elliptic curves and the coefficients of the Taylor expansions of very special complex-valued functions called modular forms. A priori, there was no reason why such a relationship should exist, but in the 1990s Andrew Wiles (in the famed proof of Fermat's Last Theorem) proved that this relationship exists for certain types of elliptic curves, and his techniques were later used to prove that this relationship was true for all elliptic curves (with rational coefficients). Beyond the proof of Fermat, this relationship has been fundamental in modern research in number theory (i.e. Mazur's Torsion Theorem, the Modularity Method of solving Diophantine Equations), and I hope that someday my work will contribute to this discussion.

Looking forward, this summer I will be participating in the PRiME (Pomona Research in Mathematics Experience) at Pomona College, where I will serve as a research assistant on a project about (you guessed it!) Elliptic Curves. I am incredibly excited about this opportunity as I will get the opportunity to work with Dr. Alex Barrios and Dr. Edray Goins who I first worked with at MSRI-UP 2020 (Mathematical Sciences Research Institute Undergraduate Program), and have been fundamental for me in developing my current research interests. I highly recommend any undergraduate at SSU who is even vaguely interested in Number Theory/Algebra/Algebraic Geometry, or anyone who just wants to learn hard math, to consider applying to PRiME in the future!

On a final note, the advice I would give to SSU undergraduates interested in going on to grad school is to allow yourself to explore the areas of math you find interesting. You can always start small: reading the Wikipedia page on some mathematics you find fascinating and slowly moving up to asking a professor for a reading course, applying for an REU, or attending a conference. At first, I think it is normal to feel confused and overwhelmed but know that it gets a lot easier. It took me four or five attempts before I was able to read Silverman's "Arithmetic of Elliptic Curves" (the bible on the subject), but each failed attempt led me to a hole in my knowledge that I needed to fill (i.e. learn more algebraic geometry, work on p-adic analysis, etc) and I cannot describe the joy I felt when I worked through it. Know that you are surrounded by professors who have a wealth of knowledge and experience, and don't be shy to ask them for help or advice. Finally, it's important to recognize that research, by its nature, is very difficult. You will be stuck much more often than you are making "progress," so in my mind it's important not to tie up any self-worth in your accomplishments.

ALUMNI CONT.

Nicole Day~
2010 grad- I am teaching at Williams Jr/Sr High School. I am a Mama to a beautiful kindergartener who's school is shared on our campus (our district is links together on acreage). I am dept chair and work with our kids after school for math, driver's … See more

Kim Knapp~
2000 grad- Controller for CamelBak and QuietKat. I spend as much of my free time outdoors as I can. I love working in an industry that supports what I do for fun. I have 2 daughters who are both adults (18 and 21) so I'm looking at the next phase of life.

Jessica Kelb~
2006 grad- Currently in my 16th year teaching. Currently teaching special education Algebra and Geometry at Antioch High School. Getting married at the end of this month. We own a zoo, 6 cats, 4 bearded dragons and 1 leopard gecko. Free time is spent playing video games, coloring or reading.

Jillian Nicole Kimzey~
2018 grad- In my second year of teaching at the university level running a fundamental math lab and about to start a Masters in Library Sciences

Libbie Coronado~
2003 grad- Tenth year working for the City and County of SF, got an MA in Economics after SSU, married my college sweetheart and have 3 beautiful children.

Jacob Holman~
2015 grad- Currently working for John Burns Research and Consulting as a Senior Quantitative Analyst where I review and create forecasts on many economic and demographic metrics. I've been happily married for almost 5 years and we met at Sonoma State.

Drew Horton~
2019 grad- I'm still at CU Denver finishing up my PhD. This is my 4th year, and I'm hoping to graduate summer 2024. I'm ABD, and my dissertation is in optimization with a focus on bringing amenities back into neighborhoods and equity! Recently, my dissertation research won 1st place in the INFORMS tomorrow mini poster competition (https://www.informs.org/Publications/OR-MS-Tomorrow/OR-MS-Tomorrow-Mini-Poster-Competition-2022-Winners.) I also painted a mural in our math department that is inspired by the research of graduate students here at CU Denver! (https://news.ucdenver.edu/a-community-built-through-math-and-art/). I'm also teaching intro to proofs this summer, which I'm super excited for!
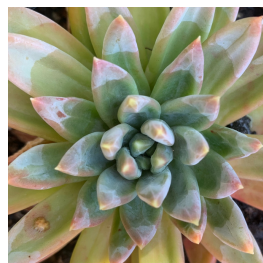
ALUMNI CONT.

Jessica Wilcox~
2015 grad- Just switched careers from teaching math for 6+ years to working for IBS Payroll as a time and attendance specialist. It's been about a month and I'm super happy with the change of pace!

Ryan Kelez~
2015 grad- Currently working for Disney, helped launch Disney+ and ongoing development. Most days are equal parts problem solving & convincing my cats to not sleep on my keyboard…okay okay, it's not equal, that cat … help!
Hoping to contribute to and/or help build an animal sanctuary next.

Maddy Heisler Marquez~
2018 grad- Almost done with my fourth year teaching math at Armijo High School in Fairfield. I've also been working for the last two years as an ambassador for the School of Education's STEP (STEM Teacher Education Pathways) program, working to recruit more Sonoma State students to become secondary STEM teachers. Also got married this last September ❤

Juan M. Escobar Salsedo~
2017 grad~I am currently a Full-time Faculty member at The Athenian School in Danville, CA. I am teaching mathematics. This is my second year at The Athenian School. I am currently teaching Pre-Calculus Honors and Calculus BC. I am currently excited about creating equitable grading practices and building a culturally responsive curriculum that cultivates diversity, equity, and inclusion.

I completed my MS Degree in General Mathematics in 2020 from CSU LA after graduating from SSU with a BA in Mathematics with a concentration in Secondary Teaching.

Mike Fitzpatrick~
1991 grad- I am retired now. I graduated from SRJC in 1979 and worked for 10 years as an electronic technician before I started going to SONOMA State. After I graduated from Sonoma State, I began working as a software engineer at Hewlett Packard for a consulting company.
My last position was a consultant for 3M in Petaluma. When that facility closed in 2008, I worked from home. I retired in 2017.

Bill Barnier~

Typically this short piece is intended to outline activities of the Emeritus Faculty Member since the last newsletter. However, I am instead going to reflect on the long term effects of mathematics.

Selected symptoms: Lying in bed at 3:00 AM calculating what percentage of the times shown on a twelve-hour digital clock are palindromes. Deciding whether an address spotted from a moving car is divisible by 9 or 3 without dividing. For example, the address 16461 is a palindrome and it is divisible by 9 as seen by summing the digits to obtain 18, which is divisible by 9.

I make no claim for the difficulty or significance of these minor math projects. The examples are offered only to demonstrate that a mathematical bent is enduring. More importantly, understanding mathematics well also entails an ability to analyze and discuss other difficult material. Recently I have enjoyed a series of lectures for the layperson on The Character of Physical Law by Richard Feynman given in 1964 at Cornell. Below is an excerpt from his second lecture, The Relation of Mathematics and Physics:

To summarize, I would use the words of J. H. Jeans, who said that the Great Architect seems to be a mathematician—and for you who don't know mathematics, it's really quite difficult to get a real feeling across as to the beauty, the deepest beauty, of nature. C.P. Snow talked about two cultures. I really think that those two cultures are people who do, and people who do not— people who have had, and people who have not had this experience of understanding mathematics well enough to appreciate nature once. It's too bad that it has to be mathematics, and that mathematics for some people is hard. - Richard Feynman, 1965 Nobel Prize in Physics.

As Prof. Feynman says, mathematics is hard but an understanding of mathematics is crucial for an appreciation of the physical world. To the math and stats students reading this - persevere through the difficulties. It will be rewarding. Using the metaphor I began with, I am so grateful I was consumed by Long Term Mathematics.

Rick Marks~

Joyce and I are still loving Santa Cruz. Back to traveling freely: France, French Canada (yes, we adore French food), Portland, Cabo, Caribbean. Spending lots of time with friends and family, especially enjoying our 1- and 3-year-old granddaughters. We're both still fit and feisty and having a good time. But I do miss my good friends at SSU. Carry on, my brothers and sisters.

EMERITI/AE CONT.

Jean Bee Chan~

The Asian Scholarship Fund will hold its first Awards Ceremony in person since the pandemic, giving scholarships to High School seniors in North Bay Counties heading college on May 7, 2023, with SSU President Dr. Mike Lee as the keynote speaker.

Our SSU former graduate Wendy Rawlinson is spending her sabbatical at SSU this spring. After Wendy received her BS in mathematics at SSU, she earned her MS at U of Oregon in Eugene. She is a regular mathematics faculty at Lane Community College in Eugene.

I continue to sing with the Dragon Singers Chorus group. We will perform our 50th Anniversary Concert (with an orchestra!) on September 23, 2023 at the First Congregational Church of Berkeley. All are invited.

A video was made of my journey to the U.S. as an immigrant in a group of short films called Belonging. The video has been shown in public several times in the North Bay.
Since 1985, I have been active in a social justice group called Asian American Alliance of Marin, a non-profit organization of diverse groups of Asian Americans and supporters. Its mission is to encourage cultural understanding for our communities.

Ken Ross and I often attend the M*A*T*H Colloquium and dinner afterwards; we would welcome former students as our dinner guests!

Edie Mendez~

I am enjoying life at San Francisco Towers, my continuing care senior community, but struggling with many health issues from vertigo to cognitive and memory problems. On good days I enjoy walking at Crissy Field by the Bay with fellow residents and going to SF Opera, museums, and other cultural events. Cheers and good health wishes to all.

Tom Nelson~

I spend time reading, swimming at the gym, and sometimes driving my grandson home from high school. I also play chess against the computer. I have found 3 kinds of chess programs: I always win, I always lose, and in between. I can select the one that suits my mood.

Rick Luttmann~
What I said last year is still true: I continue to be so busy I wonder how I ever fit in time for teaching! I'm still active with the Emeritus & Retired Faculty/Staff Assn. I'm on the Board, I'm the Treasurer, I'm the Communications Manager, and although I am no longer the permanent representative of Retired Faculty on the Academic Senate, I do proxy occasionally.

I am still an editor for the Problem Section of the American Mathematical Monthly -- after 45 years! And as such I'm still learning about the fascinating world of The Triangle – perhaps the oldest and simplest geometrical shape, but still revealing more secrets every year. I tutor on occasion, including as a volunteer for indigent high school students, and also for my nephew, who is working toward a Ph.D. in Philosophy at Oxford University and needs to understand Cantor, Gödel, etc. I continue to try to find time every day to play the piano.

I give occasional public lectures, for example, to our own M*A*T*H Colloquium on "Measuring to the Stars: The Apotheosis of Trig", and to the MAA's Golden Section Annual Meeting (held this year at SRJC) on "The Brocard Miracles". I volunteer as the "Transportation Champion" for the Sonoma Chapter of the League of Women Voters, and as such I attend a lot of meetings: the SCTA/RCPA (Sonoma County Transportation Authority and Regional Climate Protection Agency) and its Citizens Advisory Committee; the SMART Board and the Friends of SMART; the Transportation and Land-Use Coalition; and any public meeting on Highway 37.

Chuna and I have been to Hawai'i several times in the past year. In May we finally got around to purchasing a pied a terre in Kaua'i, so we no longer have to pay exorbitant hotel rates and their !@#*! "resort fees". Our 1-BR condo is at Plantation Hale on the East (Coconut) Coast, not far from the now-derelict Coco Palms Hotel (where Elvis Presley filmed "Blue Pacific"), destroyed three decades ago by Hurricane 'Iniki. Our place is a semi fixer-upper, so we've spent a lot of time working on it – painting, new flooring instead of a musty old carpet, new AC, new sofa bed, new small appliances, etc. Unsurprisingly, we've had many opportunities to re-acquaint with our relatives!

We exhibited our Ni'ihau shell lei collection for three months this winter at the Kaua'i Museum. The new show that Chuna curated at the Heard Museum in Phoenix on the spiritual culture of several Native American communities opened in October. The following month he was one of three featured speakers at the International Storytelling Festival in Jonesborough TN.

In late November we went on a Viking cruise for two weeks in the Eastern Mediterranean from Istanbul to Rome, including stops at Troy, Ephesus, Rhodes, Athens, Heraklion, Chania, Messina, and Naples. In Rome Chuna was a guest at the Vatican Museum, explaining to them the spiritual significance of Yup'ik masks which their missionaries collected over a century ago.

OUR AMAZING STUDENTS
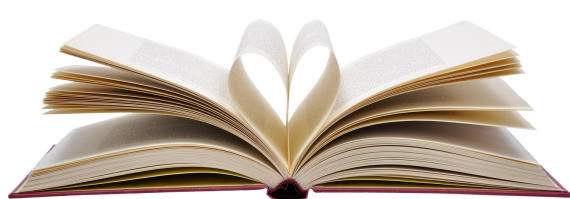
IN MEMORIAM ~ ANDRÉ

The Sonoma State Math & Stats community lost one of its beloved colleagues and friends, Dr. André Minor, in a fatal accident near his home on February 11, 2023.

André joined the SSU Department of Mathematics and Statistics faculty in 2013. Over the past 10 years he taught a variety of classes, sharing a deep enthusiasm for the subject matter and empowering his students with the confidence to learn mathematics at a high level. André was known by his students as one of the kindest, most passionate, and most knowledgeable instructors on campus.

At a memorial service for André in early March, Dr. Sam Brannen and two of André's students were among the gathered family and friends to share memories with the crowd. One of his students described a class session in which André showed a lengthy derivation of a formula for solving a differential equation. At the end of the derivation, he told the class, "As long as you know in your heart that it took a lot of work to get to this final formula, then you can use it without deriving it on homework and tests." The student shared how, from that day forward, she and her classmates drew a heart around the formula whenever they used it. André's contributions to the community at SSU go far beyond his excellent teaching. He was instrumental in the department's development of the new Calculus "stretch" course, which allows students to start learning calculus earlier in their college trajectory, and supports them in developing the technical skills they need in order to succeed in the class. André was also an active participant in the NSF-funded project "Transformative Inclusion in Postsecondary STEM: Towards Justice." His ideas will be part of our department's mission to increase inclusiveness and belonging in STEM for years to come. As a part of this effort, André co-authored a series of culturally-responsive activities for Calculus and helped design two Lesson Study projects that aim to rehumanize mathematics by focusing on students' experiences and cultural connections.

André graduated with a BA in Mathematics from UC Berkeley in 2006 and with a Ph.D. in Mathematics from UC San Diego in 2011. His area of specialization was complex analysis. While he could have applied for tenure track positions, he chose to work as a lecturer at SSU so that he could focus on taking over his family's vineyard and winery. He and his wife Tina welcomed their baby daughter Maisie into the world in early December, 2022. André was a proud and loving husband and father, and he shared his happiness with his colleagues and students.

Through his teaching, André touched thousands of lives; the world is a better (and more mathematically educated) place because of him. André's passing leaves an impossibly large void in our community and in our lives. He will be deeply and sincerely missed.

THANK YOU DONORS

Thank you to all who have made donations to our department. We have used these funds for various events and activities such as providing dinners for Math Colloquium participants, purchasing student memberships to Math & Stats organizations for our students, a new large whiteboard in the Math Lab, and providing lunch for Putnam Exam takers and Student Faculty attendees and presenters. Through your generosity, you have helped to build and enrich our Math Community.

For those who are interested in donating to our department, please go to the Sonoma State Homepage, click on "Give," Choose the School of Science & Technology, and select the Department of Mathematics & Statistics.