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SONOMA STATE UNIVERSITY

DEPARTMENT OF MATHEMATICS & STATISTICS



Newsletter

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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.

Department Chair Message

Our university continues to navigate challenges related to enrollment decline and budget cuts from the CSU system and state legislature. Last year, our former chair Dr. Sam Brannen wrote to you about an academic reorganization in which the university transitioned from 6 Schools, including the Library, to 3 Colleges with the Library standing as a separate unit. These changes officially took place as of July 1, 2024. It seemed like we were just getting settled into this new structure when in January of this year, SSU's Interim President Emily Cutrer announced a set of sweeping cuts that affects units from all sectors of the university. Most notably, 6 academic departments are set for closure at the end of the current academic year, 24 academic programs will be discontinued, and over 60 employees including faculty, staff, and managers were provided with layoff notices. Needless to say, this year has been an especially difficult time for our institution.

Despite these unfortunate circumstances, the department has had its share of joys to provide some balancing positivity to our year.

*We welcomed Shannon Edwards to our department in July 2024 as our new Administrative Coordinator. Shannon received her BFA from Sonoma State and was working as an Instructional Support Technician in the university's art department before joining Mathematics & Statistics. She also worked as the Art Studio Coordinator for Chop's Teen Club in Santa Rosa. Shannon brings a strong set of diverse skills to this position, and has already been a warm and welcoming presence for our students. We are thrilled to have her on our team, and hopefully for many years to come!

* We were honored by the establishment of the Chan Ross Endowment in Pure Mathematics by our generous emerita faculty, Jean Bee Chan, and her husband Kenneth Ross. This fund will allow us to continue to offer at least one talk in pure mathematics each semester through the M*A*T*H Colloquium series. Additionally, the endowment will provide post-talk pizza parties for our speaker and students a few times a year, and will support the annual Math Festival banquet. We offer our deep gratitude to Jean and Ken!

* One of our students, Bryce Iversen, received the 2024 CSU Trustees' Award for Outstanding Achievement. You can read more about Bryce's award later in this newsletter.

* The Department's Program Review was spearheaded by Drs. Ben Ford and Brigitte Lahme this year, and will culminate with a visit by external reviewers Dr. Dave Kung from St. Mary's College of California and Dr. Robin Donatello from CSU Chico. The self-study put together by Drs. Ford and Lahme highlight some successes of our program, including a reduction in the rates of students receiving D, F, or W grades (DFW rates) for those who complete one of our "stretch" math courses compared to previous developmental courses offered. Through the review process, the department has also identified some action items that we will be working on over the next several years. We look forward to sharing more details and updates with you in next year's newsletter.

Putnam Competition Report

Sam Brannen, SSU Putnam Supervisor

The 85th annual William Lowell Putnam Mathematical Competition was held on December 7, 2024. This year, 3,988 students from 471 institutions across the United States and Canada participated in the competition. Locally, SSU mathematics majors Christopher Cole, Adriana Galindo Silva, Luis Galvez Diaz, and Latasha Vasquez participated. Every year, participants are awarded a silk-screened T-shirt at the annual Awards Ceremony -- with the Hindu “behold” proof of the Pythagorean Theorem stenciled on the front.

The William Lowell Putnam Mathematical Competition has been held every year since 1937 (except for a few World War II years) under the auspices of the Mathematical Association of America. William Lowell Putnam, a member of an old established family from Boston, studied mathematics at Harvard. The Competition was established by his heirs to honor him by furthering intellectual competition among universities in North America. The Competition stresses creativity in problem-solving rather than rote knowledge of mathematics.

Mathematical Contest Modeling

Sonoma State had two student teams participate in the 2025 Mathematical Contest in Modeling (MCM), which is organized by the Consortium for Mathematics and Its Applications (COMAP). This international competition challenges teams of up to three undergraduate students to research, analyze, and report solutions to open-ended problems in applied mathematics over the course of a four-day, intensive weekend early in Spring semester.

Casey Hemphill, Sabikun Prioty, and Giancarlo Zertuche comprised the first team of SSU participants. These three opted to tackle a problem related to ecotourism in Juneau, Alaska. They were tasked with building a model for sustainable tourism in Juneau, considering factors such as number of visitors, overall revenue, and measures the city had taken (or could take) to stabilize tourism. Additionally, the group demonstrated how their model could be adapted to assess overtourism in another destination city of their choice. Ultimately, the team created a report for the Juneau tourist council to outline their predictions and to provide advice to the city, which included implementing a daily cap on total tourists and diverting tourism revenue to infrastructure and housing.

The second SSU team was Bella Bibayoff and Ash Rydell, who chose to develop a model for Olympic medal counts by country and type: gold, silver, and bronze. The team was also encouraged to consider the “Great Coach” effect, in which an individual serves as coach for one country’s team in one year, and then moves to coach a team from a different country in a later year.

The other problem option from this year’s contest was to develop a model that could analyze the wear patterns on a set of stairs in order to make conjectures about the frequency with which the stairs were used, whether foot traffic primarily traversed the stairs in one direction rather than another, and how many people used the stairs simultaneously.

Results for the 2025 MCM will be available online by early June.

Joint Mathematics Meetings 2025

The Department was well represented at the 2025 Joint Mathematics Meetings in Seattle in early January.

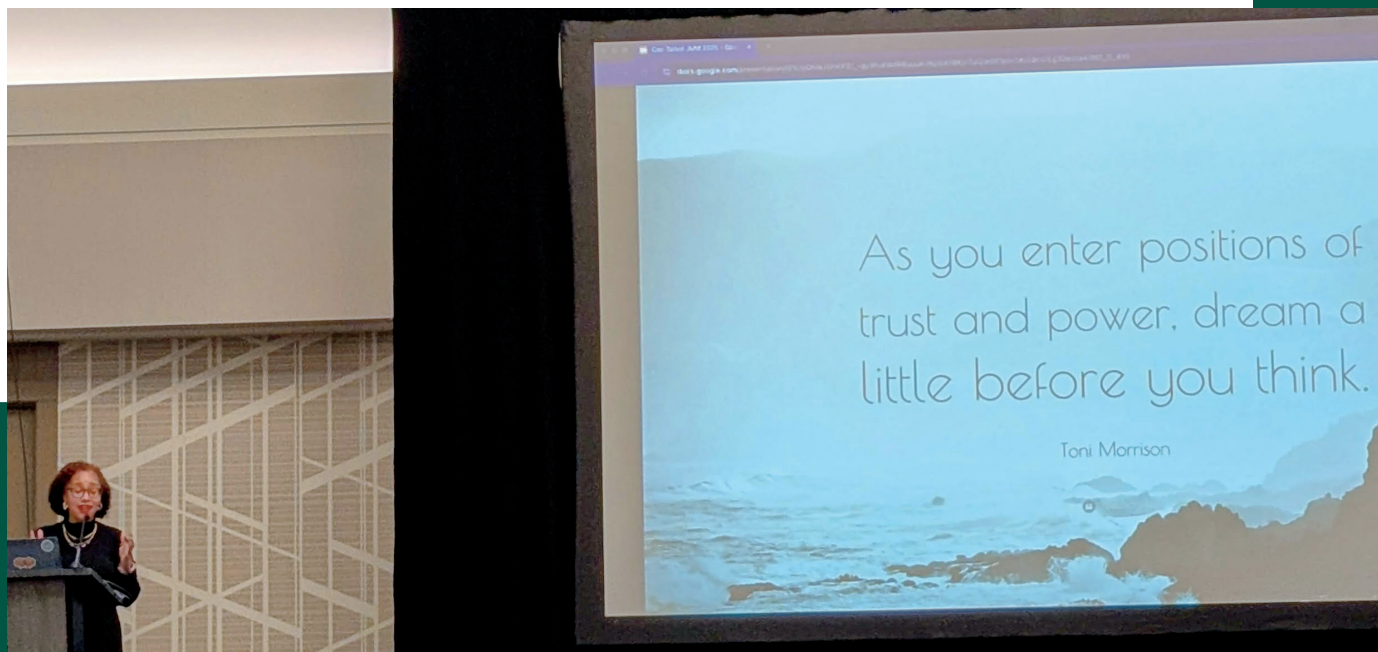
As you read in last year's newsletter, the Department has been putting a lot of effort into making the Department community and our disciplines into places where more and more students see themselves as belonging. Some long-standing commitments include leadership of the University's Louis Stokes Alliance for Minority Participation program and partnership with MESA (Mathematics, Science, Engineering Achievement).

A more recent effort is the NSF-funded TIPS (Transformative Inclusion in Postsecondary STEM) project, outlined in last year's newsletter. TIPS was highlighted in a full-day session at JMM called Transformation Models for Inclusive Student Experiences, co-organized by several leaders of TIPS and featuring talks by Ben Ford, Brigitte Lahme, and Omayra Ortega.

Prof. Ortega was also busy in many other ways at the meetings: She was co-organizer of the NAM-SIAM-AMS Special Session on Quantitative Justice, gave a talk "The Mathematics of Mathematics (#MetaMath): An Introduction and Some Examples" in the AMS Special Session on Algorithmic Approaches for Promoting Fairness in Machine Learning, and gave the prestigious NAM Cox-Talbot Address, titled "Who is the Conscience of AI?" at the annual National Association of Mathematicians banquet. She is pictured with one slide during that talk: "As you enter positions of trust and power, dream a little before you think." (Toni Morrison)

Alum Bethany Johnson (Pure and Applied Math, 2017) is an assistant professor at Cal Poly Humboldt (formerly Humboldt State University) and is among the leaders and designers of their new data science major; at JMM she was a panelist on the JMM Panel on Data Science in Undergraduate Mathematics Classrooms: Why and How?

In the undergraduate poster session, graduating students Ash Rydell, Andres Castellanos, and Bryce Iversen all exhibited posters from their summer 2024 Research Experiences for Undergraduates programs.





Bryce Iversen named a 2024 CSU Trustees' Scholar

Bryce Iversen, a pure and applied math major, was selected to receive the 2024 CSU Trustees' Award. The students selected for this honor have demonstrated outstanding academic achievement, significant personal accomplishments, and meaningful service to their campus or surrounding community. This year, 23 students from across the CSU system received this prestigious designation, which also comes with a financial scholarship.

In recent years, three of SSU's eight prestigious Trustees' Awards (one per year) have gone to Mathematics and Statistics majors. We are very proud that Bryce's accomplishments have allowed him to join this distinguished group of students. Since transferring to SSU from SRJC as a junior, Bryce has been actively engaged in research with Drs. Jerry Morris, Ben Ford, and Omayra Ortega; he has worked as a math tutor for the campus Learning and Academic Resource Center and has also contributed to our department's stretch math program as an embedded tutor. He is the outgoing Vice President of the Math & Stats Club, having served in that role for two years. Bryce participated in a competitive REU at Brown University last summer, where he studied the spread of bacterial disease among elderly populations in assisted living facilities. It should be no surprise to read that Bryce has also been admitted to several graduate programs, and so he will continue his mathematical career after graduating from SSU in May 2025.

WHAT I'VE BEEN UP TO THE LAST 10 YEARS

RICK LUTTMANN, PhD, PROFESSOR EMERITUS of MATHEMATICS

Hard to believe it's been over 10 years already since I concluded my active teaching for Sonoma State's Mathematics Department. Not that it's been at all boring. In fact, I'm doing so much that I wonder how I ever found time to teach!

I continue to be active professionally – editing, lecturing, tutoring.

I'm closing in on half-a-century as a volunteer Associate Editor of the Problem Section of the MAA's American Mathematical Monthly.

I have two jobs: 1) Vetting problem proposals that come in from readers, evaluating them for correctness, novelty, interest, level of difficulty, etc.; 2) Reading submissions from readers of solutions to published problems and choosing the best one for publication. It is a fascinating way to keep in touch with new developments in my favorite subject: Geometry. (I'm the Problem Section's go-to guy for Classical Geometry problems.)

I also lecture from time to time. I gave a lecture on "The Brocard Miracles" for the MAA Golden Section annual meeting at SRJC in February 2023. (I normally attend these annual meetings of the Golden Section, and did so in 2022 at Cal State Maritime and in 2025 at Mission College in addition to 2023.) I spoke for our own M*A*T*H Colloquium in the same month on "Measuring to the Stars: The Apotheosis of Trig", and a year later on "The Complexities and Dangers of Change of Scale". This was for the 100 th semester anniversary of the M*A*T*H Colloquium, which I am honored to say I kicked off back in September 1974 with the first lecture, which was on an almost identical subject ("On Being the Right Size"). And sometimes I lecture on non-mathematical subjects – I gave a lecture in December to the Unitarians on "A History of the SMART Railroad", and to Rotary Clubs on "Ranked Choice Voting".

Then there's tutoring. I've tutored indigent local students who need tutoring but can't afford one (my price can't be beat!). I've tutored my own nephews, one of whom is currently completing a PhD in Philosophy at Oxford University in England, and three of whom recently got technical bachelor's degrees, with my help through their math classes. Right now I have two students – and very different they are!

1) I'm tutoring a 15-year-old boy genius from Credo High, whose father took my Math 220 class two decades ago. He's already finished differential and integral calculus, so I'm tutoring him in Differential Equations.

2) I'm also tutoring a 78-year-old woman, whose son has a PhD in mathematics and works for the NSA (last we heard!). She always regretted that her command of mathematics was so weak that she could not share her son's evident enthusiasm for mathematics. So, I am slowly teaching her Classical Geometry – and she is doing me a wonderful favor by letting me teach her about the mathematical subject I find the most delightful and even perhaps the most miraculous. And finally she can talk with her son!

I'm also on the Board of the SSU Emeritus & Retired Faculty/Staff Association. I serve as its Treasurer, and until recently I was its "Communications Manager" and its representative on the Academic Senate.

I also volunteer for several environmental and social justice organizations. I am on the Advocacy Committee of the local League of Women Voters chapter, and am designated by the Committee as its "Transportation Champion", meaning I'm in charge of advising the Committee on up-to-date local happenings in the world of transportation. The League appointed me to be its representative on the Citizens Advisory Committee to the (recently re-named) Sonoma County Transportation and Climate Authorities. Since SMART plays such an important role in our local transportation services, I monitor the SMART Board meetings. And I'm also a member of the volunteer citizens group Friends of SMART. So I attend a lot of meetings!