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.

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GREETINGS FROM THE DEPARTMENT CHAIR

DR. SUSAN HERRING

As I returned to my office a few weeks ago, I saw that the calendar on my wall was March 2020. It was as if time had been frozen for the last two years. The global pandemic changed so many aspects of our lives, especially how we interact with each other. Students, faculty, and staff deserve great praise for how quickly they adjusted and continued the educational mission during these challenging times. Faculty pivoted to remote instruction on a moment's notice and successfully helped students complete their courses and stay on schedule to graduate. Students stayed focused on their goals and became Zoom experts. Staff shifted to assisting students via email and switched the old paper forms to online forms. Who would have known that we would become experts at Adobe Sign?

Just two years ago, Zoom reported that 10 million daily meeting participants logged on; today, that number has increased by 2,900% to 300 million. That is a stunning sign of how technology transformed our lives and made it possible for us to continue our mission while sheltering in place. Faculty, staff, and students showed their strength and resilience as we all pulled together knowing there was an end in sight. Our newsletter contains wonderful stories and features about our amazing community. Students and faculty have been busy math-camping at the popular Whiskeytown Lake Mathematics Congress in October, taking the Putnam Exam in December, and participating in the Expanding Your Horizons Conference. Faculty have continued to publish their research and attend conferences and workshops.

After two years of our annual Math Festival being remote, we will be in-person this year. We are eager to see you at the SSU Mathematics Festival on Wednesday, April 27 in celebration of our students. Throughout the day, there will be exhibits and puzzles on display as well as a poster session in the Darwin Lobby from 11:00 to 1:00. Professor Erica Walker will be the guest speaker at the M*A*T*H colloquium at 4:00 p.m. in Darwin 103. Following the colloquium, the Department and Math Club will host a dinner and awards ceremony beginning at 5:30 at Sally Tomatoes in Rohnert Park. At the dinner and awards ceremony, we will award prizes to students, including the Putnam Contest participants, as well as student memberships in various mathematical and statistical associations. We invite alumni and their guests to join staff and students for the afternoon activities and dinner. Reservations are required for the dinner. Please email math@sonoma.edu or call the department office at (707) 664-2368 for more information.
Why is it so hard to talk about race, gender, and other forms of social difference?

Where do we struggle with language in the classrooms?

Who are/were you not connected with in your classroom? Why not? What happened? What ownership can you take in this?

What parts of STEM (Science, Technology, Engineering, and Mathematics) culture (if any) might get in the way of our relationships with students?

Where can we make change?

These are some of the questions the faculty participants in “Transformative Inclusion in Postsecondary STEM: Towards Justice (TIPS: Towards Justice)” discussed during a 4-day workshop in August 2021. The workshop was the first step of the TIPS Pathway—a 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.

And so, in the summer of 2021, about 20 faculty members from the Math and Stats department (together with partners from other STEM departments) started tackling hard questions to learn about Latinx students’ experiences in our classrooms. Why might a student feel discouraged or marginalized to the point that they give up on their goal of becoming a scientist? What experiences affirm their identities and help them overcome challenges along the way? What can we, as instructors, do to humanize our classrooms and our disciplines?

These questions don’t have easy answers, and exploring them can be uncomfortable. Over the fall, the TIPS participants closely examined their practices under the guidance of Dr. Aris Winger (Assistant Professor of Mathematics, Georgia Gwinnett College). We reflected on questions, such as “Which of our students are we worried about?,” as well as shared the successes and failures of our respective practices (e.g., outreach to students). The TIPS Pathway continued in January with a 3-day workshop, Rehumanizing Mathematics, and Culturally Responsive Practices, led by
Rochelle Gutiérrez (Professor of Mathematics Education, University of Illinois) and Guadalupe Lozano (Associate Professor of Mathematics, University of Arizona). In the spring, teams of faculty are engaged in lesson study projects across three different courses: statistics, calculus, and reasoning and proof. In the lesson study, instructors carefully plan a lesson together, teach/observe the lesson, revise the lesson, and teach/observe another iteration of the lesson in another class. The focus is not on evaluating the teacher, but rather on studying if the lesson attained its goal—how did the students engage with the material? Did all students have access to the material and actively participate in the learning process? Each team incorporated a dimension of Gutiérrez’s Rehumanizing Mathematics framework—for example, “Windows and Mirrors.” The lessons are designed to give students the opportunity to see themselves in the material and in their classmates (mirrors) as well as to see out onto a new world that may not be familiar (windows). The four lesson study groups will share their experiences in an internal conference in May.

During the second year of the TIPS Pathway (2022–23), we will continue our work in a second round of lesson study. Our goal is to make more lasting changes to the curriculum and instructional practices in gateway courses that incorporate aspects of rehumanizing mathematics and cultural responsiveness. In addition, the department will investigate institutional barriers and opportunities to better support Latinx students during their education at SSU.

In parallel with the TIPS Pathway activities of cohort 1, the grant PI team of Brigitte Lahme, Omayra Ortega, Luis Leyva, and Ben Ford are currently talking with other STEM departments to assemble the second cohort for the TIPS Pathway.

In preparation for the NSF grant application in 2019, the team discovered that there was very little research in the area of equity and inclusion in undergraduate mathematics instruction with an explicit focus on Latinx students. One of the few researchers conducting studies in this area is Dr. Luis Leyva (Assistant Professor of Mathematics Education, Vanderbilt University).
Dr. Leyva and our own Dr. Martha Byrne, together with SSU and Vanderbilt student researchers, are conducting a study of Latinx students’ experiences of support and marginalization in mathematics courses. As part of the study, students and faculty in introductory mathematics classes regularly journal about interactions perceived as marginalizing or affirming among Latinx students. 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.

Several of our mathematics faculty, including Brigitte Lahme, Martha Shott, Natalie Hobson, and Carol Keig, volunteer their time and expertise to the cause.

The 2020 EYH event was twice postponed, each time with the hope that a return to an in-person workshop would be feasible. In 2021, it was clear to the planning committee that the event would need to be held in an online format in order to ensure participants’ safety. Thus, Zoom was the venue for the 2021 and 2022 workshops. In 2021, regional middle school students participated in a day-long event that included four STEM workshops, and in 2022 the planning committee opted to host a series of workshops across four Saturdays in March and April.

Started in 1976 at Mills College of Oakland, CA, Expanding Your Horizons (EYH) is now an annual national conference hosted at over 30 different locations. This program aims to increase the interest of young women in STEM-related disciplines by providing them with positive, hands-on experiences in science and math, introducing them to strong women role models in STEM, and broadening their awareness of the available careers that use math and science. Sonoma State and Santa Rosa Junior College have co-hosted the Sonoma County EYH event for many years.
The 82th annual William Lowell Putnam Mathematical Competition was held on December 4, 2021. There were 2,975 participants from 427 institutions across the United States and Canada. Sonoma State’s Mathematics Department fielded a team, as usual. Salvador Ochoa Zavalza, Sierra Barnachea, and David Evans participated. At the annual Awards Ceremony all participants will be awarded a silk-screened T-shirt 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.

The Wine Country Math Teachers’ Circle is coming back in Fall 2022!

Before everything shut down in March 2020, the WCMTC was meeting monthly through the academic year. K-12 teachers from around Sonoma County gathered with SSU faculty and students to work on fun math questions over dinner.


What more could you want? Keep on the lookout for details about dates and times and an awesome launch event!

If you want to make sure you don’t miss any news, sign up for our email list here: https://tinyurl.com/WCMTCSsignup

Questions? Email Dr. Martha Byrne: byrnema@sonoma.edu.
A random time sequence of successive point events is referred to as a point process. There are many examples of point processes that exhibit a pattern of periodicity or almost periodicity. For instance, the IBM stock transaction activity is known to exhibit a noticeable higher volume of trading activity at both the beginning and the ending of each trading day and a low rate of trading towards lunch hour. The pattern of trading activity does not repeat exactly, but rather it repeats almost exactly. In such a case, having a method of estimating almost periodicity in point process data becomes an interesting problem. Dr. Keh-Shin Lii and Dr. Rodrigo Gaitan propose a mostly Bartlett periodogram-based approach to estimating almost periodicity for a non-stationary point process. On February 04, 2021, they published their results in the Journal of Time Series Analysis (JTSA, https://doi.org/10.1111/jtsa.12585). Dr. Lii and Dr. Gaitan are currently in the process of extending the results from their JTSA paper to more general point processes.

Interested in studying probability models that model a series of random events that occur over time?

Please contact Dr. Rodrigo Gaitan if you are interested in learning about introductory stochastic processes (Markov Chains, Poisson Process, and Renewal Processes). If there is enough interest, he will teach the introductory stochastic processes course as a special studies MATH 495 course with a prerequisite of MATH 345 (Probability Theory).

When our Sonoma Seawolves suddenly transitioned into remote learning at the start of the pandemic, our Math and Stats Club stepped up to facilitate social support and connection between classmates. In Fall 2021, the clubs sponsored a “Family-Feud” style trivia event based on a survey of our students and faculty.
Students broke into two teams and competed for points as Professor Kyle Falbo ran a Family Feud powerpoint complete with graphics and hilarious sound effects!

Throughout the 2021-22 academic year, the club officers also planned virtual movie nights and promoted a departmental Discord server, which not only served as a substitute for the community math lab, but also gave students a chance to connect more casually with their peers.

Now that the university community is repopulating campus, the Math and Stats Clubs have been enjoying face-to-face meetings on a biweekly basis. In Spring 2022, common activities include Math Pictionary and Brain Games, as well as time to work on homework or projects, which often take place on our outdoor Jean B. Chan Math Deck. The clubs coordinated a fundraiser with Roundtable Pizza, whereby Pi Day enthusiasts could dine on these circular delights knowing that a portion of their bill would be diverted to the Club funds. On Cinco de Mayo, please join the clubs for Conchas y Cafe on our Jean B. Chan Math Deck from 11 am to 1 pm.

You can follow our Clubs in real time via Instagram: @ssumathclub.

Early each year, the Consortium for Mathematics and Its Applications (COMAP) hosts an international competition for undergraduate students. The Mathematical Contest in Modeling (MCM) challenges teams of up to three students to research, analyze, and report solutions to open-ended problems in applied mathematics over the course of four intensive days.

In early 2020, six recent graduates teamed up in two teams of three to analyze an online retailer’s 5-star rating system as a means of providing optimal customer recommendations and informing other marketing decisions. Joseph McGuire, Jorge Ruiz-Gonzales, and Thomas Mitchum formed one team, while Hugo Barajas, Nicholas Bostow, and Steve Hernandez formed another. Both teams received the “Successful Participant” designation for their work.
After a year on hiatus due to the pandemic, faculty and students again returned to the beautiful Dry Creek Group Campground on a peninsula in the beautiful Whiskeytown Lake National Recreation Area. In fact, we hadn’t been back to Whiskeytown since 2017, when the Carr fire in July 2018 burned most of the park and closed it for three years. This year, we found many reasons to be grateful and to celebrate our return. Held on the weekend of Oct 1–3, 2021, this math conference provides great opportunity for adventure: cool math, rustic camping, kayaking, swimming and hiking, and a celebratory campfire party.

This year, our very own Ben Ford and Brigitte Lahme prepared the afternoon Discussion under the Oaks with an interactive workshop titled “How do we serve all our students?” Martha Byrne co-led the discussion. Questions sparked lively conversations about which practices and approaches to our mathematical/statistical disciplines broaden the range of students who feel they belong in our department and produce more equitable outcomes. These three faculty are deeply involved in our TIPS Towards Justice work that you’ll read about elsewhere in this newsletter. Other talks covered topics on data science education in the CSU and an introduction to low-dimensional topology. Elaine Newman is one of the co-organizers of the event.

Food and fun are also essential to any Whiskeytown event. Bringing back 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 we haven’t seen for a few years. Many folks took advantage of the warm afternoon to hike, swim or kayak.

Old-timers might also note the change of name for this conference. Since 1972, the conference had been known as the State of Jefferson Mathematics Congress with a quirky nod to the geographical location of the participants and the region’s history. In recent years, as the political climate around
the name “State of Jefferson” has grown increasingly divisive and polarizing, the organizers and participants held conversations about the name change, resulting in our new name “Whiskeytown Lake Mathematics Congress”.

The Whiskeytown Lake Mathematics Congress is held each year on the weekend with the first Saturday in October. The 2022 Congress will be held Sept 30 – Oct 2. You can find many photos of past events and information about upcoming programs at https://sites.google.com/view/wlmc/home?authuser=0

We are eager to see you at the Mathematics Festival on Wednesday April 27 in celebration of our students. After two years of our annual Math Festival being remote, we will be in-person this year. Throughout the day, there will be exhibits and puzzles on display as well as a poster session in the Darwin Lobby from 11:00 to 1:00.

Professor Erica Walker, Teacher College, Columbia University, will be the guest speaker at the M*A*T*H colloquium at 4:00 p.m. in Darwin 103. The talk will be of interest to everyone as seen by Dr. Walker's abstract:

“In this talk, I share how storytelling, used to great effect in other disciplines, can be a wonderful asset for the mathematics education of people of all ages and interests. Based on 25 years of research and teaching, working with children and adults alike, I describe the importance of storytelling for learning rich mathematics content, socializing people as mathematics ‘doers’, and contributing to the creation of welcoming, inviting spaces for mathematics, within and beyond schools.”

Following the colloquium, the Department and Math Club will host a dinner and awards ceremony beginning at 5:30 at Sally Tomatoes. At the dinner and awards ceremony, we will award prizes to students,
including the Putnam Contest participants, as well as student memberships in various mathematical and statistical associations. We invite alumni and their guests to join staff and students for the afternoon activities and dinner. Reservations are required for the dinner. Please email math@sonoma.edu or call the department office at (707) 664-2368 for more information.

ALUMNI UPDATES

COMPILED BY DR. BEN FORD

Mike Fitzpatrick (1991): Retired!


Libbie Coronado (2003): Got a MA in Economics at Sacramento State. Worked in the energy sector forecasting demand of all fuel sources until 7 years ago. Now I'm a Senior Statistician for the City and County of San Francisco by title but am an Emergency Manager running citywide Logistics. Happily married to my husband I met while at SSU and mother to 3 amazing kids.

Jennifer Flory (2003): Math and Hutchins/Liberal Studies) loved her time as an elementary school volunteer, summer program director, mathematics instructor (high school and college), and administrator. All these experiences, along with her educational experience at SSU, allowed her to find her true passion as an educational consultant in assisting school districts with data analysis, presentations to stakeholders, and strategic plan summary and evaluation reports. She truly appreciates her time at SSU in the Mathematics Department, especially working with all the amazing professors and engaging with classmates in the Math Lab.

Jennifer also offers Notes to current students:

- You get out of education what you put into it
- Collaboration, discussion, and problem-solving are cornerstones to every single job you will want to do. The Math Lab truly made a difference to enhance this experience for me.
- Take intro to programming classes (the basics will help you in everything that you will do)
- You may not use everything you learn in mathematics in your future career, but the processes you use to solve hard problems, organize your thinking, and communicate your thoughts to others will be the most valuable thing you take away."

Andrew McFarland (2003): reports from Poland where he, his wife Joanna, and their two children are observing the effects of the Ukraine war more starkly than those of us in California. He works in software.

Steven Moore (2007): Class of 2007 here! I'm in my 15th year of working at Apple, happily married and spending my time between homes in Austin, TX, and Colchester, VT.

Nicole Day (2010): I earned my credential and then moved back to Colusa County to teach. I changed school districts this year, now teaching in the district I spent K and 1st in. My little girl is going to start kinder there next year! This is my tenth year teaching!

Martine Miller (2014): I got my master's degree in statistics from CSU East Bay in 2018. I am now working for the County of Marin as a Business/ERP Systems Analyst. I'm engaged and getting married later this year! Living in Santa Rosa with my fiancé and our new rescue dog!

Haley Othart (2014): After graduating from SSU in 2014, I earned my master's degree and teaching credential from the University of California, Berkeley. In 2017 I moved to Clovis, got married, and started teaching at Clovis West High School. I am currently in my sixth year of teaching and am teaching Math 1 and AP Statistics. I am also the Math 1 lead at my school. In addition, I welcomed a baby girl in April of 2020. I hope all is well.

Daniel Simonson (2014): just defended his Ph.D. dissertation, also at UC Irvine. His work is in the modeling of complex social phenomena, and opinion dynamics. Congratulations!

Jacob Holman (2015): I got my masters in Stats and now I'm working for a Real Estate Consulting company on the forecasting team! Living with my lovely wife and dog in our house in Lodi.

Phoebe Roddewig (2015): Credential program class of 2016. After that, I got a master's degree in pure math at SJSU. I'm married and living in Livermore. I just recently started working with Delta Charter High School in Tracy CA. I'm with their online high school and credit recovery program.

Rian Lynam (2016): I got my teaching credential at SSU in 2018 and have been teaching middle school math in Tiburon ever since! Personally, I got married in 2018 and had my daughter in October of 2020!

Kelsey Maria (2016): I got my teaching credential from SSU in 2017. I have been working as a high school math teacher in Woodland for the past 5 years!
Megan Mueller (2016): Graduated with a Mathematics Degree concentration in Secondary Teaching. Taught for 4 years in the East Bay, moved to the Sacramento area, and am now teaching middle school in Roseville, CA for my 5th year!

Ruby Suarez (2016): got married in March!

Chase Overholt (2020): I am working for a wealth management and tax preparation firm in SR. I trade the market all morning and prep returns in the afternoon. It’s been really fun applying mathematical concepts to the investment world and surprising my CPA/CFP colleagues with math! #ClassOf2020

Fabian Ramirez (2021): Finishing his first year in the Ph.D. program at UC Irvine and has just been awarded a very competitive Graduate Research Fellowship by the National Science Foundation, which will support the remainder of his graduate studies. Congratulations!

Bill Barnier sends a brief update from renewed travels: “I have not been doing much math except to work an occasional problem or consider Covid data. I have enjoyed concerts, mostly at the GMC, but am only now on my first big trip in two years. This reply is being written from a hotel room in Florence, It. After this week in Italy, I will spend four nights in Paris and return home. Masks and vaccination cards are required.”

Jean Bee Chan is still active in the Asian American Alliance of Marin (AAAM) which she founded to promote social justice, tolerance, and equity. Chan also helped to develop a new organization called Asian American Pacific Islanders Corporation of the North Bay (AAPIC NB) that will work with AAAM for similar goals.

On March 26, 2021, she organized and led a big rally of 200 supporters in San Rafael, CA, opposing increasing anti-Asian violence. See photograph.

During Spring and Fall, 2021, the choral group Dragon Singers, in which Chan participated, gave two virtual concerts, available on youtube under Dragon Singers. The group will hold an in-person but masked concert on August 27, 2022, in Berkeley. Contact the Department Office if you are interested in attending.

An old and renewed interview of Chan was published in the August-September issue of MAA Focus in 2021. See photograph.

Rick Luttmann: I continue to be so busy I wonder how I ever fit in time for teaching! I’m active with the Emeritus/Retired Faculty/Staff Assn. I’m on the Board, I’m the Treasurer, I’m the Communications Manager, and I represent Retired Faculty on the Academic Senate.

I am still an editor for the Problem Section of the American Mathematical Monthly -- after 44 years! 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 give occasional public lectures, for example, to local Rotary Clubs on Ranked Choice Voting, and to the Robert Ferguson Observatory at Sugarloaf State Park on "Measuring to the Stars: The Apotheosis of Trig" (a lecture I've given for M*A*T*H). I also attend occasional professional conferences, including the Golden Section Annual Meeting, and the State of Jefferson Mathematical Congress at Whiskeytown Lake.

I volunteer as the point person on Transportation Issues 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.

I continue to try to find time every day to play the piano.

Chuna and I have been to Hawai‘i several times in the past year. We are looking to buy a pied a terre in Kaua‘i. We are scheduled to show our Ni‘ihau shell lei collection for three months this winter at the Kaua‘i Museum. Meantime I am helping Chuna curate a new show at the Heard Museum in Phoenix on the spiritual culture of several Native American communities, so we travel to Phoenix occasionally. We were scheduled to go on a cruise for two weeks around Britain and Ireland from London to Bergen, but we decided to cancel due to too much uncertainty -- the continuing pandemic that won't die, the Russian invasion of Ukraine, anti-Asian violence (Chuna is often taken for Asian), etc.

Rick Marks reports that he and Joyce are enjoying kids and grandkids, lots of traveling, and living near the boardwalk in Santa Cruz. Rick is about to publish another cryptic crossword, with a Spring theme.

Tom Nelson: I enjoy being retired. My health is good, but not as good as it was 50 years ago. I spend most of my time reading and doing exercises (swimming and stationary bike). I read books (mysteries and histories and political books), and magazines (New Yorker and The Week).
LAST YEAR IN PHOTOS
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