UCLA DEPARTMENT OF MATHEMATICS

**UCLA
CURTIS
CENTER**

2022

MATHEMATICS
&TEACHING

VIRTUAL CONFERENCE

Saturday, March 5, 2022

9am–3pm PST Online

WELCOME!

We enthusiastically welcome you to The Curtis Center's 15th Annual Math and Teaching Conference! This year, our conference is virtual and includes an incredible lineup of speakers who will engage you with the theme of Catalyzing Change: World Class Mathematics for All. During this day of meaningful and relevant talks by current teachers, research mathematicians and mathematics educators, we will work together to improve the mathematical experiences of all K-12 students. We hope you find the conference helpful and inspiring, as you continue your amazing work of supporting students at your schools.

Warm wishes,

Heather Dallas
EXECUTIVE DIRECTOR

THE UCLA CURTIS CENTER

The UCLA Curtis Center is a group of K-12 and university mathematics enthusiasts who are working together to ensure a world class mathematics education for ALL students.

Currently, we:

▶ Provide opportunities for K-12 teachers to deepen their understanding of the mathematics they teach, extend their knowledge of mathematics, and learn how to apply their mathematical knowledge to the work of teaching.

▶ Train undergraduates for careers in mathematics education.

▶ Develop mathematics assessments focused on problem solving, communicating reasoning, and application of mathematics.

▶ Write high quality mathematics activities for students in local schools to give them a view of mathematics as a creative reasoning and problem solving activity with intrinsic beauty and meaningful application.

THE UCLA SITE OF THE MATHEMATICS DIAGNOSTIC TESTING (MDTP)

MDTP is a joint CSU/UC project that develops diagnostic and written response assessments designed to measure students' preparedness for mathematics course work from grades six to calculus. MDTP assessments are purposefully developed and validated by MDTP Workgroup members which include faculty from CSU, UC, community colleges, and secondary schools. Teachers are supported by eight regional MDTP sites located at CSUs and UCs. MDTP site directors and staff assist teachers to access and administer MDTP online and paper testing and offer local data workshops and training to interpret and use MDTP diagnostic data formatively, all free of charge. The MDTP Assessment System helps teachers and students focus on topics, skills, and conceptual understanding support students to succeed in learning collegiate mathematics. During the COVID-19 pandemic, MDTP offers remote testing. The UCLA MDTP site serves Los Angeles and Ventura counties.

Victor J. Glover, Jr.

Captain, U.S. Navy, NASA Astronaut

A Journey from Ontario High School Mathematics Student to NASA Astronaut

The Curtis Center is honored and excited to have U.S. Navy Captain and NASA astronaut Victor J. Glover, Jr., the first Black astronaut to live on the International Space Station as part of a long-duration mission, as a keynote speaker for our 15th annual Mathematics & Teaching Conference. Victor will share his journey from local Southern California public school mathematics student to California State Polytechnic University, San Luis Obispo general engineering student, to Pilot and second-in-command on the Crew-1 Space X Crew Dragon, named Resilience. His presentation will help inform and inspire The Curtis Center's Applied Mathematics Mentorship Program (AMMP), a Gates Grand Challenge for Algebra 1 grant, which aims to rehumanize mathematics for South LA Black and Latina/o students by engaging them on small research teams mentored by STEM professionals of color. Victor's lived experiences provide meaningful insight about the importance of teamwork and mentorship in increasing student access to STEM careers.

VICTOR J. GLOVER, JR. was selected as an astronaut in 2013 while serving as a Legislative Fellow in the United States Senate. He most recently served as pilot and second-in-command on the Crew-1 SpaceX Crew Dragon, named Resilience, which landed May 2, 2021. It is the first post-certification mission of SpaceX's Crew Dragon spacecraft – the second crewed flight for that vehicle—and a long duration mission aboard the International Space Station. He also served as Flight Engineer on the International Space Station for Expedition 64.

The California native holds a Bachelor of Science in General Engineering, a Master of Science in Flight Test Engineering, a Master of Science in Systems Engineering and a Master of Military Operational Art and Science. Glover is a Naval Aviator and was a test pilot in the F/A 18 Hornet, Super Hornet and EA 18G Growler. He and his family have been stationed in many locations in the United States and Japan and he has deployed in combat and peacetime.

John SanGiovanni

Mathematics Coordinator, Howard County Public Schools (Maryland)

TEACHING FLUENCY WITH ADDITION AND SUBTRACTION BEYOND BASIC FACTS

PEDAGOGY, GRADES 2-5

Fluency is complex. Teaching it is challenging. Teaching it equitably is non-negotiable. This session takes a deep dive into fluently adding and subtracting within 100 and 1,000 representing Common Core Math Standards 2.NBT.5 and 3.NBT.2 respectively. The session unpacks the reasoning strategies based on place value, properties of operations, and the relationship between addition and subtraction. Teaching strategies for instruction, student practice, and assessment will be featured through classroom-ready resources. Note that learning from this session can be easily adapted to addition and subtraction with fractions (4.NF.3, 5.NF.1) and decimals (5.NBT.7).

JOHN SANGIOVANNI is a nationally recognized leader in mathematics education. He works in Howard County, Maryland leading mathematics curriculum design, digital learning, assessment, and professional development. John is an author of more than twenty books about teaching and learning mathematics and consults nationally for curriculum development and professional learning.

Dr. Karen Fuson

Professor Emerita, School of Education and Social Policy
Northwestern University

TEACHING THE BEST COMPUTATION METHODS

RESEARCH & RECOMMENDATIONS, GRADES K-5

Students and teachers can understand and become able to explain multidigit adding, subtracting, multiplying, and dividing using methods that are more accessible and more mathematically desirable than many methods now taught around the world including in the United States. Sense-making strategies discussed in this talk can reduce errors and engender understanding by students and by teachers. These methods were invented by students and then implemented in many kinds of classrooms to ensure that they are accessible to teachers and students. The methods are mathematically desirable: They generalize to larger numbers and to decimal computation, and they are particularly accessible versions of the standard algorithms.

DR. KAREN C. FUSON is a Professor Emerita at Northwestern University and has published over 80 articles in mathematics education. She is an author of the K-6 Math Expressions curriculum and numerous NCTM publications. Dr. Fuson is also a CCSS-M writing team author and advisor to the Smarter Balanced Assessment Consortium.

Julian Rojas

Secondary Mathematics Specialist
UCLA Curtis Center for Mathematics & Teaching

THE KIBBLE MYSTERY

PEDAGOGY, GRADES 6-8

Come explore a classroom-ready task to support students in understanding the connection between unit rates and linear equations. In this session, we will engage in an eighth-grade mathematics task that builds on our ratio reasoning skills and apply our knowledge of functions (8.F.4) to develop a mathematical model and solve a real-life [kibble] mystery… we will investigate whether a pet sitter overfed a golden retriever named Allie while her owner was away on vacation.

JULIAN ROJAS holds a Master of Arts in Education and a Bachelor of Science in Mathematics for Teaching from UCLA. He had several years of middle and high school practitioner experience teaching mathematics, engineering, and computer science in public and private schools in Los Angeles before joining The Curtis Center full time in 2020. Julian's career has been marked by advocacy for under-served, marginalized and at-risk communities including liaison work to the Spanish speaking community and Diversity Equity and Inclusion work. He has also presented at Twitter Math Camp where he shared his school's approach to Standards-Based Grading. Julian currently provides mathematical and pedagogical training to mathematics teachers across the State of California.

Dr. John Sarli

Professor Emeritus, Department of Mathematics
California State University, San Bernardino

Dr. Wally Etterbeek

Professor Emeritus, Department of Mathematics & Statistics
California State University, Sacramento

PREPARING FOR HIGH SCHOOL GEOMETRY

RESEARCH & RECOMMENDATIONS, GRADES 6-10

The transition from middle school to high school geometry can be difficult for students because the exploratory approach in Grades 6, 7, and 8 begins to be formalized with definitions and proofs. We will have a conversation about this situation, particularly as it regards proper terminology and preparation for the study of transformations. Participants will engage in some constructions from Euclidean geometry and will be asked to discuss the assumptions that underlie the procedures. A few proofs appropriate to beginning high school geometry will be presented.

JOHN SARLI began teaching at CSU San Bernardino in 1983 and chaired the Department of Mathematics from 1988-1994. His research is in the geometry of Lie-type groups and, since 2012, hyperbolic (non-Euclidean) geometry. From 2002 to 2020 he was Chair of the CSU/UC Mathematics Diagnostic Testing Project test-design workgroup.

WALLY ETTERBEEK is an emeritus Professor of Mathematics from CSUS retiring in 2003. He was a member of the MDTP from 1979 until his retirement. Since retirement he has worked with The Curtis Center evaluating, editing, and grading Smarter Balance Performance Tasks. In addition, he is the statistician for the MDTP and as a part time faculty at CSUS he teaches statistics and calculus.

Dr. Giovanna Llosent

Professor and Workgroup Chair of the CSU/UC Mathematics Diagnostic Testing Project (MDTP), California State University, San Bernardino

USE MDTP DIAGNOSTIC DATA AND OPEN RESPONSE ITEMS TO BRIDGE UNFINISHED LEARNING

RESEARCH & RECOMMENDATIONS, GRADES 6-12

Join this session to learn how to use MDTP diagnostic results to learn what students know and how MDTP open response items can be used to unpack misconceptions and reengage students in learning experiences that bridge understanding to their current course work. This content is appropriate for all secondary math educators (6-12).

*MDTP is a free assessment system to all California secondary math educators.

DR. GIOVANNA LLOSENT is a Professor of Mathematics at CSU San Bernardino and the Workgroup Chair of the CSU/UC Mathematics Diagnostic Testing Project (MDTP). Giovanna earned her Master's in Mathematics in Costa Rica where she worked as a secondary mathematics teacher for eight years. She earned her Ph.D. in Mathematics from the University of Iowa and has been in her current role at CSUSB since 2007.

Michelle Welford

Director of Assessment
UCLA Curtis Center for Mathematics & Teaching

SHAMIR SECRET SHARING: APPLICATIONS OF POLYNOMIALS IN ENCRYPTION

PEDAGOGY, GRADES 9-12

Sometimes a secret is SOOOOO important, such as missile launch codes, that no one person should have direct access to it. Shamir's Secret Sharing (SSS) is a key distribution algorithm, named for the well-known Israeli cryptographer Adi Shamir. SSS encrypts a secret and generates clues, called shares, that are then distributed to a group of people who are allowed access to the secret. When that group of people bring their shares (clues) together, they are then able to figure out the secret. Let's investigate the mathematics (HS.A.CED.2, HS.A.REI.6, HS.A.REI.10, HS.F.IF.2) behind how this works! This lesson is easily adaptable for students in Algebra, Algebra II or Pre-Calculus.

MICHELLE WELFORD holds a Bachelor's degree in Mathematics, a Master's in Education and is a Nationally Board Certified Teacher. She taught high school mathematics for 10 years during which time she wrote her own Geometry and AP Statistics curriculum. Her efforts significantly improved student access to success on the AP Statistics exam, with pass rates increasing from 20% to 94% after she took over the program. Michelle also served for five years as an instructional coach for the Los Angeles Unified School District during which time she also wrote professional development curriculum in geometry for the UCLA Mathematics Department. Michelle was Co-Director of the 2015-2017 Smarter Balanced Performance Task Project during which time she was pivotal in the development of 168 mathematical modeling tasks used in summative assessments across 21 US States. As Director of Assessment for The UCLA Curtis Center, she continues to lead a team of educators and mathematicians from across the United States in writing performance tasks for the Smarter Balanced assessment.

Dr. Mary Pilgrim

Associate Professor, Department of Mathematics & Statistics
San Diego State University

Dr. Charles Wilkes II

Postdoctoral Scholar, Department of Mathematics & Statistics
San Diego State University

DISRUPTING UNPRODUCTIVE NARRATIVES IN MATHEMATICS EDUCATION THROUGH TEACHER BELIEFS AND PRACTICE

RESEARCH & RECOMMENDATIONS, GRADES 9-12

In this session we will show research that captures how students think about what it means to be a mathematician and a doer of mathematics, as well as what entails seeing the strengths and assets that students bring into classrooms. Additionally, we will show video clips of moments in classrooms where teachers use their discretion to communicate messages to students about what it means to be smart and who is smart. In addition, through several different activities we will discuss the beliefs that we have as educators with respect to mathematics and our students, ways that practices can reinforce and negate problematic ways of being, and name specific moves and practices that can counter problematic narratives. In closing, we will provide future recommendations for research that entail understanding the trajectories of teacher's practice that is more inclusive and equitable.

MARY PILGRIM is an Associate Professor of Mathematics Education and Director of the Math & Stat Learning Center at San Diego State University. Her research area is on the use of evidence-based practices in post-secondary education through professional development with a focus on long-term change and sustainability.

CHARLES WILKES is a postdoctoral researcher working on the Math Persistence through Inquiry and Equity (MPIE) project. His work focuses on the experiences of Black learners in mathematics and equitable teaching practices. Specifically, his work has focused on how teachers build one-on-one relationships with students through mathematical content, Black learners' conceptions of smartness, how Black learners are positioned in mathematics courses, and how teachers signal messages about smartness through their practice.
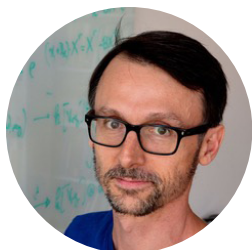
Dr. Raphael Rouquier

Professor, Department of Mathematics, UCLA

THE GAME OF NIM

MATHEMATICS FOR TEACHERS, GRADES K-12

Nim is a two-player game that can be played as early as in Kindergarten, but that can remain challenging for all K-12 students. After identifying a winning strategy in the most basic version of the game, the need to adapt the strategy for variations of the game lead to identifying mathematical structures involving modular arithmetic. The Nim numbers play a central role in combinatorial game theory and provide a field where all (quadratic) equations can be solved.

PROFESSOR ROUQUIER received his PhD in mathematics from the University of Paris VII and joined the UCLA Department of Mathematics in 2012. He is a member of the UCLA Mathematics Department's Equity, Diversity, & Inclusion Committee. He was awarded the Whitehead Prize in 2006 and the Adams Prize in 2009 for contributions to Representation Theory.

Dr. Andrea Bertozzi
Professor, Department of Mathematics, UCLA

Dr. Guido Montúfar
Assistant Professor, Department of Mathematics, UCLA

Dr. Marcus Roper
Professor, Department of Mathematics, UCLA

WHAT IS DATA SCIENCE? PERSPECTIVES FROM PRACTICING DATA SCIENTISTS

As K-12 math educators consider how to best prepare students to pursue STEM careers in the modern workforce, discussions around data science have become increasingly common. In this session, a panel of three professors from the #2 nationally ranked UCLA Applied Mathematics Group will answer moderator and audience questions around data science including:

▶ What is data science?

▶ What could/should K-12 mathematics instructors do to prepare students for college work with data science?

▶ Should K-12 student mathematics experiences include data science? If so, what should those experiences be?
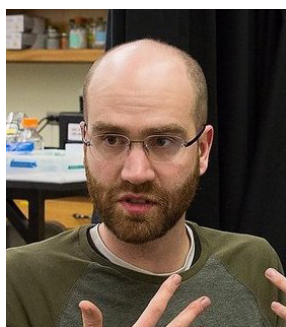
ANDREA BERTOZZI received her PhD in Mathematics from Princeton University and joined UCLA in 2003. She is an applied mathematician recognized for her work in nonlinear partial differential equations and in graphical models for data science. She has expertise in fluid interfaces, swarming models, and crime modeling. She was the Maria Geoppert-Mayer Distinguished Scholar at Argonne National Laboratory in 1995-96 and was on the faculty in both Mathematics and Physics at Duke University from 1995-2003. She currently holds the position of Distinguished Professor of Mathematics and Mechanical and Aerospace Engineering, Director of the Applied Mathematics program, and the Betsy Wood Knapp Chair for Innovation and Creativity. She is a fellow of the American Physical Society, American Mathematical Society, and the Society for Industrial and Applied Mathematics. She was a Clarivate Analytics/Thomson-Reuters "highly cited" researcher in Mathematics in 2015 and 2016. She is a Simons Math + X investigator since 2017 and is a Fellow of the American Academy of Arts and Sciences since 2010.

GUIDO MONTÚFAR earned his Ph. D. in mathematics from Leipzig University and joined the UCLA Departments of Mathematics and Statistics in 2017. In addition to teaching mathematics and statistics, he leads the Mathematical Machine Learning Group – centered at UCLA and the Max Planck Institute for Mathematics in the Sciences, in Germany – works on deep learning theory and mathematical machine learning. Through investigations of the geometry of data, hypothesis functions and parameters, he and his team are developing the mathematical foundations of deep learning and improving learning with neural networks. Montúfar is the recipient of a starting grant from the European Research Council and a CAREER award from the National Science Foundation, and he serves as research mentor with the Latinx Mathematicians Research Community. He and his team have organized a weekly online math machine learning seminar since 2020.

MARCUS ROPER earned his Ph. D. in mathematics from Harvard University and joined the UCLA Mathematics Department in 2010. In addition to teaching mathematics, he conducts research in mathematical problems coming from physics and biology. He is particularly interested in fungal mycelia, the microvascular system and design and optimization of inertial microfluidic devices. Professor Roper has collaborated with The Curtis Center by editing mathematics and physical science lessons written by teachers in the Center's California Math Science Partnership Grant with Glendale Unified, editing K-12 lessons written for use with Magformers, magnetic polygons used as concrete models in instruction, as well as speaking to teachers about current mathematical research. In addition, Professor Roper supports the development of future teachers by serving as the advisor to undergraduate math majors studying to be future high school teachers as they engage in summer research in applied mathematics.

Kelly Ann Sassone

Teacher, Da Vinci Schools
Elementary Mathematics Specialist
UCLA Curtis Center for Mathematics & Teaching

USING LESSON STUDY TO SUPPORT YOUNG CHILDREN'S MATHEMATICAL THINKING

PEDAGOGY, GRADES K-2

In this session, I will share how I used Teaching Through Problem Solving (TTP) to engage my early elementary school students in discovering the attributes of rectangles, squares, and circles in an authentic and engaging way. I found that with this method, my students thrived as they not only recognized shapes but also authentically discussed the attributes of rectangles and squares in a meaningful way and applied their new knowledge to novel contexts. The session will span the progression of K.G.4 to 1.G.1 to 2.G.1.

KELLY ANN SASSONE currently teaches kindergarten at Da Vinci Connect and is an elementary math specialist at the UCLA Curtis Center. She also teaches Math 74SL at UCLA, which aims to facilitate student development of the professional mathematical and pedagogical understandings required to teach California's K-5th grade mathematics curriculum through both coursework and fieldwork in local classrooms. She has been teaching for 16 years and has presented at various conferences around the state.

Dr. Sucharit Sarkar

Professor, Department of Mathematics, UCLA

KNOTTED ROPES AND FRACTIONS

MATHEMATICS FOR TEACHERS, GRADES K-8

One of my research areas is knot theory, which is the branch of mathematics that studies how ropes can be knotted in space. The objects one studies are very simple, yet the underlying math is often very deep, and therefore, knot theory can carry an appeal to a large audience, from elementary school students to senior mathematicians. I will describe certain specific ways to knot two ropes together and together we will discover an extremely surprising connection between such knotted ropes and fractions. Indeed, several concepts about fractions that are taught to school children can be reinterpreted in terms of knotted ropes, and can be a more fun way to explore fractions. The talk will be interactive, with actual knotting done with actual ropes!

PROFESSOR SUCHARIT SARKAR received his PhD in mathematics from Princeton University in 2009 and joined the UCLA Mathematics Department in 2016. He teaches mathematics to undergraduate and graduate students at UCLA, trains the UCLA undergraduate team for the Putnam competition, and conducts research on topology, which is the area of mathematics that studies shapes of spaces.

Chris Shore

Coordinator of Secondary Curriculum & Instruction, Murrieta Valley USD
Author, The Math Projects Journal

HOW HIGH IS YOUR CEILING? TEACHER EXPECTATIONS & PEDAGOGY FROM A SINGAPORE GARDEN

PEDAGOGY, GRADES 6-8

The level of student learning in any class is directly related to the level of the teacher's expectations of students' abilities. Experience a math problem from Singapore that demonstrates what the expectations are in the country with the highest achieving math students in the world. Then participate in a math activity that will demonstrate simple instructional strategies to support engagement, higher-order thinking, and prerequisite skills for area of circles (Standard 7.G.4).

CHRIS SHORE is an experienced teacher and presenter, who taught high school mathematics for 29 years. As a California Awardee for the Presidential Award for Excellence in Mathematics and Science Teaching, he knows how to effectively engage adolescents in the mathematics classroom. Chris is also the author of several education articles as well as the books, MPJ's Ultimate Math Lessons and Clothesline Math: The Master Number Sense Maker.

Dr. Guershon Harel

Professor, Department of Mathematics, University of California, San Diego

PUTTING STUDENTS' INTELLECTUAL NEED AT THE CENTER OF THE INSTRUCTIONAL EFFORT

RESEARCH & RECOMMENDATIONS, GRADES 6-8

Most students, even those who desire to succeed in school, are intellectually aimless in mathematics classes because often they do not realize an "intellectual need" for what we intend to teach them. The notion of intellectual need refers to the learner's understanding of how and why a particular piece of knowledge came to be. In this talk, we will address the questions: What exactly is intellectual need? How does the presence or absence of intellectual need manifest itself in mathematics curriculum and instruction? How do we shift the instructional effort toward students' intellectual need?

GUERSHON HAREL is a distinguished professor at the Mathematics Department at the University of California, San Diego. His research interest is in cognition and epistemology of mathematics and their implications to mathematics learning and teaching.

Dr. Kimberly Samaniego

Director CSU/UC Mathematics Diagnostic Testing Project (MDTP)
University of California, San Diego

MAPPING A NEW NORMAL: USING THE MDTP ASSESSMENT SYSTEM TO UNDERSTAND AND BRIDGE STUDENTS' UNFINISHED LEARNING

RESEARCH & RECOMMENDATIONS, GRADES 6-12

Join this session to learn about the MDTP Assessment System and how I used MDTP diagnostic data to understand and bridge my students' unfinished learning in a remote summer program. Together, we will analyze diagnostic results and learn to use the results formatively to determine what students know. I will share the instructional strategies that I used to support my students' access to the math in their current class and develop readiness for the next level, and I will share the results of those efforts. This content is appropriate for all secondary math educators (6-12).

*MDTP is a free assessment system to all California secondary math educators.

DR. KIMBERLY SAMANIEGO is the Director of the Mathematics Diagnostic Testing Project (MDTP) and the Director of Math Testing and Placement (MTP) at UC San Diego earning her B.A. in Mathematics from California State University, Sacramento and her Ed. D. in Teaching and Learning from UC San Diego. Kim's 20 years of experience as a secondary mathematics teacher and teacher leader inform and strengthen her ability to fuse her personal goals of providing access and equitable learning opportunities to students from all backgrounds with MDTP's mission of supporting secondary mathematics educators in their work to prepare their students to succeed in college-level mathematics.

Isai Lopez

Secondary Mathematics Specialist
UCLA Curtis Center for Mathematics & Teaching

AEROSPACE ENGINEERS IN ALGEBRA I: A GLIMPSE OF A RESEARCH INVESTIGATION ON THE ENDEAVORS OF SPACEX ENGINEERS

PEDAGOGY, GRADES 9-12

But when are we going to use this in real life?" Aerospace engineers use these concepts every day! In this session we will walk through an Algebra I lesson that focuses on different considerations aerospace engineers must make when carrying out a successful rocket launch. What is the lowest initial velocity that a rocket must be launched at in order to reach a specified height? What forces act on the rocket and how do they affect the launch? Come explore this activity and see how your students can represent constraints by equations or inequalities (HSA.CED.A.2), interpret expressions that represent a quantity in terms of its context (HSA.SSE.A.1), and collect and graph data and equations on coordinate axes with labels and scales using online tools (HSA.CED.A.3, SMP 4 & 5). This lesson is part of The Curtis Center's Applied Mathematics Mentorship Program (AMMP).

ISAI LOPEZ holds a Master of Arts in Education and a Bachelor of Science in Mathematics for Teaching from UCLA. For several years, he served as a mathematics and leadership teacher in under-served, high-poverty schools in East Los Angeles. As an alumnus of LAUSD, he is passionate about presenting students with meaningful mathematics experiences that are culturally relevant, rigorous, and applicable to real-world contexts. As a Secondary Mathematics Specialist for the UCLA Curtis Center, Isai currently provides mathematical and pedagogical training to mathematics teachers across California.

Daren S. Starnes

Statistics Consultant

MAKING SENSE OF STATISTICAL INFERENCE VIA SIMULATION

MATHEMATICS FOR TEACHERS, GRADES 9-12

How can we help students make sense of important statistical concepts like margin of error and P-value? In this session, we'll explore two simulation activities--one for random sampling and one for randomized experiments--that help students unravel the logic of confidence intervals and significance tests, as well as the appropriate scope of inference.

DAREN STARNES has taught introductory and AP Statistics since 1996. He frequently presents in-person and online sessions about statistics teaching and learning for high school students and teachers. Daren is heavily involved in the AP Statistics community as a 20-year exam reader, lead instructor for AP Daily videos, and lead consultant for College Board workshops.

Dr. Rachel Lambert

Assistant Professor, Gervitz Graduate School of Education
University of California, Santa Barbara

DESIGNING MATHEMATICS CLASSROOMS TOWARDS NEURODIVERSE STRENGTHS

RESEARCH & RECOMMENDATIONS, GRADES K-12

Neurodiversity is a social movement to resist deficit framings of disabled and neurodivergent people, and to instead understand neurodiversity as bringing both strengths and challenges. What are the implications for math class? We will analyze narratives of learning mathematics by neurodiverse individuals, identifying common barriers in K-12 math classrooms. We will also explore dyslexic strengths in mathematics through data from an interview study of dyslexic research mathematicians.

RACHEL LAMBERT is an Assistant Professor in Special Education and Mathematics Education at the Gevirtz Graduate School of Education at University of California, Santa Barbara. Her goal is to increase access to meaningful mathematics for students with disabilities. Her research focuses on mathematical identity processes for Latinx students with disabilities, understanding neurodiverse strengths in mathematics, and UDL Math.

HOW DID WE DO

Please click on the question mark above and take a few minutes to give us some feedback about your experience at our virtual conference.