

# STEM MATTERS

Mathematics and Science  
Education Center  
APPALACHIAN STATE UNIVERSITY



## IDEA-CON 2020 PROVIDES A VIRTUAL PD VENUE

On July 30-31, the MSEC co-sponsored an online professional development program with the Office of Field Experiences and the Public School Partnership. The event, titled IDEA-CON 2020, is the first in what is hoped to become an annual event offering flexible professional development virtually with a combination of pre-recorded and live sessions.

This year, a series of four plenary sessions addressed issues related to equity, including a concluding panel that explored overarching topics from the conference and their relationship to equity. Speakers included:

- Kisha Clemons, principal at Shuford Elementary in Newton-Conover City Schools and recent recipient of the 2019-2020 Principal of the Year Award from Wells Fargo
- Dr. Susan Hedges, Assistant Professor in the Department of Reading Education and Special Education at Appalachian State University

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## FROM THE DIRECTOR

TRACIE MCLEMORE SALINAS

*The beautiful thing about learning is nobody can take it away from you. -- B. B. King*

For all the challenges that the year has brought us, it has also brought us opportunities. The shift to online teaching and learning has prompted us to correct inequities in technology access but provided opportunities to make incredible resources available to learners around the world. The move of our professional development and conferences from in-person delivery may have taken our opportunities for catching up with friends at receptions, but it opened up opportunities for those with disabilities or family commitments to partake in ways they may not have before. The shift in conversation towards systemic racism may prompt uncomfortable conversations, but it provides an opportunity to examine our teaching and our schools for ways to increase equity in access and outcomes.

The STEM fields have a long history of engaging with diversity, often with a focus of increasing access to underrepresented groups. But the need for more diversity of perspectives is greater than participating in "gap gazing" or simply increasing recruiting. It requires real change to programming, inclusive staffing, and real work in order to see more creativity, more diversity, and broader perspectives in STEM.

That work extends to the MSEC and centers like it as we also have an obligation to examine our policies, services, and materials to ensure that we model the inclusivity that we as a member of the teacher education community seek to develop in future teachers. With that in mind, we intend to implement a process of self-examination in the center through shared learning, dialogue, and an evaluation of center activities to identify places in which we can increase inclusivity. This might include new recruiting practices for programming, restructuring programs where they don't align with various cultures, and purchasing new materials that are better representative of the rich histories in STEM of underrepresented groups, including those with special needs. We intend this work to be a part of our upcoming strategic planning process but will also introduce dialogue through our social media and other channels. If you are interested in participating, please let me know. There's an opportunity here for us to model what it means to be a Mathematics and Science **Equity** Center.

## PUBLIC SCHOOL PARTNERSHIP NEWS & OPPORTUNITIES

The Public School Partnership has added new members this year, including the NC School for the Deaf and Newton-Conover City Schools. These partners join a vibrant group of regional education partners in western North Carolina that includes K-12 schools and the Northwest RESA.

Teachers can find a variety of supports through the Partnership, including expanded its collaboration with the New Teacher Support Program by adding five districts and additional coaches to the program. Also, experienced teachers can access the National Board Support Group, which provides online sessions throughout the year for teachers applying for their National Board Certification. For more information about the Public School Partnership, visit the website at <https://partnership.appstate.edu/>.



# SUMMER VENTURES GOES ONLINE

## PROGRAM FEATURES NEW COURSE, BOOK CLUB, WEBINARS

The Summer Ventures in Science and Mathematics at Appalachian was held online July 5 – August 1 and included 55 North Carolina students participating via Zoom. Faculty led innovative research courses that were engaging and resulted in high quality research projects, despite being unable to teach face-to-face as has been the norm and preference. The entire experience was a huge learning curve for all, and we are extremely pleased with the outcomes. Research courses included:

- (1) Advocating for Planet A ( Shararah Nikbakht & Anindita Das),
- (2) Aquatic Ecology & Climate Science (Shea Tuberty, Kelly Ruff & Scott Taylor),
- (3) Human Physiology in Exercise Science (Marco Meucci, Sarean Gaynor-Metzinger, Nick Tocci, Dana Morris, & Chloe Bell), and
- (4) Social & Behavior Science (Stephanie Thomas, Melanie Prater, Kelsey Thomas, Lori Tyler, & Caleb Marsh).

Since the program was held online, the residence life staff created engaging and energizing activities to build community and keep students active through physical movement activities such as yoga, HIIT, run club, dancing, and outdoor scavenger hunts. Other activities included vision boards, trivia, games, discussion groups, and BINGO. Students participated in these activities 4:00-5:30 pm Monday-Thursdays and 7:00-8:30pm on Sundays.

The Seminar Series, held Monday-Thursdays from 7:00-8:30pm, included Appalachian faculty sharing their research as well as SVSM alumni sharing their STEM journeys. All students and staff were also a part of a book discussion group that read *Mathematics for Human Flourishing* by Francis Su. The majority of students enjoyed these discussions and felt that the activities allowed them to engage with one another.

Data visualization, data analysis, technical writing, and scientific presentations workshops were held on two Saturdays to provide students additional instruction. Also, students created a “Pass-the-book challenge” video and the Advocating for Planet A class created a PSA about plastics-use and recycling.

Overall, the program was successful, but we hope that we can return to an on-campus program for Summer 2021.



There will be several Webinars held this Fall to provide information for 2021 applicants. Dates are to be determined but will be posted on the Appalachian SVSM website, [summerventures.appstate.edu](https://summerventures.appstate.edu). Applications for the 2021 program will be open October 15, 2020 – January 15, 2021. See <https://www.ncssm.edu/summerventures> for more information.

Lori Tyler ([tylerle@appstate.edu](mailto:tylerle@appstate.edu)) is available to provide information about applying for the program.

# WELCOME MATH & SCIENCE FACULTY

## DR. CACEY WELLS, ASSISTANT PROFESSOR

Dr. Cacey Wells earned a PhD in mathematics education from the University of Oklahoma. He also completed his MEd and BS in mathematics education from OU. During his time working on his doctorate, he served as a graduate research assistant, a professional development coordinator for a federally funded GEAR UP grant, and an instructor in the college of education. During this time, he worked with both in-service and pre-service mathematics teachers, primarily in urban and suburban school settings. Cacey is a former high school mathematics teacher at the International School of the Americas in San Antonio, Texas. His research interests focus on critical issues in mathematics education that provide students and teachers with equitable access to quality mathematics curriculum and instruction.



## TOM BROWN, TEACHER IN RESIDENCE, PHYSICS & ASTRONOMY



Thomas M. Brown has been an educator in North Carolina for the past 26 years and is very excited to become the Teacher in Residence for the Department of Physics and Astronomy. Tom is a native North Carolinian, raised in the Piedmont and attained a degree in Physics from Wake Forest University. After graduation, he decided he would enter the family profession - teaching. His great-grandfather was an educator in Iowa, his father taught physics, and his

sister is a science teacher. He completed his certification classes at Appalachian State University. Tom has enjoyed every moment teaching at Watauga, during which he completed his Masters in Curriculum and Instruction from Appalachian, received National Board Certification, and worked with NC State University during the last 15 summers to offer staff development in the Modeling Pedagogy. Teaching is only one of his many loves. He has two daughters, one who will graduate high school this year and one who is a student at UNC-Chapel Hill, majoring in geology.

Tom also loves to harass fish, ride his bike, and hang out with family here in Boone. In this new position, he is excited to share his love of teaching high school physics and science with a prospective new generation of science teachers while continuing to teach physics.

**THANK  
YOU!**

*to our contributors: Michael Bossé, and the Center Staff.*

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- Dr. Brandy Bryson, Associate Professor of Leadership and Educational Studies and Director of Inclusive Excellence at Appalachian State University

A final plenary session included a panel of speakers facilitated by Dr. Alicia Muhammed, Associate Director for Retention Initiatives in the James Center for Student Success and Advising at Appalachian. Alicia provided speakers with opportunities to address topics from across the fields of teaching and learning with an eye to inclusion and equity. Her panelists included:

- Dr. Robert Berry, NCTM president (2018-2020) and Professor in the Curry School of Education at the University of Virginia
- Tasha Hall-Powell, Principal at Appalachian State University Academy at Middle Fork
- Dr. Matthew Thomas-Reid, Assistant Professor of Leadership and Education Studies and affiliate faculty in the Gender, Women's, and Sexuality Studies Programs

IDEA-CON 2020 drew nearly 500 participants, many of whom participated in the Clinical Educator Training offered virtually by the Office of Field Experiences.

## MSEC HOSTS BOOK CLUB: MATHEMATICS FOR HUMAN FLOURISHING

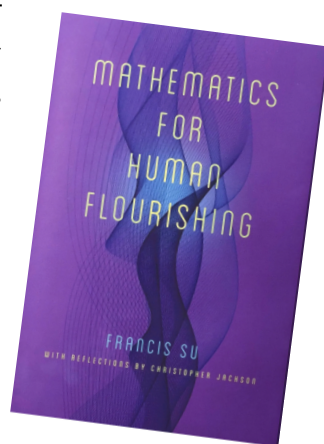
The MSEC is hosting its first ever book club this fall, exploring *Mathematics for Human Flourishing* by Dr. Francis Su. Su is the Benediktsson-Karwa Professor of Mathematics at Harvey Mudd College and a former president of the Mathematical Association of America. A speech Su gave in 2018 won the Halmos-Ford writing award and inspired the book, which is cited on his webpage as "an inclusive vision of mathematics - its beauty, its humanity, and its power to build virtues that help us all flourish."

What is human flourishing? Su defines human flourishing as "... a wholeness - of being doing, of realizing one's potential and helping others do the same, of acting with honor and treating others with dignity, of living with integrity even in challenging circumstances." (p 10) In the book, Su asserts that the studying of mathematics contributes to human flourishing by cultivating a number of virtues, including exploration, beauty, permanence, and justice.

The club, led by Drs. Betty Long and Quinn Morris, will meet weekly on Tuesday evenings to discuss the book and reflect on prompts to guide their study. The book club includes Appalachian faculty, regional teachers, graduate students from the United States and Great Britain, and may include a couple of surprises for the group as the weeks go on.

The club is intended to be a model for future shared readings in STEM

More information on the book and its author can be found at <https://www.francissu.com/>.



Have an idea for a future shared reading related to STEM and society?  
Contact Betty Long at [longbb@appstate.edu](mailto:longbb@appstate.edu).

## SAVE THE DATE

Many of the following events will be impacted in delivery method or dates by COVID-19.

Click an event to see online information and watch for updates..

**10/15-1/15/2021:** [Summer Ventures in Science & Math application window open for 2021](#)

**10/26-27:** [Bridging the Gap K-16 STEM Education Conference](#)

**11/4:** [North Carolina Science Leadership Association](#), Winston-Salem, NC

**11/11-13:** [NCTM Regional Conference and Exposition](#)

**11/12-13:** [NCCTM State Math Conference, Winston-Salem, NC](#)

**11/14-15:** [NSTA Virtual Conference](#)



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## ONLINE MELT IN 2020

**Michael Bossé, Director**

The Mathematics Education Leadership Training (MELT) program had a very successful season of Summer Institutes. Thanks to collaboration with the Math Science Education Center (MSEC), MELT offered 19 institutes to over 260 K-12 teachers. (Our previous record high was 175 participants.) Institute offerings included:

- Math 1, 2, 3, & 4;
- Discrete Math;
- Desmos;
- Numbers, Operations, & Manipulatives (K-5 & 6-8);
- Fractions (K-5 & 6-8);
- Matrices; Statistics;
- Digital Learning (K-5);
- Vertical Alignment (K-5 & 6-8);
- Literacy in Mathematics (K-5); and
- Math Assessment (K-5 & 6-8).

Due to Covid-19, MELT Institutes had to go online this past summer. Even in this novel format, teachers were served with the same level of quality professional development as in the past, and participants greatly appreciated the availability of the online professional development in this season. Soon, the MELT Board of advisors will be meeting to plan for Summer 2021. We are using survey results from this past summer to plan for the future — including possibly some balance of online and face-to-face instruction. We hope to be able to disseminate the plans for MELT 2021 as early as the end of October. MELT looks forward to continuing to collaborate with the MSEC and serve K-12 teachers in NC and beyond.

More information about the MELT program can be found online at the following link:  
[mathsci.appstate.edu/melt](http://mathsci.appstate.edu/melt).



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