

# STEM MATTERS

## Mathematics and Science Education Center

APPALACHIAN STATE UNIVERSITY



### NEW PARTNERSHIPS & THE ENTREPRENEURSHIP ACADEMY

This summer, the MSEC made new partnerships and offered several opportunities for high school students. In the first in-person year of the Appalachian Entrepreneurship Academy, the MSEC worked with the [National Consortium for Entrepreneurship Education](#), or EntreEd, and [STEMWest](#), to host 19 enterprising students for a two-week residential experience. EntreEd and STEMWest provided the foundation for content and worked with Erich Schlenker of the [Transportation Insight Center for Entrepreneurship](#) to deliver engaging, authentic experiences for the future entrepreneurs.

Participants met with a number of small-business owners and nonprofit leaders from across Appalachia and collaborated in activities leading up to their pitch presentations, including ideation sessions and field trips in the Boone area. Judged by a group of business leaders, the pitches shared the innovations produced by participant teams, including new ideas in community development, fashion merchandising, and small business consulting.

"It was an honor to work with EntreEd and STEMWest in the area of entrepreneurship. Their experience and skills made this a rich experience for students, and the MSEC was able to partner with a variety of folks on campus to make this happen," says Tracie McLemore Salinas, the MSEC Director. "We are fortunate that this partnership is likely to continue."

Appalachian State University's [Career Development Center](#) and [College Access Partnerships](#) helped plan the Big Pitch Contest and an etiquette dinner where participants learned to present themselves in more formal and business settings. The Appalachian Entrepreneurship Academy is funded by the Appalachian Regional Commission.



For more on the AEA, [click here](#).

Photo credit: Megan Westbrook, EntreEd.

### WHAT'S NEW?

2 Director Notes

3 Focus on Kay  
Campany

5 SVSM Briefs

There's always more at our website:  
[msec.appstate.edu](http://msec.appstate.edu)



## FROM THE DIRECTOR

### TRACIE MCLEMORE SALINAS

*The future belongs to the learners - not the knowers.*

- Eric Hoffer, Philosopher

We have learned a lot about students and teachers over the last few years, and we are beginning to see those lessons learned impacting policies and practice.

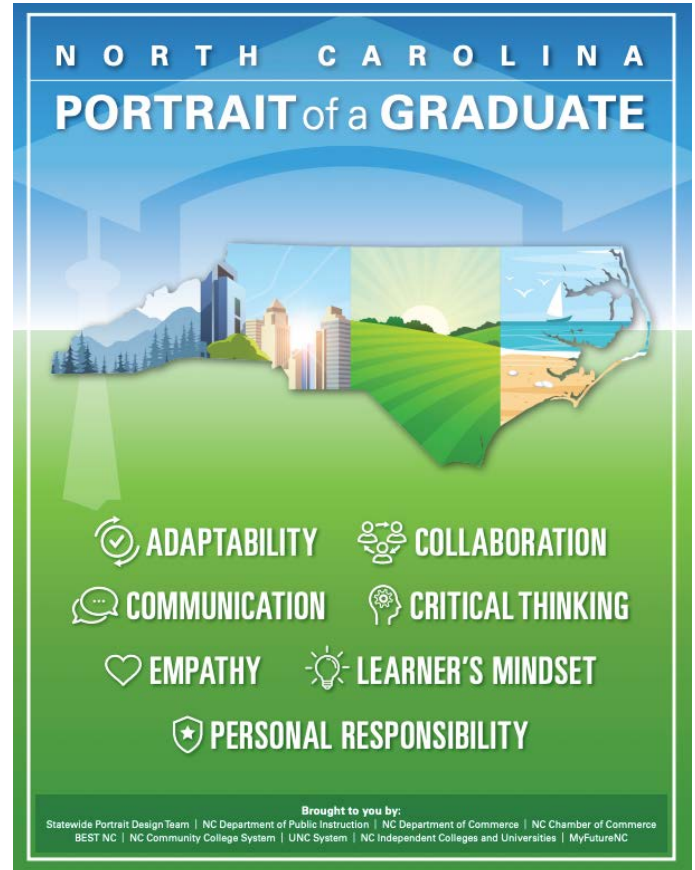
Schools and colleges of education across the country are asking themselves how to change their programming, outreach, and scholarly work as a result of the pandemic and a national reckoning on systemic racism. Evidence of the impact of these events and others made its way into the recent work on the North Carolina Portrait of a Graduate process, an approach to updating the "21st century skills" idea now that we are nearly a quarter of the way into the 2000s.

Where the previous versions of 21st century skills pointed to communication and functioning in a highly digital world, the Portrait of a Graduate found empathy, adaptability, personal responsibility, and a learner's mindset joining the roster of necessary skills and dispositions for NC high school graduates.

Given the context of the last two years, it is not difficult to see why these were chosen.

Envisioning what they mean and how we prepare teachers to develop them is a little more difficult.

In the months to come, I hope that we will have broad but meaningful conversations around these ideas and about how the MSEC can provide guidance and support in this area. For example, how might the center provide resources that demonstrate how to develop these areas in the mathematics and science classrooms? How might we ensure that our resources reflect and support these skills?



The Portrait of a Graduate document with more details is available online [at this link](#).

We'll be collaborating with the Public School Partnership and others to discuss these questions and more, with plans to present professional development and other activities that support teachers in this work. In particular, we'll want to address how these characteristics may appear in a math or science class where many learners don't necessarily expect to see them.

Save the date!



April 24, 2023

STEAM Expo

The annual outreach event is currently scheduled for Monday, April 24. More info to come!

## FOCUS ON AN ADVISORY BOARD MEMBER: KAY CAMPANY

Friends of the MSEC know her as Advisory Board chair and long time supporter of the center. Here we share a little more about one of the MSEC's most passionate supporters, Kay Campany.



Photo, submitted by Kay Campany.

Kay has had many jobs over the years, beginning as a zipper mill worker before she found her way into education and working with students. After becoming a group home parent alongside her husband, Kay realized her interests lay elsewhere and eventually recognized her interest in teaching biology. She worked with the Emergency School Assistance Act, which later became Title 1.

While teaching as an aide, Kay decided to complete a licensure program at Piedmont College before attending graduate school at Western Carolina University. The beach seems to have dictated many places where Kay taught, allowing her to expand her knowledge of and outreach to marshland areas in Georgia.

Eventually, she and her husband moved back to North Carolina where she taught labs while studying Fringed Gentians (*Genianopsis crinita*), an autumn blooming plant with blue flowers. In 1990 she accepted a position with Avery County Schools where she would serve as a teacher until 2008.

Along the way, Kay earned her National Board Certifications and finished her doctorate at Appalachian State University in Educational Leadership. Kay held several roles in Avery County Schools and continued working with the Public School Partnership and a variety of curriculum initiatives on behalf of Avery County Schools, the region, and the state. Additionally, Kay served as a Science Coach with NC Department of Public Instruction, providing professional development for science teachers about whom she says, "... the friends I made along the way are my life's joy."

Kay continues to bring a practical, educator-focused perspective to her work as chair of the MSEC Advisory Board, and she has straightforward advice for future STEM teachers. For example, Kay says:

- **Love kids.** If you don't love kids, don't set foot in the classroom. If you love kids, be a reflective practitioner. No one gets it right the first time. That's okay; be mindful and seek knowledge from others.
- **Ask for and seek out resources.** Don't be shocked when you discover you have nothing for labs with your students! Talk to your principal about what you need immediately and what can be purchased over time. Look for grants and sources of money. And, of course, use the resources in the MSEC!
- **Know best practices.** Don't just rely on your own experiences. Keep searching for new ideas and good lessons you can use over and over as you continue to be reflective.
- **Get involved!** Become an active member of state and national teacher associations. Take advantage of professional development opportunities!

## CARLA RAMSDELL CONTINUES COOKING WITH PURPOSE

The MSEC's Favorite Cook is at it again with a collection of Sustainable Food Cooking Challenges and new Cooking with Purpose virtual cooking classes. Carla Ramsdell, an MSEC Affiliate Faculty and advisor and Practitioner-in-Residence in the Department of Physics and Astronomy, focuses on energy efficient and sustainable cooking techniques. As a founder of the annual Community FEaST, Ramsdell



provides a variety of outreach opportunities for "evangelizing" about the benefits of an equitable, sustainable food system. To see more about sustainable cooking and take the 7-day challenge, visit Ramsdell's YouTube Channel linked below.



To visit *The 7-Day Cooking Challenge*, [click here](#).



## STEMWEST HOSTS BLAZING TRAILS TOUR AT FALL MEETING

**STEM West** hosted its Fall Community Meeting and the Blazing Trails Tour event at the Broyhill Civic Center earlier this fall and were joined by Elaine Larsen of Larsen Motorsports and her crew for a unique opportunity.

Larsen, and her guests from House of Kolor, shared the importance of strong partnerships in providing rich experiences for students. Afterwards, over 300 students from Caldwell and Burke County experienced the Blazing Trails Tour in which they learned about creating the jet car and running the business. Larsen, one of only four women in the world who race jet cars, showed the students the safety gear and shared her stories from the track. She described what it's like to drive over 300 miles per hour, and how the flames that plume behind the car can reach up to 2,000 degrees Celsius. Larsen explained the different careers that make up her team, such as drivers, mechanics on the pit crew, artists that paint the cars, and the business and marketing team. The students also heard from House of Kolor, the company and people behind the beautiful paint job that adorns the jet car. The Blazing Trails event was replicated the following day for almost 650 middle and high school students in Polk County with the addition of a presentation by Siemens who demonstrated their Solid Edge software.



*Photo submitted by Carol Moore, STEMWest.*

STEM West has brought educational opportunities to students for the past 6 years in six counties of western NC.

Focusing on educational equity in rural communities, the organization has served more than 22,000 students and 1,000 teachers.

## STEM OPPORTUNITIES IN DATA ANALYTICS

Dr. Jason Xiong, an MSEC Affiliate Faculty and Associate Professor in the Department of Computer Information Systems, is the Director of the Master of Science in Applied Data Analytics program. Located in the Walker College of Business, the program was established in 2017 and offers a STEM degree that provides students with technical skills for working with data in a business context. Data analytics skills are in high demand with the US Bureau of Labor predicting a 24% increase in demand for jobs with data analytics skills over the next eight years. Pictured at right are the members of the current cohort of MS students in the program.



*Photo submitted by Jason Xiong..*

## WELCOME, WOODY MADISON!

Joining the MSEC this fall as a liaison to STEM teachers is Woody Madison, currently a lecturer in the Department of Mathematical Sciences. Madison, a former STEM Ambassador of the MSEC and teacher at Caldwell Applied Sciences Academy, is supporting professional development and outreach activities in the center. One of his first activities is supporting a panel discussion on STEM fairs and contests for teachers as we work to increase engagement. A long-time part of the Summer Ventures program, Madison is interested in expanding his leadership skills in capacity development and partnerships. Madison's wife, Meredith, is also a STEM Ambassador and teaches at Watauga High School. **WELCOME, Woody!**



## SAVE THE DATE!

We have reserved space for the STEAM Expo on Monday, April 24. Additional information for hosting booths and demonstrations will be shared soon. Group registration information for schools will be shared in early spring semester.

The 2022 STEAM Expo brought more than 1000 middle and high school students to AppState for engaging activities with programs from across campus and a variety of community partners.



## Mathematics and Science Education Center

APPALACHIAN STATE UNIVERSITY

PO Box 32091 828-262-3185  
151 College Street msec.appstate.edu  
College of Education  
Suite 506  
Boone, NC 28608

MSEC Director: Tracie McLemore Salinas  
[salinastm@appstate.edu](mailto:salinastm@appstate.edu)  
Program Specialist: Leah McManus  
[mcmansld@appstate.edu](mailto:mcmansld@appstate.edu)  
Assistant Director: Betty Long  
[longbb@appstate.edu](mailto:longbb@appstate.edu)  
Summer Ventures Director: Lori Tyler  
[tylerle@appstate.edu](mailto:tylerle@appstate.edu)

## SUMMER VENTURES

After another successful summer program, SVSM is making plans for 2023.

In 2022, four research courses were offered, including:

- Advocating for Planet A
- Aquatic and Population Ecology
- Biochemical Characterizations
- Exploratory Data Analysis

The program, held annually in July, offers a rich experience for students interested in engaging, research-focused experiences in STEM.

A set of webinars are available to applicants, including sessions on the benefits of the program and how to create a successful application.



For more information about SVSM and future webinars, [click here.](#)

### DID YOU KNOW ...?

SVSM has been a mainstay of STEM Education at AppState. Nearly a third of our affiliate faculty have been involved in the program including:

Tom Brown    Tonya Coffey    Joel Sanqui  
Christal Dean    Brooke Hester  
Shea Tuberty    Carla Ramsdell    Sarah Greenwald

### KEY TO INTERACTIVE NEWSLETTER

Throughout this newsletter, if you see the following icons, click on the indicated link for more content.



**More written content online. Click the link to read more on this topic.**



**Video or audio available. Click the link to view or hear additional media.**



**Click this link for opportunities to volunteer or sign up for events, or connect with someone.**



Were you forwarded this newsletter but would like to stay in touch? Email Leah at [mcmansld@appstate.edu](mailto:mcmansld@appstate.edu) to receive our newsletter.