

**West Virginia University**  
Developing a transportable, carbon-neutral energy source

**Marshall University**  
Engineer helps develop state's first-of-its-kind bridge

**West Virginia State University**  
WVSU and WVDEP to work on groundwater pollution

# NEURON

*FALL 2019*

West Virginia's Journal of Science and Research



FAIRMONT STATE UNIVERSITY

**Mark Flood**

Forensics professor sees his own story in rural, first-generation college students



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**FALL 2019**

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**ABOUT**

West Virginia Science & Research, a division of the West Virginia Higher Education Policy Commission, provides strategic leadership for the development of competitive academic research opportunities in science, technology, engineering and mathematics. The office directs the National Science Foundation's Established Program to Stimulate Competitive Research (EPSCoR) in West Virginia, coordinates scientific research grants to academic institutions from federal and state agencies, and conducts outreach activities to broaden the public's understanding of science.

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*Mark Flood demonstrates how a multi-channel micropipette is used to load samples into a 96-well plate for genetic analysis*

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## News briefings



### Michael E. Nelson shares white-tailed deer and wolves research at Glenville State College

Glenville State College (GSC) hosted a presentation by retired wildlife research biologist, Michael Nelson on Wednesday, September 18.

As a result of the Endangered Species Act of 1973, Nelson began working with the U.S. Department of Interior as a wildlife research biologist, studying white-tailed deer and gray wolves in the Boundary Waters Canoe Area Wilderness in northeastern Minnesota from 1974 through 2010. Nelson's mentor and colleague, David Mech, started the research on wolves in 1966 – research that is still continuing today.

When Nelson joined the study, which focused on deer survival and movements in the presence of wolves, it was the first study of its kind to examine wolf predation on radio-collared deer. He supervised the fieldwork with the assistance of volunteers. The research included live-trapping deer in winter and wolves during summer through autumn. Animals were chemically immobilized, weighted, blood-sampled, measured, radio-collared

in the field, and released. Autumn trapping of wolves required wilderness canoe travel and camping. After mortality was detected in a radio-tracked animal, hiking, canoeing, skiing, or snowshoeing was required to locate and examine the carcass and determine cause of death.

The research he conducted emphasized deer social relationships, movements, survival, causes of mortality, and aerial observations of deer and wolf interactions.

Nelson is the husband of GSC's interim president, Kathleen Nelson. The presentation was sponsored by GSC's chapter of Chi Beta Phi.

### Alderson Broaddus undergraduate and international students contribute to cancer study

Charlie Chen, professor of biology at Alderson Broaddus University (AB), continued his summer research on the molecular biology of cancer with the help of Leaf and Ning Ren, two graduate students from China's Zhejiang University (ZJU). ZJU is Chen's alma mater. Chen also invited AB biology students Haley Barr, Marissa Davis, Emily Isaacson and Kassidea Mathews to join his research. Chen's research has focused on the use of anticancer drugs, especially natural compounds, on cell cycle, apoptosis, and angiogenesis. The growth of blood vessels that provide nutrients to cancer cells and are essential for tumor growth.



### Renowned astrophysicist visits West Virginia

West Virginia University's Department of Physics and Astronomy hosted groundbreaking scientist Jocelyn Bell Burnell for a November 5 presentation on her accidental discovery of pulsars. Pulsars are magnetized rotating neutron stars that emit pulsing radio waves. Bell Burnell made the discovery while a graduate student at the University of Cambridge in 1967. Bell Burnell's supervisor, Antony Hewish, won the Nobel Prize in Physics several years later for his role in the pulsar discovery while she was not recognized. In 2018, Bell Burnell was awarded a Special Breakthrough Prize in Fundamental Physics in which she used the entire \$3 million prize to establish a scholarship for underrepresented students in physics research. Bell Burnell served as President of the Royal Astronomical Society and was the first female president of both the Institute of Physics and the Royal Society of Edinburgh.

Photos courtesy of Glenville State College and West Virginia University

## FROM THE DIRECTOR: Jan R. Taylor

### Happy trails from a scientist entering retirement



This will be my last Director's letter for the Neuron. I am retiring from the field at the end of the year. During the last 16 years, I have truly appreciated working with faculty across the state to help increase competitiveness for federal grants and to help train the next generation of scientists.

During my tenure at the West Virginia Higher Education Policy Commission's Division of Science & Research, both as Director and Deputy Director, our investments along with partnerships with the higher education community have led to ongoing technology-based companies from both faculty and students, students who have achieved national scholarships and fellowships, endowed professorships, and increased digital holdings at our university libraries among other successes.

In this issue, you can read the story of Mark Flood of Fairmont State University. He, like me, was a first-generation college student, but took the opportunity to become a scientist with a Ph.D. Although I left academia, it has been my pleasure to work with all of you, including those from our regional campuses.

I urge you to keep up your good work with training our students and doing first-rate research. I will miss you, but I'm sure good things will be coming from our institutions of higher education long in the future.

Be strong and courageous!

Dr. Jan R. Taylor  
West Virginia Science & Research Director and NSF EPSCoR Project Director  
West Virginia Higher Education Policy Commission

The Science & Research Council was established by the West Virginia Legislature in 2009. The goal of the Science and Research Council is to increase the capacity of the state and its colleges and universities to attract, implement and use cutting-edge, competitive research funds and infrastructure. Members provide expertise and policy guidance regarding federal and state programs including EPSCoR, the Research Challenge Fund, and the former Research Trust Fund. Representatives of government, industry, business and academia make up the council.

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**Dr. Jose Ulises Toledo**  
*Associate Vice President for Administration, West Virginia State University*



## Fairmont State forensics professor sees his own story in rural, first-generation college students

Written by **Angela Sundstrom**

Photos by **Chris Jackson Photography**

Role models are influential. When a student sees their own experience reflected back by a successful mentor, it says their goals are achievable. This is especially true for students with challenging backgrounds.

Mark Flood, professor of forensic science and coordinator of the forensic science program at Fairmont State University, was a first-generation college student. First-generation is a broad term, but it can generally be defined as a person who is the first in their family to graduate from at least a four year higher education institution. Flood was not only the first in his family, but one of the very few students from his Indiana high school to attend college, let alone earn advanced degrees.

"It was a huge transition," Flood said. "A huge jump. I could see where people can be a little afraid of college."

Flood earned his bachelor of science from Purdue University, his master of science from Washington State University and his doctorate degree from Utah State University, all in animal science with a specialization on early embryonic metabolism. He initially



Flood

intended to be a veterinarian, but upon attending Purdue realized it was not his passion and that the large student population was an adjustment.

"I was very shy, very reserved. There were more people in my first science class than there were in my entire high school."

The impersonal atmosphere during his early undergraduate years made Flood question his education decisions, especially when he began pining for the small liberal arts college offer he declined. Yet, Flood continued. As he progressed, classes became smaller and more focused. Professors were available for questions and even learned every student's name. His story became one of achievement, but Flood knows he nearly surrendered to fear. That is why he now places high priority on forming student connections.

"A theme behind my whole career has been collaboration."

Flood's fondness for collaboration extends to curriculum as forensics and chemistry classes often work hand-in-hand. A suite of scientific instruments including a genetic analyzer, an atomic absorption spectrometry, and a gas chromatography-mass spectrometry was recently purchased through an Instrumentation Grant from West Virginia Science & Research, a division of the Higher Education Policy Commission, for forensic toxicology, analytical chemistry and organic chemistry students to utilize in research. Current student research includes studying heavy metals in makeup, searching for formaldehyde in hair care products and extracting morphine and codeine from poppy seeds. The Forensic and Analytical Chemistry Camp (FACT), a free summer day camp funded by the same grant, also provides techniques utilized in both disciplines.

Teaching the funding application process is also a focus of the forensic program. Writing is critical in science, Flood said, and will never go away. Students are encouraged to apply for grants, especially at the NASA

Photo by Chris Jackson Photography



"It was a huge transition. A huge jump. I could see where people can be a little afraid of college."

- Mark Flood

Above: Mark Flood demonstrates one of the many techniques employed in forensic fiber analysis



## FORENSICS

Space Grant Consortium located on campus. Though they do not always see the immediate value, numerous students have visited post-graduation to thank him for pushing this skill set. These interactions are something Flood values, building lifelong relationships rather than simply being a reference for professional school.

While some might think Flood's animal science background is unconventional for forensic science, he sees a diverse resource. In addition to earning his degrees, Flood was a postdoctoral researcher in pharmacology and toxicology at the University of Utah and taught microbiology and physiology at Salt Lake Community College. Since managing the Fairmont State forensic science program, Flood has gained knowledge by training with the Miami-Dade Medical Examiner's Office in Miami, Fla. Currently, he is developing a forensic toxicology class for his Fairmont State students. No matter the next step in his career, Flood had the scientific foundation to succeed.

*Below: Flood collaborates with many students each day. Here, he oversees the work of senior forensic science major Travis Harding, who is performing forensic fiber analysis techniques.*

**“It’s been an interesting journey. I’ve been happy and blessed to be able to work with such talented people and develop friendships with them.”**

“It’s been an interesting journey. I’ve been happy and blessed to be able to work with such talented people and develop friendships with them.”

With a team approach and the chance to mold the program in his own view, Flood now takes time to reflect on his unique path. A smart farm kid from Indiana turned his initial discouragement into opportunity and now shares that experience with kindred spirits in rural Appalachia.

“I feel like I’m just hitting my stride.”



*Above: Barrett studies Japanese stiltgrass along the Rail Trail south of Morgantown*

## WVU biologist targets plant wreaking havoc on forests

*Written by Jake Stump*

Japanese stiltgrass might appear harmless, but plant biologists like Craig Barrett know better.

“I’ve visited sites to study endangered orchids in West Virginia over the past few years and I’d noticed Japanese stiltgrass creeping in and becoming a problem,” said Barrett, assistant professor of plant evolutionary biology at West Virginia University. “So, in a way, you’re mad at this thing and you want to study it. And there’s plenty of it to study.”

Japanese stiltgrass, or *Microstegium vimineum*, is considered an invasive species, which threatens biodiversity, negatively affects crops, restructures ecosystems, promotes disease and damage infrastructure to the tune of \$120 billion annually in the U.S.

In hopes to ultimately ward off or stabilize these invaders, the National

Science Foundation has awarded Barrett and a team of researchers a highly competitive Established Program to Stimulate Competitive Research (EPSCoR) Track-2 grant. Barrett and his colleagues will receive \$2 million to understand how plants undergo rapid evolution to become invasive and provide insights into the management and prevention of invasive species.

Barrett will sequence a complete genome of Japanese stiltgrass and collaborate with Cynthia Huebner, an adjunct professor at West Virginia University, in conducting a greenhouse experiment using seeds collected in the U.S. and Asia.

The project also involves scientists from the University of Louisiana at Lafayette, South Dakota State University, the University of Alabama-Tuscaloosa and Wichita State University.

## New helicopter manufactured in West Virginia now available commercially

*Written by Kathy Cosco*

A new helicopter resulting from a collaboration between Carbon Fiber Composites, Safari Helicopters, and the Robert C. Byrd Institute (RCBI) at Marshall University is now commercially available and has made its first sales.

“What makes the Safari helicopter different is it is composed almost entirely of composite materials and is one of the only helicopters on the market to utilize an entirely composite freestanding tail boom, which allows for simpler and less expensive repairs,” said Brian Alley, owner of Carbon Fiber Composites in Ona, W.Va.

Composite materials typically consist of fibers such as carbon or glass blended into plastic to give it strength and density without added weight. Composite materials are important to the aviation industry because they provide structural strength with better fuel efficiency and performance.

Molds used to produce the Safari Helicopter’s composite components were created at RCBI’s Advanced Manufacturing Technology Center.

The Safari helicopter made its debut at the 2018 Experimental Aircraft Association’s AirVenture, the world’s largest annual convention for aviation enthusiasts that takes place in Oshkosh, Wisconsin.



*Photo by Chris Jackson Photography*

*Photo courtesy of West Virginia University*





Above: Graduate student Ashley Caiola uses a technique called microwave catalysis to synthesize ammonia from hydrogen and nitrogen to create a liquid form of electricity

## WVU breaks new ground in developing transportable, carbon-neutral energy source

Written by **Olivia Miller**

Electricity is something we rarely think about -- we expect it to be there, flowing hundreds of feet over our heads, powering every facet of our daily lives.

But what if we didn't have giant towering power lines above us and instead the electricity flowed under our feet?

Engineers in the Statler College of Engineering and Mineral Resources at West Virginia University have figured out exactly how to make this a reality.

John Hu, professor in the Statler Department of Chemical and Biomedical Engineering, alongside Debansu Bhattacharyya, professor of chemical engineering, have created a liquid form of electricity that can be transported from coast to coast using existing infrastructure.

The carbon-neutral energy source has the potential to not only improve American economic and energy security, but reduce carbon dioxide emissions as well, Hu explained.

By taking advantage of the un-utilized, "stranded" electricity from solar and wind farms, the researchers successfully converted electricity into ammonia, a liquid energy carrier.

"Once you turn electricity into liquid ammonia you can basically either sell it as fertilizer or generate electricity again. The key is that because ammonia is a liquid you can ship it from coast to coast using the pipelines, railways or by truck," Hu said.

Electricity generated from solar and wind farms is only as reliable as the amount of sun shining or wind blowing in the area at a given time.

As states along the West Coast begin their

transformation towards clean and renewable energy, they must determine the best way to manage the time lag between production of electricity by solar and wind farms, and its demand by people.

According to Hu, the demand for electricity is at its peak after 3 p.m., when people begin to arrive home from their day jobs. Coincidentally, at this time the sun is setting and the wind is dying down, which means no new electricity is being produced. On the flip side, the morning and early afternoon, when the demand for electricity is low, are when the most electricity is available for consumption.

The carbon-neutral fuel created can be stored for extended periods of time and is more easily and inexpensively transported, so it can be delivered and distributed more efficiently. That means these fuels offer a unique opportunity to reduce both the need for energy imports and carbon emissions from the transportation sector.

Hu has received \$1.65 million in funding over two years to build on the accomplishments of the Phase-I project from the U.S. Department of Energy's Advanced Research Project Agency-Energy.

Photo courtesy of West Virginia University

## Marshall, U.S. Department of Homeland Security team up to combat opioid crisis

Written by **Jean Hardiman**

Marshall has joined in partnership with Homeland Security Investigations (HSI), the investigative arm of U.S. Immigration and Customs Enforcement (ICE) within the U.S. Department of Homeland Security (DHS), to leverage resources to combat the opioid epidemic.

U.S. Sen. Shelley Moore Capito, (R-W. Va.), chair of the Homeland Security Appropriations Subcommittee, announced Aug. 28 a finalized partnership in which Marshall will receive \$4.25 million to develop and implement a tool to aid HSI in investigation, disrupting and dismantling criminal activity related to the opioid epidemic. This partnership will enhance the ability to fight the opioid crisis and enlists the help of the Marshall digital forensics and information assurance program's students, faculty, and facilities.

"As chair of the Homeland Security Appropriations Subcommittee, I've worked to combine the talents and abilities of these two respected entities, Marshall University and HSI," Capito said. "This partnership in cybersecurity and forensics is a promising one for West Virginia as we continue working to fight the opioid epidemic, and I'm confident it will also benefit other states and communities across the country by improving our ability to monitor and interdict illicit activity on the internet. I'm proud to have helped make the connections within the department and provide funding for what I hope will be a long-term

partnership between Marshall and HSI."

"Marshall University continues to work diligently to address all aspects of the opioid epidemic here at home and across the United States," said Jerome Gilbert, president of Marshall University. "This new award allows the university to develop and deploy a mechanism that will aid our federal agencies in fighting criminal activity associated with the epidemic. I'm incredibly proud of our faculty-scientists and staff members involved in this project."

Discussions between the university and the department have been ongoing for several months, and earlier this year, Capito toured the Marshall University Forensic Science Center with DHS Acting Secretary Kevin McAleenan.

"The Marshall digital forensics and information assurance faculty, students and staff are honored to assist HSI with this critical mission," said John Sammons, director of the digital forensics and information assurance program at Marshall. "We've been able to see firsthand the terrible impact this epidemic has had on our own community. We look forward to working with HSI to help counter the criminal aspects of this epidemic."



## West Virginia State University and WVDEP to work on groundwater pollution

By Matt Browning

West Virginia State University (WVSU) has entered into an agreement with the West Virginia Department of Environmental Protection (WVDEP) to conduct research activities relating to groundwater quality and remediation. The agreement will establish a protocol, executive research methods and publishing of results relating to the protection of West Virginia groundwater from contamination of spilled petroleum products.

Research has shown groundwater quality has been degraded throughout West Virginia as a result of mining and drilling, and improper disposal of domestic and industrial wastes. As these chemicals can be harmful to health, many clean-up techniques have been developed. However, each technique has its own disadvantage, including potential carcinogenic factors, as well as impacting blood production, the lymphatic system and the central nervous system.

"The objective of this study is to investigate key biological markers, regulators and pathways participating in absorption and accumulation of BTEX, in order to determine the key players for remediation of contaminated soil," said Umesh K. Reddy, professor of biology at WVSU.

The agreement is administered through the WVDEP's Division of Water and Waste Management.



Michaelson

## Marshall engineering faculty member helps develop state's first press-brake-formed steel tub girder bridge

Written by Jean Hardiman

Greg Michaelson, an assistant professor of engineering at Marshall University, has assisted the Short Span Steel Bridge Alliance (SSSBA) and the West Virginia Department of Highways (WVDOH) in developing West Virginia's first press-brake-formed steel tub girder bridge. Crews began work to erect the bridge Tuesday, Aug. 20, near East Lynn in Lincoln County, District 2, and work is expected to continue through November.

Michaelson helped research and develop the innovative technology for the 58-foot-span Fourteen Mile Bridge. Contractor for the project is ORDERS Construction Company of Saint Albans. A second press-brake-

formed steel tub girder bridge is expected to be constructed on U.S. 250 over Flat Run near Mannington, West Virginia, in 2020.

Wael Zatar, dean of Marshall's College of Information Technology and Engineering (CITE), said CITE and Marshall University are very fortunate to have Michaelson as a faculty member.

"Dr. Michaelson has been conducting impressive research to advance the knowledge pertaining to steel girder bridges," Zatar said.

The press-brake-formed tub girder system consists of galvanized shallow trapezoidal boxes fabricated from cold-bent structural steel plate. A concrete deck is precast on the girder, making it a modular unit that

can be transported by truck to the project site. The system is ideal for spans up to 60 feet. It saves time and costs for bridge owners since it can be installed as a single modular unit usually in one or two days by local crews, will last for an estimated 100 years, and requires minimal maintenance during its lifetime.

The expedited installation process ensures the new bridge is opened for service in a timely manner, minimizing disruption to traffic.

The Short Span Steel Bridge Alliance aims to keep bridge owners and designers informed about the benefits, latest design innovations, cost competitiveness and performance of steel in short-span installations up to 140 feet in length. Michaelson is part of the SSSBA's Bridge Technology Center, which is overseeing the Fourteen Mile Bridge project. Michaelson and Karl Barth of West Virginia University have conducted extensive research on the press-brake-formed steel tub girder system for the past six years, including development and design, experimental testing, field evaluations, and feasibility and economic studies.

Photo courtesy of Marshall University

## University of Charleston awarded grant to provide scholarships for STEM students

Written by David Traube

The University of Charleston has received a grant to provide scholarships to 12 of its students pursuing science, technology, engineering or mathematics (STEM) degrees. The grant was announced by U.S. Senators Shelley Moore Capito (R-W.Va.) and Joe Manchin (D-W.Va.), members of the Senate Appropriations Committee. The grant totals \$648,409 to fund four-year scholarships to 12 students pursuing baccalaureate degrees in data science, computer science, biological sciences, chemistry and dual biology-chemistry programs at the University of Charleston (UC). Funding is provided by the National Science Foundation (NSF).

The project entitled "Scholars Program for Environmental Challenges" is under the direction of UC Professors Aida E. Jimenez-Esquilin, David L. Haas, Juliana Serafin and Mark B. Watson.

"Getting this award is evidence of the fine quality of the faculty at UC and our hard work and commitment to our students and our mission," stated Aida E. Jimenez-Esquilin, UC biology program director. "This grant will allow us to give the quality education characteristic of UC to a number of talented and deserving WV students. The program goes above providing financial aid, it will emphasize long-term mentoring through their time at UC and



beyond in a wealth of activities aimed to develop their science identity."

"What an amazing gift for 12 lucky and deserving UC students," Senator Capito said. "West Virginia is always looking to attract talented students, particularly in STEM fields. As our state works toward a more robust STEM workforce, seeing UC's programs align with NSF's greater goal of preparing that future workforce is encouraging and shows the promise of West Virginia in contributing more to a 21st-century economy."

"I am so proud to announce that 12 bright students at the University of Charleston will receive scholarships to pursue their education in STEM fields. STEM careers are essential to our 21st-century economy and we must prioritize scholarships and funding for STEM education. I have no doubt that these students will receive a world-class education at the University of Charleston and hopefully stay in our state to help move our economy and workforce forward," Senator Manchin said.





**WVU geologist selected for NASA's Mars 2020 team**

West Virginia University geologist Kathy Benison was one of 10 scientists selected as a Return Sample Selection Participating Scientist for NASA's Mars 2020 expedition. She is responsible for helping to select the rocks and sediments that will be gathered, or cached, by the Mars 2020 rover.



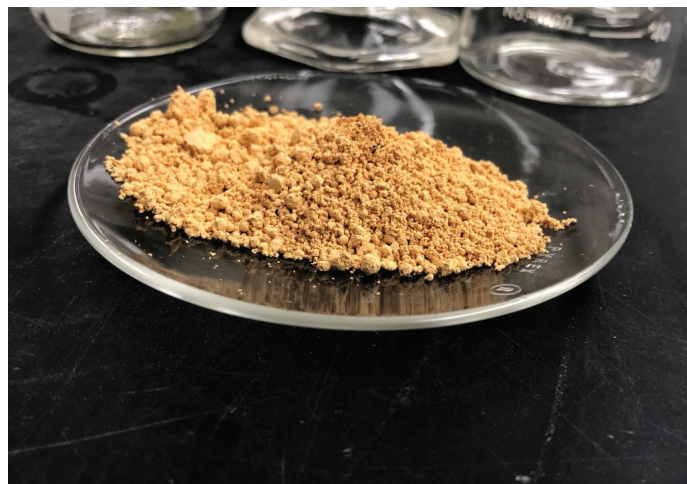
**West Virginia State University students win Green Chemistry Award from American Chemical Society**

The student chapter of the American Chemical Society (ACS) at West Virginia State University has received a Green Chemistry Student Chapter Award, as well as a Commendable Chapter rating, for the tenth consecutive year from the ACS Green Chemistry Institute.



**WVU physicists receive \$2 million for new plasma physics center**

The Department of Physics and Astronomy at West Virginia University received a \$2 million grant from the U.S. Department of Energy to fund the new Center for Kinetic Experiment, Theory and Integrated Computation Physics. The center will integrate experimental, theoretical and computational efforts.



**WVU awarded \$5 million to continue rare earth project, build facility**

The West Virginia Water Research Institute at West Virginia University has been awarded \$5 million by the U.S. Department of Energy to scale up its successful Rare Earth Recovery Project, which will include building a facility at a new acid mine drainage treatment plant near Mount Storm.

Photos courtesy of West Virginia University

**COMMENTARY: Amelia Courts**  
*Real-world learning prepares WV Ready graduates*

When we think about virtually every personal device—from an iPhone to our front doorbell to the electronic toothbrush—we see the impact of science at our fingertips. While bringing efficiencies to our day-to-day, new science, technology, engineering and mathematics (STEM) innovation has revolutionized the world of work. STEM employment has grown 79 percent since 1990. According to the Pew Research Center, STEM-related jobs grew from 9.7 million in 1990 to more than 17.3 million currently.

**“One important step in creating more West Virginia Ready graduates starts with igniting our students’ dreams and passions and helping them envision their own successful futures.”**

In West Virginia, seven of the top 10 employers are now in STEM-related fields. In 2018, there was a 12 percent increase of STEM jobs in West Virginia to a total of 24,790. However, only 31 percent of working-aged West Virginians have earned at least an associate degree when there is a need for 60 percent to have a degree in order to meet current workforce needs.

In 2018, The Education Alliance, partnering with Leadership West Virginia, brought together a working group of educators, business and community leaders, parents, and students from across the state to create a “portrait” of a West Virginia Ready (WV Ready) graduate. Business representatives described their hiring process, assessments of teamwork, critical thinking and communication. Educators, in both K-12 and higher education, emphasized the value they place on students who are self-directed, willing to learn, fail and improve. Students and families highlighted characteristics such as civic engagement, work ethic and habits of wellness. Together, these components provide that “portrait” of the WV Ready graduate and a clear vision of the knowledge, life characteristics and college/career skills

Photo courtesy of The Education Alliance

our students need to be successful.

One important step in creating more WV Ready graduates starts with igniting our students’ dreams and passions and helping them envision their own successful futures, a future in which they utilize their unique talents and skills, and are equipped to pursue their goals.

The WV Ready Internship Program brings that vision to life by providing a four-week, paid summer internship opportunity for rising high school juniors and seniors within West Virginia businesses. The internship program was piloted in 2019 at three of the state’s leading employers - Toyota, Appalachian Power and Cabell Huntington Hospital.

The students received high-quality training from The Education Alliance as well as weekly webinars focused on developing valuable soft skills. At the end of their internship, each intern gave a final presentation to their company leadership team and the results were incredible. Every intern showcased life-changing and eye-opening personal development. Seventy percent of the interns reported the experience had changed their career pathway and the businesses reported the internships were a valid strategy to support their workforce needs. The Education Alliance is working to expand the program into other businesses and regions in 2020.

It is vital to our students future and the future of our state that West Virginia graduates are ready to compete for STEM jobs and are equipped for the changing economy. This will require all of us to step up to the plate. The Education Alliance is ready. Are you?



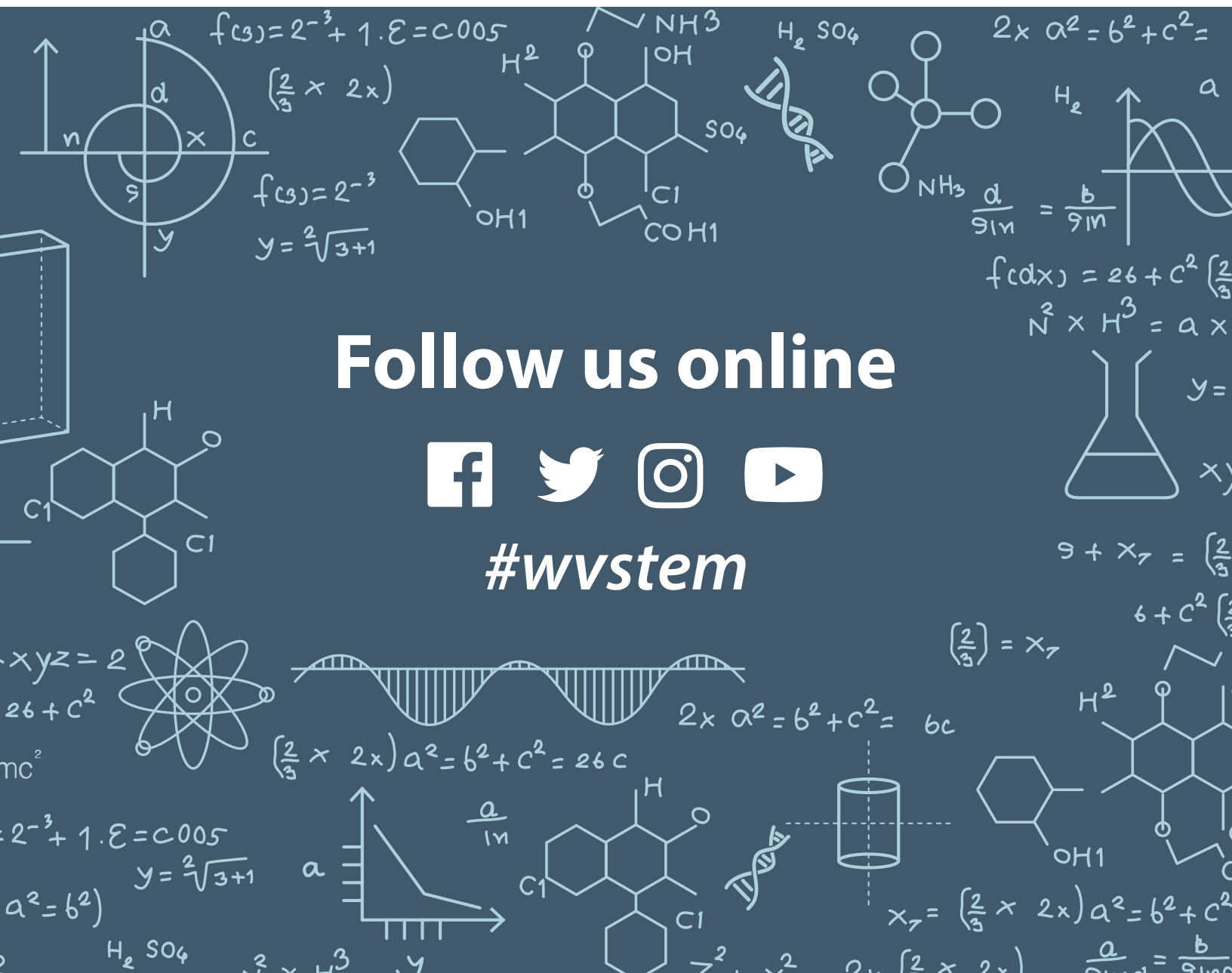
*Amelia Courts is the President/CEO of The Education Alliance, a nonprofit organization that advocates for a quality public education for all West Virginia children. Prior to coming to the Alliance, she served for three years as Assistant State Superintendent at the West Virginia Department of Education.*





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