

**College of Science, Technology, Engineering, and Mathematics
Alumni Newsletter February 1, 2022**



Ms. Sydney Bumgardner delivers encouraging words about the future to fellow graduates at December 2021 commencement ceremony.

"I hope we never forget that Richmond is our city and ECU is our place of belonging. I hope we use our connection to this university to enrich our successes and always give credit to where we came from," was the message given by Ms. Sydney Bumgardner at the December 2021 commencement ceremony for the College of Science, Technology, Engineering and Mathematics (STEM) and the College of Letters, Arts, and Social Sciences (CLASS).

The first graduating class in the new College of STEM since it was formed in July 2021 numbered 137 graduates earning associates, bachelors, and master's degrees from seven departments.

Ms. Bumgardner, who graduated with degrees in biomedical science and psychology, was chosen to represent the College of STEM as student speaker at the December 4, 2021 commencement ceremonies.

Her message was simple but moving. She spoke of growth and transformation that occurs from the time students first arrive on campus until the time they graduate. She also spoke of the fear and confusion students commonly feel when they realize they are beginning a future into the unknown.

Her words of encouragement were gripping, "We have not come this far and created substantial lives for ourselves to only come this far. Growth will continue to happen. Being willing to embrace the transitions of life will help build an amazing life." She further encouraged her fellow graduates to take the tools they learned at ECU with them into their workplaces, graduate schools, and communities to create new communities. To listen to Ms. Bumgardner's entire speech, go to https://youtu.be/5qHD0o_tFUs?t=2692.

Eastern Kentucky University (EKU) graduated 1,341 degree candidates during the December 4-5, 2021 ceremonies.

PLACES AND PROGRAMS

Taylor Fork Ecological Area



Entrance to Taylor Fork Ecological Area.

Taylor Fork Ecological Area (TFEA) is a 60-acre natural area located just south of Eastern Kentucky University's main Richmond campus and is administered by EKU's Division of Natural Areas. The site supports hundreds of plant and animal species and is used for ecological research, wildlife management activities, environmental education, and outdoor recreation.

Originally an abandoned pasture, the habitat is now dominated by shrubs and woodland, which were the historic landscape of the Bluegrass Region. It currently

has a 2.5-mile trail system, picnic tables, and a storage building. A highlight of any trip to Taylor Fork Ecological Area is a visit to one of the large, 150-year-old Chinkapin oaks.

From its origins in 2010, Taylor Fork has been a student-driven enterprise. Students were key to its establishment, and they write grant proposals and management plans, shovel dirt, mow trails, and organize outreach events that give them leadership, management, and communication experiences. "Being able to apply lessons learned in the classroom to real-world situations has boosted my confidence as a biologist. I can honestly say that without TFEA, I wouldn't have achieved the level of academic success that I have today," said Mr. Joshua Castle, a wildlife management major in the Department of Biological Sciences.



Weather station at Taylor Fork Ecological Area.

The EKU student chapter of The Wildlife Society is heavily involved in management activities, including planting trees and controlling invasive species. A recently installed weather station with sophisticated instrumentation supports student research on climate and ecology.



View of Eastern Kentucky from Taylor Fork Ecological Area.

Taylor Fork Ecological Area is open to the public and receives thousands of visitors annually. Ms. June Settle, academic administrative coordinator in the Department of Physics, Geosciences, and Astronomy and a frequent visitor to TFEA remarks, "Not only is TFEA an asset to teaching and research at EKU, it is also a valuable resource to the community. Its close proximity to Richmond and nearly three miles of trails make it ideal for hiking, walking the dog, picnicking, and observing wildlife in a wooded, peaceful setting. I often forget I am so close to Richmond, especially when I round a bend in the trail and encounter a turkey

hen with her poults, two bucks sparring, or a raccoon staring at me from a tree!" It is a

wonderful place to “get away” without the long drive.” Mr. Castle said, “Taylor Fork is a great place to escape the daily stress that comes with being a student. Having a place nearby to connect with nature, where I can forget about assignments, deadlines, and exams, if only a moment, is a godsend.”

EKU’s Division of Natural Areas hosts many events at TFEA. The popular ‘Nature Exploration Series at Taylor Fork’ is held each semester and features workshops on topics such as monarch butterfly tagging, bird banding, and tree identification. In July 2021, the ‘Family Nature Day’ drew in more than 70 people. Model Laboratory School brings middle school science and advanced placement (AP) environmental science field trips to Taylor Fork and the proximity to campus makes it an important field trip destination for more than a dozen EKU classes, including aquatic entomology, plant ecology, wetland wildlife management, introduction to graphic design, hydrology, and GIS cartography.



Taylor Fork Ecological Area staff demonstrate bird banding.

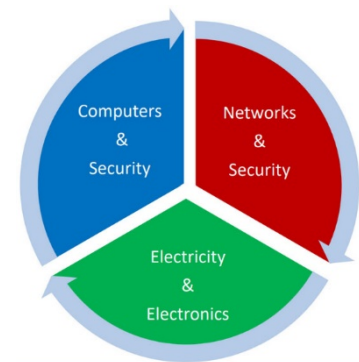
Plans are underway to construct a solar-powered outdoor teaching pavilion with restrooms at TFEA over the next year. The new structure will be used to increase K-12 programming and to support field trips and workshops with the campus and local community. The funding for this endeavor was provided by the Board of Regent's Innovation Fund, donations from EKU alumnus Dr. Gary Booth (1962), and donations made in honor or retired director of the Division of Natural Areas, Dr. Melinda Wilder. The pavilion will be named the Wilder Outdoor Education Center.

For more information about Taylor Fork Ecological Area, contact the Division of Natural Areas at naturalareas@eku.edu.

Cyber Systems Technology B.S.

The Cyber Systems Technology (CST) Bachelor of Science degree program is housed in the Department of Computer Science and Information Technology (CSIT) at Eastern Kentucky University (EKU). The program, formerly in the College of Business and Technology, became part of the newly formed College of Science, Technology, Engineering, and Mathematics (C-STEM) on July 1, 2021.

The program spans three main areas: computers and security, networks and security, and electricity and electronics.



The B.S. in CST degree program has been fully accredited by the Association of Technology, Management and Applied Engineering (ATMAE) since 2005. The program has two concentrations: network security and electronics (NET) and tech systems. NET is geared toward conventional students who have limited to no technical experience. The tech systems concentration is suitable for students with a considerable number of technical credits, possibly through specialized training in the military or transfer from the community and technical colleges. Both concentrations offer firsthand,

immersive, hands-on, lab-based classes. Students have direct access to electronics, computing hardware, software, and networking devices, including cloud-based and web-based systems.

One of the most valuable experiences required by all students in our B.S. degree program is to complete a course in cooperative education. This course places students in a workplace where they receive immersive information technology (IT) experiences in 'real-world' situations. Students are also required to complete an industry certification such as CompTIA IT Fundamentals, A+, Network+, Cloud Essentials; Cisco CCNA; Wi-Fi Administration. These certifications help our students transition into the workforce.

Another valuable requirement of the program is a senior capstone project in which students are required to develop a project that incorporates the information they have learned throughout their undergraduate education. Examples of projects from 2021 can be found at <https://vigsjc.github.io/capstoneProjects/2021/>.

CST program graduates install, support, secure, improve, and manage cyber systems. Some of the IT positions held by our recent (2020 and later) graduates include network engineer, support specialist, IT technical assistant, application analyst, IT service desk technician, phishing software simulation, sales account executive, and network administrator, just to name a few. They work in various industries supporting the IT infrastructure, spanning healthcare, education, hospitality, transportation systems, and more.

Mr. Byron Sims, an alumnus (B.S. 2006 and M.S. 2019) and senior security engineer at ECU, summarized our graduates' core skill set quite well, "I would say that cyber systems technology is a well-rounded program that gives students experience in networking, system administration, computer repair, and security. Those skills help a person create a career in the area they most desire. The classes give a person a basic idea of the type of work they would be doing. You should be a self-starter and be able to use creative problem-solving skills to work around issues."

The B.S. in CST degree program graduates may also continue to pursue advanced degrees. At ECU, they may pursue a master's degree which normally takes two years to complete (a total of six years for the B.S. and M.S. degrees), or they may follow the accelerated 3+2 dual (CST) degree program which would enable them to complete their B.S. and M.S. degrees in five years.

Our strong team of faculty members include Dr. Vigyan (Vigs) Chandra and Dr. Rendong Bai in the Department of Computer Science and Information Technology and Dr. Ray Richardson in the Department of Applied Engineering and Technology. Additionally, we have an exceptional team of adjunct faculty including Professor Jeff Kilgore, Professor Jagger Coffey, Professor Anthony Friends, and Dr. David Freet.

For more information on our degree programs and curriculum guides, visit our website at: <https://www.eku.edu/csit/undergrad-degrees.html> or contact Dr. Vigs Chandra at vigs.chandra@eku.edu.

FACULTY/STAFF AND STUDENT SPOTLIGHTS

Dr. Jeffrey Neugebauer



Dr. Jeffrey Neugebauer

Dr. Jeffrey Neugebauer, professor in the Department of Mathematics and Statistics initially started his college career as an engineering major at the University of Dayton in Dayton, Ohio but quickly realized he did not like the engineering classes. "I enjoyed the theoretical parts way more than the applications. I loved my math classes and was always really good at math, so I decided to switch to math," said Dr. Neugebauer.

He received his B.S. degree in mathematics and M.S. degree in applied mathematics from the University of Dayton. He then went to Baylor University in Waco, Texas where he worked as a graduate assistant while completing his Ph.D. degree in mathematics.

Dr. Neugebauer got his first taste of teaching as a senior at the University of Dayton, where he was asked to teach a laboratory course. While hesitant at first, he realized teaching at a university was what he wanted as a career. Five years later, in the Fall of 2011, Dr. Neugebauer joined the Eastern Kentucky University (EKU) faculty as an assistant professor in the Department of Mathematics and Statistics. Teaching and the love for math runs in the family as his younger brother also teaches math at the University of Dayton.

After arriving at EKU, Dr. Neugebauer was struck by the number of first-generation students. He quickly learned how much he enjoyed working with the students and found it especially rewarding working with first-generation students. "Our students are hardworking and do not make excuses," said Dr. Neugebauer.

He is passionate about his students' success. "Teaching mathematics in general has some challenges," said Dr. Neugebauer. "A lot of students have had negative experiences with math classes in the past, and they don't believe in themselves. I try to get students to understand that they can do math and that math can be fun."

He also developed a practice of including students in research activities and as a result, has published seven papers with graduate students and two with undergraduate students. He is currently working on two papers for publication with former students. "I find doing research with students to be the most rewarding. Students are so excited when you tell them a paper they wrote was accepted to be published in a math journal," he remarked.

Dr. Neugebauer is involved in the annual mathematics and statistics symposium to highlight faculty and student research. The symposium invites students and faculty from EKU and other universities to present their math research to their peers. The first year of his involvement, the symposium was well received and had a great turnout. Dr. Neugebauer enjoyed contributing to the organization the event and, as such, led the organization of the symposium for the next six years. COVID-19 caused the cancellation of the symposium in spring 2020. In the spring of 2021, it was held as a virtual event. Once COVID-19 restrictions are lifted, the department

plans to host the event on campus once again. The symposium enjoys participation from many universities, mostly from Kentucky, Tennessee, and Ohio.

Dr. Neugebauer has enjoyed his tenure at ECU. "I've always felt comfortable working at ECU, and I work with a lot of great faculty in the math department. A big plus is ECU is only a couple of hours away from where I grew up in Hamilton, Ohio," he said.

Dr. Neugebauer met his wife at King's Island, in Mason, Ohio in 2005 while working a summer job. They are expecting their first child in March 2022! In his spare time, he enjoys playing video games and is an avid hiker. He tries to go hiking in the to the Red River Gorge at least once a month.

Ms. Emma Hunley



Ms. Emma Hunley

Ms. Emma Hunley grew up in Ashland, Kentucky, with her parents and older sister, Amelia, and graduated from Boyd County High School. Ms. Hunley had many reasons for attending Eastern Kentucky University (EKU), the foremost being the construction management program. This program is the only American Council for Construction Education (ACCE) accredited program in any university in the state of Kentucky.

The fact that Ms. Hunley's sister already attended ECU and that her closest friend was also planning to attend ECU were also considerations in her decision. "Being close to my sister and my best friend at college was like always having a piece of home with me, and ECU being only two hours away from home, made the process of moving away from home easier," said Ms. Hunley.

Ms. Hunley is pursuing a bachelor's degree in construction management, as well as minors in business and in occupational safety. "I am still exploring my options but am very intrigued by large scale construction in commercial construction or the oil refinery industry," she said.

Ms. Hunley is involved in several extracurricular activities. She is the president of the student chapter of the Associated General Contractors of America (AGC) for the construction management program. "I love being involved in this chapter because I get to be involved with the construction industry outside of the classroom and meet more of my peers from the program," she said.

"Emma is a very smart and motivated student. She takes leadership responsibilities outside her classes by serving as the president of the AGC student chapter at ECU. She actually is the face of the program for women in construction, and I expect a bright future for Emma," remarked Dr. Zamaan Al-shabbani, assistant professor and coordinator for the construction management program.

She is also a member and vice president of finance of Alpha Delta Pi sorority. "I truly love being a part of this chapter. I have experienced a great deal of personal growth and have created bonds with my peers. My favorite part of being in the sorority is the service project that I participate in at the Ronald McDonald House in Lexington, Kentucky. I volunteer and make

goodie baskets for the patients. This is such a small but valuable task that I am happy to do for others," she said.

During her tenure at ECU, Ms. Hunley earned the Mae Ward Educational Trust scholarship, the Richard A. Brooker/Associated General Contractors of Kentucky Scholarship, and is an Honors Scholar. She has also completed two construction management internships, one with Gray Construction in Lexington, Kentucky, and one with Specialty Welding and Turnaround Services in Catlettsburg, Kentucky.

When asked what lessons she has learned during her time at ECU, Ms. Hunley replied, "The most valuable lesson I have learned is that you get out what you put in. Professors recognize effort, participation, and hard work. If you study and put effort into classes, you will get equal return in grades. Being very dedicated and putting in a lot of work will result in success."

After graduation, Ms. Hunley hopes to work her way up and become a project manager in the construction field.

ALUMNI AND FRIENDS

Ms. Crystal Renfro



Ms. Crystal Renfro

"Make as many connections as you can while you complete your studies. If you work within the agriculture community in Kentucky, I promise you will cross paths again and that networking can help your career and future projects you could be working on." Ms. Crystal Renfro

Ms. Crystal Renfro, an Eastern Kentucky University (EKU) alumna (B.S. Agriculture, 2003), has over 17 years of experience in working directly with Kentucky's Conservation Districts and helping to improve and conserve natural resources across the Commonwealth.

Born in Richmond, Kentucky, Ms. Renfro selected ECU because of the smaller class sizes and the one-on-one learning experience. As she explained, "I had toyed with attending a larger university, then realized I would be just a number at larger institutions. I wanted a more personal learning opportunity, and that is exactly what I received at ECU."

Ms. Renfro majored in agriculture with an emphasis in soil science. Her love for the land started in high school when she was on the National Champion Future Farmers of America (FFA) Land Judging Team from Madison Central High School, Richmond, Kentucky. It is this love that motivated her to major in agriculture. "My love for the land made me want to continue to protect and conserve it. I knew my passion and I had to figure out how to make a living while doing what I love," she said.

Ms. Renfro appreciated the camaraderie in the Department of Agriculture at ECU. "I have fond memories of the wonderful professors and fellow students in the agriculture department. It

provided a family atmosphere where I made lifelong friends and networking opportunities," she said.

For current students majoring in agriculture, Ms. Renfro offers the following counsel, "Make as many connections as you can while you complete your studies. If you work within the agriculture community in Kentucky, I promise you will cross paths again and that networking can help your career and future projects you could be working on."

Currently, Ms. Renfro is the Executive Director for the Kentucky Association of Conservation Districts (KACD), a position she has held since 2018. In this capacity, she coordinates soil and water conservation efforts and serves as the lobbying arm for 121 Conservation Districts in Kentucky by representing 847 publicly elected officials across the Commonwealth.

Prior to joining KACD, Ms. Renfro worked for the Madison County Conservation District as a soil conservation technician for five years, Kentucky Division of Conservation as a field representative for four years, and Estill County Conservation District as program manager for six years.

Dr. Derrick J. Morton



Dr. Derrick Morton

"Persevere and find good mentors. There were so many times that I wanted to give up on my dream of becoming a scientist with my own lab but at each turn I decided to persevere. My decision to persevere in each instance of doubt about my ability, was inspired by mentors. I had several mentors encouraging me to keep going. My mentors have been and continue to be instrumental to my success." Dr. Derrick J. Morton

Dr. Derrick J. Morton graduated from Eastern Kentucky University (EKU) with a B.S. degree in Biology in 2009 and from Clark Atlanta University (CAU) with a Ph.D. degree in molecular biology in 2016.

He was attracted to EKU, because of the small class sizes and the commitment from faculty to work with students on a one-to-one basis. He was interested in science but, not knowing any real scientists beyond historical figures, he declared an interest in pre-medicine. However, his interactions with real scientists (faculty), especially Drs. Michael Foster, Marcia Pierce, and (the late) Suzanne Byrd, changed the trajectory of his career from medicine to research.

"I had the opportunity to engage in undergraduate research while at EKU in the laboratory of Dr. Marcia Pierce, studying Methicillin-resistant *Staphylococcus aureus* (MRSA) in student populations, which ignited my passion for research and drove my decision to pursue graduate school and ultimately a career in science," Dr. Morton said.

Undergraduate research opened other doors for him as he explained, "My undergraduate research experience played a critical role in me getting into graduate school – this experience made me competitive and highly sought after by primary investigators in the programs I applied to."

Asked about his fondest memories of ECU, Dr. Morton replied, "The closeness between faculty and students, the small class sizes and low student-faculty ratio really allows you to get to know faculty and create strong networks with your peers."

He offers the following advice to current students, "Persevere and find good mentors. There were so many times that I wanted to give up on my dream of becoming a scientist with my own laboratory but at each turn I decided to persevere. My decision to persevere in each instance of doubt about my ability, was inspired by mentors. I had several mentors encouraging me to keep going. My mentors have been and continue to be instrumental to my success."

After obtaining his Ph.D. degree at CAU, Dr. Morton worked as a postdoctoral fellow, in the Department of Biology at Emory University, where he developed a *Drosophila* model of *Pontocerebellar Hypoplasia*, a devastating inherited neurological disease, caused by mutations in genes that encode components of a RNA processing factor, the RNA exosome. After the postdoctoral fellowship, he accepted a joint appointment at the California Institute of Technology (Caltech), as a visiting associate in the Department of Biology and Bioengineering, and as a teaching assistant professor at the Kaiser Permanente School of Medicine.

Dr. Morton is currently an assistant professor at the University of Southern California (USC) in the Molecular and Computational Biology section of the Department of Biological Sciences. His laboratory's research is focused on incorporating genetic approaches to understand key pathways that control an organism's development, and how alterations in gene expression contribute to disease. Projects in his group range from defining tissue-specific roles of RNA processing, surveillance, and decay machinery to how defects in essential and ubiquitous RNA processing factors cause human disease.

Dr. Morton is originally from Lexington, Kentucky, and appreciates the support he has received from his family. "I have a very large and supportive family. I am extremely grateful for their support through all these years- they are truly my biggest cheerleaders," he said.