

## College of Science, Technology, Engineering, and Mathematics Runs STEM Camp

The College of Science, Technology, Engineering, and Mathematics (STEM) at Eastern Kentucky University (EKU) hosted its first residential “STEM Camp” for rising high school juniors and seniors June 5-10, 2022. Modeled after the annual “Science and Math camp” hosted by the former College of Science before the event was interrupted by the COVID-19 pandemic, this was the largest camp so far, with a diverse group of 39 participants from 28 high schools in 23 counties across the Commonwealth of Kentucky.

One of the goals of the camp is to inspire high school students to get excited about STEM disciplines through academically focused activities.



**Camp participant holding a snake.**

Accordingly, “The campers were able to experience hands-on STEM activities

conducted by EKU professors from a variety of disciplines including aviation, biological sciences, chemistry, computer science and information technology, engineering technology, geosciences, forensic science, physics, and wildlife management,” explained Ms. Aida Bermudez, the college’s STEM recruitment and outreach coordinator who serves as the camp director.

“The camp was intentionally designed as a residential camp to introduce the participating high school students to a university campus living experience, including meeting a diverse group of people. The students slept in one of EKU’s residence halls, ate at the university’s dining hall, and participated in a variety of fun activities at EKU’s Student Recreation Center,” Ms. Bermudez said.

The camp also featured informational sessions where campers learned about academic programs offered by EKU’s College of STEM, career opportunities to which these academic programs can lead, and strategies for getting college ready and STEM ready. They also received information about other colleges at EKU, the college admission process, scholarship opportunities, EKU’s Honors Program, and cooperative education.



**2022 STEM Camp participants.**

The camp was sponsored in part by Novelis Aluminum Corporation, Battelle, and Kentucky-NSF EPSCoR.

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## PLACES AND PROGRAMS

### EKU Mammalogy Lab

The Branley A. Branson Museum of Zoology's mammal collection at Eastern Kentucky University (EKU) is located on the fourth floor of the (New) Science Building. Originally located in the Moore Building, the collection was moved to the Science Building in 2017. The museum space is approximately 400 sq. ft. in size and contains shelving and laboratory facilities for student use. It also has equipment and supplies that allow for dissection, specimen preparation and preservation, and storage for a wide range of mammals found in Kentucky and beyond.



**Benjamin Dodd visits the mammalogy museum on Family Nature Day (2021).**

“Natural history collections are an undervalued resource for cataloging both existing and extinct biota,” said Dr. Luke Dodd, associate professor in the Department of Biological Sciences. He continued, “The specimens in our museum are not only used for teaching and student research but are regularly used for events such as the Division of Natural Area’s Family Nature Day, and the recruitment and retention efforts related to the EKU Chapter of The Wildlife Society, which is a highly active registered student organization (RSO) on campus.”

The collection is routinely used for instruction in courses such as mammalogy, principles of wildlife

management, and numerous senior-level courses in both wildlife management and biology, and for active research sponsored by state agencies.

The collection contained over 1,100 records of over 90 different species from four countries across the globe when it was first moved to the Science Building. “The specimens housed in the collection at EKU are unique, indispensable, and frankly, are unrivaled in the state of Kentucky,” remarked Dr. Dodd.

Many new additions to the small mammal collection are due to the efforts of Ms. Sarah Baker (M.S. in Biology, 2022) and funding from the office of Kentucky Nature Preserves. Ms. Baker's thesis work provided data regarding the locations of reclusive, sensitive small mammal species along Pine Mountain in far eastern Kentucky. Through her field efforts in 2021, Ms. Baker added 95 new records to the museum, including shrews and rodents found in the Commonwealth. "Prior to Ms. Baker's thesis work, the museum housed 442 small mammal records with location data. Ms. Baker's recent efforts have increased or records for small mammals by over 20%," said Dr. Dodd.

"As a graduate student with aspirations to work with mammals and within natural history collections, my education and research at ECU were enriched by using the teaching collection. As the ECU mammalogy collection grows, it also grows in its educational value for current and future ECU students who will benefit from learning to identify and prepare specimens," said Ms. Baker.



**Ms. Sarah Baker processes collected samples.**

The ECU mammal collection has specimens on loan to R1 universities in the state and is increasingly serving as a repository for specimens used for teaching at ECU, for research with state agencies and educating the public, and student-centered research efforts.

### **3+2 Dual Accelerated Degree Program in Data Science**

The Department of Mathematics and Statistics at Eastern Kentucky University (EKU) will begin offering a new B.S. Data Science and Statistics/M.A. Applied Mathematics Accelerated 3+2 Dual Degree Program in the Fall 2022 semester.

Accelerated 3+2 programs offer advanced students the opportunity to take graduate coursework during their undergraduate degree. A higher course load (generally 18 hours/semester) and graduate courses that count as hours towards both the undergraduate and graduate degrees allow students to complete both their bachelor's and master's degrees in just five years. This saves the students both money and time.

"The implementation of this program will make EKU the only university in the state that combines a B.S. in data science and/or statistics and an M.A. in applied mathematics. Dedicated faculty and various program concentrations make the Department of Mathematics and Statistics at EKU the clear choice for incoming freshmen who want to study data science and statistics in Kentucky," said Dr. Michelle Smith, professor in the Department of Mathematics and Statistics.

This program is highly customizable. Three program combinations (data science, discrete mathematics, and statistics) for the undergraduate degree and three concentrations (secondary mathematics, applied mathematics and statistics, and data science) in the graduate program allow students the ability to mix and match combinations/concentrations, enabling them to design a program specific to their needs.

The rapid increase in large, complex data sets has resulted in a great demand for professionals to manage and analyze them. According to Glassdoor's list of the 50 Best Jobs in America for 2022, the job of a data scientist ranks third. The U.S. Bureau of Labor Statistics estimates that the mean annual wage for this position is approximately \$100,000 per year.

“The new 3+2 program will potentially attract more students to ECU, particularly those who have an interest in data science,” said Dr. Lisa Kay, professor in the Department of Mathematics and Statistics.

For more information regarding this new program, contact Dr. Michelle Smith at [michelle.smith@ecu.edu](mailto:michelle.smith@ecu.edu). Program curriculum guides offer a listing of the required courses and an example five-year class schedule.

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## FACULTY/STAFF AND STUDENT SPOTLIGHTS

### Professor Carla Hagan



**Professor Carla Hagan**

Professor Carla Hagan, assistant professor in the Department of Agriculture, was raised on a farm in “horse country” near Midway, Kentucky. She received both her B.S. degree in agronomy and her M.S. degree in plant and soil science from the University of Kentucky (UK) in Lexington, Kentucky. Professor Hagan joined the Department of Agriculture in 1998 as an instructor in horticulture and turfgrass management and in 2005 she obtained tenure and was promoted to assistant professor.

Throughout her tenure she has taught courses relating to turf management, pest management, forages and grasses and other horticulture and agronomy related courses.

“Nothing is more rewarding than working with students as they grow and mature while at Eastern Kentucky University (EKU) and then watching their successes as they progress in their careers, start families, and stay connected with their former classmates. I realize I am a small part of something very special and meaningful at

EKU. I am blessed to feel a bit of that reward everyday,” she said.

“Professor Hagan devotes a lot of time to her students and goes out of her way to help them understand difficult concepts,” remarked horticulture student Alexandria Hayes. Dr. Cody Domenghini, associate professor and interim chair of the Department of Agriculture said, “Professor Hagan is an excellent educator who provides a well-rounded learning experience for her students. She pushes students to think critically in the classroom and learn by applying what they have studied with practical, hands-on projects outside of the classroom and in labs.”

Professor Hagan considers herself not only a turfgrass management professor, but also an environmentalist. “I think it surprises people that a turfgrass management professor is not armed with a pesticide torch and with plans to blanket the earth in chemical residues. I consider myself an environmentalist which is not at all unusual for the horticulturalists and agronomists I know. I believe everyone should have some naturalized area on their property and give the mower a rest to encourage insect diversity and wildlife,” she commented.

She enjoys collaborating with faculty and staff across the university. “It is extremely helpful to know there are a lot of dedicated people all over campus that can help faculty move plans forward,” she said. “I enjoy working on projects that continually expand my work relationships. We have lots of people intent on making positive changes at the University.” Mr. John Duvall, agriculture technician at Meadowbrook Farm said, “It has been a pleasure to work alongside Professor Hagan for the past sixteen years! She is more than a colleague at this point; we are more like family.”

Professor Hagan is passionate about agriculture’s role in the world’s food systems. In the month prior to the pandemic, she was invited to the Netherlands to learn about agritech and the Dutch triple helix model of organization that requires industry, government, and higher education work together to progress a population forward. “During the pandemic it became readily apparent how easily broken our food system can be,” said Professor Hagan. “My recent research now includes goals to help stabilize our food system and make more agritech career opportunities for my students. We’re getting a lot of bright, passionate, and forward-thinking agriculture students. They could do much to advance Kentucky and positively change our world’s environment and food systems.”

Her work with partners in the Netherlands spurred her to bring what she learned back to Kentucky. “We have been working specifically within a framework of the Kentucky-Netherlands Agritech Collaboration to use Dutch solutions for our local problems like fresh food deserts and Kentucky’s reliance on processed foods,” she said. Growing Kentucky as the nation’s Agritech capital will have a positive impact on the Kentucky economy, future employment of ECU students, and the health of Kentucky’s population. “Post-pandemic and supply chain issues have made the general population much more understanding of why food needs to be raised close to home. With Kentucky Agritech, many food system problems are finally getting solved and ECU faculty, staff, and students are actively involved in these solutions” said Professor Hagan.

Professor Hagan has been recognized by her peers for her work in the turfgrass industry. She received the Winfrey P. Bunton II Kentucky Turfgrass Person of the Year award in 2016, which recognizes individuals who make significant contributions to the turf industry in Kentucky and

the Jackson Taylor Education in Agriculture Award in 2016, which recognizes individuals for lifetime support of agriculture.

She and her husband, Steve, have four children and live on a small farm in Madison County. She and her family enjoy exploration and new experiences. Professor Hagan comments, “Whether it’s baking in the kitchen, wandering a big city, or hiking/climbing remote areas, we teach our kids to take risks. Getting practice on the risks you volunteered for makes you more capable of handling the risks you didn’t know were coming.”

### **Ms. Joanna Marling**



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Ms. Joanna Marling is from Louisville, Kentucky, and is a double major in psychology and forensic science. She is also minoring in both Veterans studies and criminal justice.

“Originally, I had a goal of attending a private college/university, but when I toured ECU it felt like home, and it still does. I have never regretted my choice of coming to ECU as I have been a part of amazing opportunities and met people that I don’t think I would’ve had anywhere else,” said Ms. Marling.

Outside of class she is a Resident Advisor (RA) for North Hall, a First-Year Leader, and a Mental Health Peer Advocate. She is a member and officer of the Veterans Studies Alliance (secretary and vice president (VP) of promotion), and Alpha Lambda Delta Honor Society (secretary and VP of diversity and inclusion). She is also a member of the Crime and Chemistry Club.

Ms. Marling also excels academically. She was awarded the President's Scholarship (2019), the University’s Outstanding First-Year Student Award (2020), Kentucky Center for Veterans Studies (KCVS) Service-Learning Award (2021), Alpha Lambda Delta (ALD) Service-Learning Award (2021), the Jo Anne J. Trow Scholarship (2021), and the Outstanding Senior Award in the Veterans Studies program (2022). She has also been on the President's List (2019), and the Dean's list (2020, 2022).

“Joanna is the type of person who is driven from within to make the world a better place,” said Dr. Travis Martin, First Year Courses administrator, Alpha Lambda Delta chapter adviser and member of the Alpha Lambda Delta national board of directors. “She brings a unique leadership style and creative spark to every class.”

Ms. Marling’s ultimate goal is to receive her Psy.D. (Doctor of Psychology) through ECU. She hopes to work as a psychologist and provide help to anyone that she can. “I have experienced

some traumatic things in my life, and I want to be able to guide people through it and offer a listening and supportive ear that many people don't have," she said.

"I've learned to take opportunities provided for me during my time at EKV, even if I'm apprehensive at first. When I was first nominated to be a First-Year Leader, I was hesitant. I am very much an introvert and didn't like the idea of branching out. But taking that leap of faith led me to so many other opportunities and relationships that I otherwise would not have experienced or had."

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## ALUMNI AND FRIENDS

### Mr. Chad Adkins



**Mr. Chad Adkins**

*"I can honestly say, coming to EKV was the best choice I have made in my life. It opened up so many doors and possibilities that I wouldn't have ever dreamed of if I had stayed in my hometown."* Mr. Chad Adkins

Mr. Chad Adkins comes from Pike County, Pikeville, KY. He holds an Associate of Arts degree in general studies (2001) from Kentucky Community and Technical College System and three degrees from Eastern Kentucky University (EKU): B.S. in Computer Science (2005), B.S. in Statistics (2005) and M.S. in Applied Computing with an emphasis in statistical programming (2007).

Mr. Adkins' dream of attending EKV was inspired by a visit to the 'campus beautiful' when he was in middle school. "When I was in eighth grade, my class visited EKV. It was a 2.5 hour trip from Pike County to Richmond. I can't remember what we did when we got here but I do remember all of us eating in Powell and how beautiful the campus was. I said that day, 'I'd like to go to school here,'" he recalled.

Mr. Adkins did not follow a straight path from high School to EKV. He knew he wanted to go to college, but he had no idea what his long-term career goal was or what he wanted to study. He also could not see himself leaving family and friends. These reasons led him to attend Prestonsburg Community and Technical College (PCTC) in Prestonsburg, Kentucky. This also seemed to be the simplest and best economical option at the time. After two years at PCTC, he dropped out just three credit hours short of an associate degree.

Five years after leaving PCTC, during which time he worked for a few tech support companies, and his family purchased their first computer, Mr. Adkins had formulated a more concise

direction for his career path. The computer his family purchased broke down often and had to be reformatted almost weekly. He found that this task interested him and ultimately provided him some direction. He attempted to land a few jobs but quickly realized he was lacking the formal training necessary to pursue an actual career in the computer industry. During this time, his girlfriend was attending EKU so he would visit campus and found that he still loved it. After she graduated, he realized he too needed a bachelor's degree if he wanted a career in the computing field. "After seeing her success, I knew I was capable of doing the same and EKU had exactly the program I needed. Plus, since I had been visiting Richmond, it was starting to feel more comfortable to me and it didn't seem like an overwhelming jump," he said.

He enrolled at EKU as a non-traditional transfer student to study computer science. "Statistics ended up falling in my lap after my first semester. It was nice to find something else I loved beyond computers. Today, computer science and statistics is a great combination since data science has become so popular. US News (2022) ranks it number six in its [100 Best Jobs publication](#)," Mr. Adkins noted.

"I can honestly say, coming to EKU was the best choice I have made in my life. It opened up so many doors and possibilities that I wouldn't have ever dreamed of if I had stayed in my hometown," Mr. Adkins observed. He continued, "UK was always on my list of schools I wanted to attend, just like every other young boy from Eastern Kentucky, but I know I made the right choice. I'm afraid if I had chosen UK, I would have dropped out after the first semester and run back home. It would have just been too overwhelming, and I would have felt like just another body. EKU was the perfect fit in every way. The closeness with faculty, smaller town, smaller campus, and smaller classroom sizes gave me everything I needed to be successful. I just needed to put forth the effort."

Mr. Adkins is appreciative of the financial aid that made it possible for him to pursue his undergraduate education as he noted, "I paid for my education with financial aid from the McNair Scholarships program, and Pell and CAP grants. I was able to go through my entire undergraduate studies without having to take out any student loans. McNair helped keep me from accumulating any debt, which is really rare for students these days. I appreciate what McNair did for me greatly."

His fondest memories of EKU are playing pickup basketball in the old recreation center by the football field, in the Weaver building or in the Begley building, and playing Counter Strike with his computer science classmates on what was then EKU's 'blazing fast network'.

Mr. Adkins offered the following advice to students aspiring to major in computer science or statistics, "Stay with it! It's not always about how smart you are but about effort and consistency. I was never the smartest. I saw a lot of students who were smarter that didn't finish. There could have been numerous reasons for that. Life can throw a lot of hurdles in front of you but keep it simple. Effort and consistency will get you there every time if you're willing to give it. If getting a degree in computer science or statistics was easy, everyone would do it. It will be rigorous and there will be times you will feel like giving up. Those are key moments and how you react to them will determine your success."



Mr. Adkins started working full-time as an institutional research analyst in the Office of Institutional Research at ECU in 2006. He has received promotions and more responsibilities over the years including serving as senior programmer analyst (2011), interim director of institutional research (2013), associate director of institutional research (2015) and director of institutional research and data analytics (2020). Through these transitions, his job has changed considerably, and he has been able to apply his background in computer science and statistics to change the way Institutional Research functions at ECU. Initially, Institutional Research was a very reactive office. They received a request and acted on it by writing code and producing a report to satisfy the requirements of the request. While this is an issue they still face, they have been moving more and more into a self-service office by building dashboards and automated reports that are capable of satisfying thousands of requests. This allows users to dissect the data into ways they may have not thought about. All their reporting tools thus far are custom in-house products built on free libraries, thus giving them a tremendous amount more control over functionality that commercial products such as Tableau or PowerBI could not offer.

Mr. Adkins has risen to the position of Director of Institutional Research & Data Analytics. He leads a team that provides decision support to university leadership through the construction of reports, dashboards, dashboard design and data analytics using various methods and technologies.

### **Mr. Horace Hunter**



**Mr. Horace Hunter**

*“There are times in flight training that make every pilot question their passion. When those times come, always take a step back and take a breath and talk to a friend or mentor. The realization that you are on the rugged path to the best job in the world will become apparent.” - Mr. Horace Hunter*

Mr. Horace Hunter was born in Americus, Georgia, and had a dream of becoming a pilot when he was five years old. “My mother and I traveled to Japan to visit my grandparents when I was five, and the most exciting parts of the trip for me were the plane rides. I developed a deep love for airliners and hoped to fly them one day,” he said.

After graduating from Lexington Lafayette High School in 2014, Mr. Hunter chose to pursue his dream at Eastern Kentucky University (EKU) because of its proximity to his hometown of Lexington, Kentucky, and the unbeatable tuition and flight fees that they offered.

He graduated in 2017 with a B.S. degree in aviation (professional flight concentration), with a minor in aerospace management. As a student at ECU, he also received his private pilot’s license, instrument and multi-engine ratings, commercial certificate, and certified flight

instructor (CFI) certificate. He also received an MBA degree in project management from University of Southern Indiana in 2021.

Mr. Hunter received the Rodney Gross Memorial Scholarship and the Tag Veal Scholarship, both of which contributed immensely to his excellent performance in his studies. “Without this monetary assistance, I would have had multiple stopping points in the flight curriculum and would likely not have been as academically sharp due to a lack of a consistent training experience,” he observed.

He received two internship opportunities through ECU. The Ward/Kraft Turbine Experience Internship Program gave him an opportunity to serve as a co-pilot in corporate jets. In addition to flying the planes, his other duties included flight planning, cabin preparation, hotel booking, and strategic planning. The Textron Aviation Flight Instruction Internship gave him an opportunity to serve as a ground instructor where he taught flight principles and provided flight instruction and discovery flights.

Mr. Hunter’s fondest memories at ECU include the activities that his Living Learning Community (LLC) pursued while in Clay Hall. “We traveled to Thunder Over Louisville and had a VIP Flight Operations tour of the UPS Worldport. The friends that I made in the residence halls remain some of my closest friends to date,” he recalled.

Asked what advice he would give to students aspiring to major in aviation, Mr. Hunter responded, “One important piece of advice is that for every hour of flight, comes three hours of studying. A second piece of advice is that there are times in flight training that make every pilot question their passion. When those times come, always take a step back and take a breath and talk to a friend or mentor. The realization that you are on the rugged path to the best job in the world will become apparent.”

After graduating from ECU, Mr. Hunter worked as a Captain and recruiter at PSA Airlines, a wholly-owned subsidiary of American Airlines. Currently, he is a First Officer for Delta Airlines flying the Airbus A220 based in New York City (NYC).