

## 2024 STEM SUMMER CAMP



2024 STEM Summer Campers

The College of Science, Technology, Engineering, and Mathematics (CSTEM) at Eastern Kentucky University (EKU) hosted its annual STEM summer camp for rising high school juniors and seniors June 2-7, 2024.

There were 37 participants of whom 36 came from 27 high schools in 21 counties in the Commonwealth of Kentucky, and 1 one came from the state of Ohio.

Campers experienced hands-on STEM activities that encompassed the areas of applied engineering, biology, computer science, forensic science, environmental science, 3D printing, mathematics, and physics that were led by EKU professors.

“The variety of disciplines and the direct involvement of college professors are in line with one of the goals of the camp which is to inspire high school students to get excited about STEM disciplines through academically focused activities,” explained Ms. Aida Bermudez, the CSTEM enrollment counselor and camp director.

This camp was intentionally designed as a residential camp to introduce the participating high school students to a university campus living experience, including the opportunity to meet a diverse group of people. Ms. Bermudez elaborated by saying, “They received a glimpse of college life as they stayed in the Telford Residential Hall, had meals at Case Dining Hall, and learned about the different services and degree programs that EKU has to offer. In the evenings, they attended different fun activities such as the team building Low Ropes Course and had time to enjoy EKU’s Student Recreation Center and pool.”

The camp concluded with a session in which the students shared their experiences of the week with their peers and parents.

“The campers left EKU with a good idea of different STEM career options, good college advice, and how EKU can best serve them when it is their time to be a college student,” said Ms. Bermudez.



Dr. Jason Fry guides campers through a physics experiment

This year’s STEM camp was sponsored by Battelle and the EKU College of STEM.

## Eastern Kentucky University Hosts the Kentucky Section of the Mathematical Association of America's Annual Meeting



*Dr. Lisa Kay accepts the KYMAA Distinguished Teacher of the Year award*

On April 4th and 5th, 2024, the Department of Mathematics & Statistics at Eastern Kentucky University (EKU) hosted the Annual Meeting of the Kentucky section of the Mathematical Association of America (KYMAA). The KYMAA has held these annual meetings for more than 30 years, and the annual meeting is one of the largest mathematics conferences in the state.

According to Dr. Shane Redmond, the chair of the Department of Mathematics & Statistics, "This year's conference featured talks by faculty and students, professional development sessions, nationally renowned speakers, games for attendees, as well as an awards banquet."

Over 100 students, faculty, and lovers of mathematics and statistics attended the KYMAA meeting in the Science Building. The highlight of the meeting was the recognition of ECU's own Dr. Lisa Kay, professor of statistics, as the KYMAA Distinguished Teacher of the Year for 2024. "I was honored to have my teaching recognized by my peers, and I appreciated the time and effort Dr. Shane Redmond put into my nomination. This award is particularly meaningful to me since my longtime mentor, Dr. Pat Costello, was once a recipient," said Dr. Kay.

Presenters at the conference from ECU included Dr. Vicki Modisette, assistant professor of statistics, and Mr. Trinity Maxwell, a senior undergraduate student double majoring in mathematics and data science and statistics.

Many other ECU faculty contributed to the success of the conference by attending talks, moderating sessions, as well as helping with the set up and clean up. Dr. Judith Jenkins, associate professor of chemistry and director of ECU's Center for STEM Excellence, was especially recognized by Dr. Redmond, for her help with the logistics of the use of the Science Building space effectively for the conference.

EKU is proud to have brought this experience to Richmond, Kentucky. KYMAA Officers praised ECU for their modern facilities and helpful faculty and staff, declaring the conference a great success with the largest attendance since 2020.

## FACULTY/STAFF AND STUDENT SPOTLIGHTS

### Faculty Spotlight: Dr. David Hayes



Dr. David Hayes

Dr. David Hayes was born in Lebanon, Pennsylvania, where he graduated from Lebanon High School. He is a first-generation college graduate having received his bachelor's degree in environmental science from Juniata College in Huntingdon, Pennsylvania, his master's degree in biology from University of Louisiana-Monroe, and his doctorate in environmental biology from Arkansas State University.

When asked why he sought employment at ECU, Dr. Hayes responded, "I was close to finishing my Ph.D. when a job for an Aquatic Invertebrate Zoologist was posted that involved teaching, research, and museum curation and so it sounded like a perfect fit." Dr. Hayes was hired into the position in the Department of Biological Sciences in 2009, received tenure and promotion to the rank of associate professor in 2015, and was promoted to professor in 2023.

His research and teaching interests are in the areas of conservation biology, DNA-based biomonitoring and invertebrate systematics. He has mentored a number of graduate students on their master's thesis projects as well as several undergraduate students research projects. These research efforts have resulted in several publications and conference presentations by him and his students. He has also secured multiple research grants.

Dr. Hayes' service commitments are varied, but most notably, as chair of his department's space, facilities, and equipment committee, he oversaw significant aspects of the move to the New Science building and the expenditure of over \$1million in equipment funds for the department. Additionally, he serves as the Curator of Invertebrates in the Branson Museum of Zoology at ECU where he has continued to expand accessions and has made data about the holdings publicly available, thus modernizing the collection and enhancing its scientific value to researchers beyond ECU.

Dr. Hayes said that what he likes most about ECU are the natural history collections. "No other place in the state has a natural history collection as large as ECU's, it's an amazing resource for researchers, agency personnel, and environmental consultants. If I wanted to, I could come into work every day and look an organism that I've never seen before because they are right down the hall and someone in the past had the foresight to save it for future generations."

When asked what he likes most about his job and what gives him the greatest job satisfaction, Dr. Hayes said, "I get to learn new things and to teach others about the things I learn. I consider myself a lifelong student, I love learning new skills and information, and then sharing that with others. Seeing my students go on to excel in a variety of fields and making a difference in the world. Some of my students have gone on to work at federal and state agencies, where they have a real impact on the conservation of species. Some have gone on to the biomedical field and are helping people live better lives. This is really the hope of any teacher."

Dr. Hayes said the significant changes he has seen during his time at ECU has been the construction of the new Science Building which allowed a "fresh start for our classrooms, research labs, and museum spaces".

### **Student Spotlight: Ms. Abigail Bodner**

Ms. Abigail Bodner spent the early years of her education in Jefferson County in Louisville, Kentucky. Growing up in the city, there was always so much going on and so many large projects to be involved in; however, she moved to rural Brandenburg, Kentucky in middle school and quickly had to adjust to small town life in a way that was sort of a culture shock. "All these years later, I appreciate the deeper connections of a small-town community," she said.

Ms. Bodner decided to attend Eastern Kentucky University (EKU) to participate in the forensic science program. At the time that she applied, EKU featured the only accredited forensic program anywhere near Kentucky. "EKU was actually the only school I applied to. I was very excited to be part of a school that can provide a tight-knit community with small class sizes to allow a personalized feel." She is currently working towards a major in forensic science with a concentration in forensic chemistry.



Ms. Abigail Bodner

Throughout her time at EKU, she has been receiving the Tier I Merit scholarship that is offered by the university to help cover student tuition. She is very thankful for the generosity of EKU for allowing her to attend school virtually debt free in conjunction with other scholarships. She was also honored to receive the Top Student in Analytical Chemistry Award from the Department of Chemistry and Forensic Science in April of 2024.

Most recently, she has been involved with the College of Science, Technology, Engineering, and Mathematics enrollment outreach and has served as a student assistant for the College's STEM summer camp for rising high school juniors and seniors. She was able to help guide the students through demos

in computer science, forensics, biology, and more. She has also recently been working towards obtaining medical physician shadowing hours for her upcoming application to medical school. “Although it is non-traditional, I am planning to use this degree to apply to medical school in hopes of becoming a medical examiner. I am submitting my application in the coming month and hope to hear back from my prospective schools some time next spring!”

Ms. Bodner said the most important thing she has learned at ECU is teamwork. “As someone who is very independent, it can be very difficult to learn to work with others and trust their input. In my time working through hours of chemistry, biology, and forensics labs, though, I have learned the value of forming reliable and trusting team relationships that have allowed our work to be fuller, better, and more efficient than any product I could have imagined. I have learned so much about being open to other perspectives, other experiences, and alternative ways to approach a problem.”

## ALUMNI AND FRIENDS

### Dr. Russell “Russ” Williamson



Dr. Russ Williamson

*“First, you must learn how to study. I didn't know how to study when I started college. It's really a job. The second thing is to know what's being presented before it's being presented. If you're up on the subject that's being presented in class that day, then you can ask some intelligent questions.”-Dr. Russ Williamson*

Dr. Russell (Russ) Williamson obtained a Bachelor of Science degree in biology with a focus on premedical sciences from Eastern Kentucky University (EKU) in 1971 and a Doctor of Medicine in Dentistry from the University of Kentucky in 1975. He also graduated from the University of Illinois at Chicago's postgraduate program in prosthodontics in 1977, with a specialization in fixed prosthodontics (crown and bridge).

Dr. Williamson's decision to pursue a dental career was made for him by his father who was influenced by his nephew having attended the University of Louisville Dental School. Likewise, while Dr. Williamson thought he would go to Morehead State University (MSU) like most people from Martin County, his home county, did. Even his father is a Morehead alumnus. However, his father had a different plan for him. “If you go down to Morehead with all your classmates and you guys all have a big time and have a lot of fun, you're not going to do any studying. Secondly, Eastern is a good school and they are known for their Pre-Med / Pre-Dental / Pre-Vet,” his father said.

Dr. Williamson did not mind his father making these decisions for him, “I really worshiped my father and my mother, and I would have done anything they wanted me to do. Moreover, my dad paid for everything. That's huge when your parent wants you to do something and is willing to pay for not only your college, but also your dental school.”

Dr. Williamson said he was glad to have attended EKU. “They had a pre-medical student club called Caduceus Club with an organic chemistry professor, Dr. John Meisenheimer, as the Director. He, together with another organic chemistry professor named Dr. Victor Bendall and a biology professor named Dr. Sanford Jones were instrumental in getting students into dental, medical, and veterinary schools. I'm glad I came to EKU because I got a good education at Eastern and got into dental school.”

EKU helped him become a better student. “By far what I learned was that not only did I need to keep up in my classes, but I also needed to be ahead in my classes. I learned that when I went into class and the instructor was going to lecture, I needed to know that material well. I had to know that material well enough to know to ask questions about the things that I didn't know in that material. One of my first lessons was to find out who my instructors were, get to know them, and be comfortable approaching them.”

When asked what advice he would give to current students aspiring to go into dentistry, Dr. Williamson responded, “First, you must learn how to study. I didn't know how to study when I started college. It's really a job. The second thing is to know what's being presented before it's being presented. If you're up on the subject that's being presented in class that day, then you can ask some intelligent questions.”

In 1978, shortly after completing his postgraduate studies at the University of Illinois at Chicago, Dr. Williamson started his dental practice in his hometown of Inez in Martin County, Kentucky. He quickly realized that anyone who practices in an underserved area had a difficult job. “You have patients who come in and when you refer them to a specialist, they tell you they can't afford to see the specialist, they can't afford to go to Ashland or Lexington, or even that they can't afford to pay you. But that's just part of practicing in a small town, so you must have a standard. My standard was that no one left my practice in pain or not treated. They were going to be treated whether they paid me or not.”

After 12 and a half years of very successful practice, with 8,800 patients of record in Martin County, Dr. Williamson sold his practice to another Martin County resident and went to teach at the University of Kentucky. He taught for 10 years and considers teaching the most enjoyable part of his career.

Starting in 2001, he did another stint of private practice, this time in Lexington, Kentucky before retiring in 2009. Dr. Williamson's father was an entrepreneur and owned a Chevrolet franchise. Young Dr. Williamson spent a lot of time at the dealership before and after school, doing all sorts of odd jobs,



including assisting the mechanics. "I enjoyed the science of the mechanical aspects of the automobile and the trucks and all the vehicles," he said.

After retiring, he thought it would be fun to build and race something. He did a lot of reading about cyclekarts, which is essentially a go-kart with motorcycle wheels, tires, and suspension. "Building it tied everything together that I knew about automobiles. It wasn't anything near the complications that we have in today's vehicles. All of it was just a real simple vehicle. Once I built that, I raced it. It's a great sense of accomplishment to be able to do that."



Dr. Williamson in his donated cyclekart

With his goal achieved, Dr. Williamson decided to donate his cyclekart along with some metal working equipment to the Department of Engineering and Technology at ECU. He explained his motivation behind his gift, "I thought, wouldn't that be fun for them to have it at ECU. It would be something those students could have that would stimulate them. They could learn those same techniques that I learned, the same theories that I learned, and they can visualize that. Technique is not just in a book. It's something that you can see and something you can touch. Something you can change to make the learning process much easier and more vivid. That would really be a wonderful thing for these students."

Dr. Williamson lives in Lexington, Kentucky. He is looking forward to an opportunity to come to ECU to discuss, and demonstrate, his cyclekart and equipment gifts with ECU manufacturing engineering students.

## UPCOMING EVENTS

### Fall Classes Begin

August 19<sup>th</sup>

### Fall Break

October 14<sup>th</sup> – 15<sup>th</sup>