

## **EKU Launches High-Demand Degree Program in Manufacturing Engineering**

Eastern Kentucky University (EKU) students will soon have the opportunity to pursue a degree in the high-demand field of manufacturing engineering. With an anticipated 32,400 new manufacturing engineering jobs nationally by 2029, EKU's bachelor's degree in manufacturing engineering addresses an expanding need within the state and beyond.

"I'm excited to announce that Eastern Kentucky University will have the only manufacturing engineering degree program in Kentucky," said EKU President Dr. David McFaddin. "With this new degree program, EKU is uniquely positioned to serve the growing demands of Kentucky's labor market in the manufacturing sector. As the School of Opportunity, we take great pride in offering relevant and high-demand degree programs that enable our graduates to propel Kentucky industries forward."



**Student works in Manufacturing Engineering laboratory.**

With recent announcements of the construction of two new electric vehicle battery manufacturing plants in Kentucky, job growth within the manufacturing sector in the state is expected to increase. The Council on Postsecondary Education released The Engineering Sector Gap Analysis, reporting a need in Kentucky to graduate manufacturing engineers and provide talent for the continued growth of manufacturing companies. Furthermore, the American Society for Engineering Education shows that Kentucky has fewer bachelor's degree engineer graduates per capita than any of the adjacent states. EKU's new program in manufacturing engineering will help to fill those gaps.

"As manufacturing becomes more and more critical to Kentucky's economic future, EKU's new manufacturing engineering curriculum will be an essential part of our economy of tomorrow," said Frank Jemley, president and CEO of the Kentucky Association of Manufacturers. "We applaud EKU's foresight in establishing this cutting-edge degree program. It will play a key role in growing more high-wage manufacturing jobs as Kentucky increasingly becomes a state of choice for American and international companies to make world-class products."

EKU's new program, along with well-established programs in engineering technology management, occupational safety, global supply chain management, and risk management and insurance, positions the university as the hub of the state's growing manufacturing industry. As EKU's first engineering program, the manufacturing engineering degree begins in Fall 2023 and will prepare graduates to become practicing manufacturing engineers.

Students pursuing the manufacturing engineering degree will develop skills to design, analyze and modify the processes and systems used to make products in the most time-efficient, cost-effective way possible while maintaining safety and product quality in an environmentally friendly manner. Students

will gain expertise and practical knowledge in the major areas of manufacturing materials and processes, design for manufacturability, lean manufacturing, quality and process control, automation, and robotics.

“The manufacturing engineering degree builds upon a strong foundation of STEM education, which we do exceptionally well at EKU,” said Dr. Tom Otieno, dean of the College of Science, Technology, Engineering, and Mathematics (STEM). “Our state-of-the-art facilities, cutting-edge learning resources, expert faculty and already robust manufacturing technology program ensure students in the manufacturing engineering program will have the necessary knowledge and hands-on experience to be competitive and excel in this high-growth field.”

EKU’s STEM Center for Excellence will provide the requisite support for students to succeed in the new program and specifically in the areas of math and science. An Engineering Advisory Council, including engineers and engineering managers from companies such as Lockheed Martin, Valvoline, Alltech, Hyster-Yale, Corning/Gorilla Glass, Lexmark and Carhartt, was established in September 2021 to provide an industry perspective to the development and operation of the new degree program.

For more information about EKU’s Manufacturing Engineering degree program, visit [go.eku.edu/engineering](http://go.eku.edu/engineering).

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## PLACES AND PROGRAMS

### The Red Barn Garden and Orchard

Established the summer of 2015, the EKU Red Barn Garden (RBG) and Orchard was designed to promote hands-on learning for students in the EKU fruit and vegetable production program. A variety of crops were selected to give students diverse experiences with growing, maintaining, harvesting, and troubleshooting. The three-acre facility is managed by Mr. John Duvall, horticulture technician, and two to three student employees from the horticulture program during the summer months. The RBG is located behind the Ashland Building adjacent to the Faculty/Staff Community Garden and is comprised of high tunnels, vegetable plots, hop trellises, and even a unique gourd tunnel. The orchard contains fruit trees (apples, peaches, pears, and plums), small fruit shrubs (blueberries, elderberries, and mulberries) and brambles (blackberries, raspberries, and black raspberries).



**Students working in the Red Barn Garden.**

Over the past few years, the Red Barn Garden has been awarded several grants from different sources like the Kentucky Horticulture Council and the Kentucky Department of Agriculture. Those grants were used to purchase new equipment such as a vegetable washing table, a hydrostatic walk behind tractor with attachments, plastic mulch layer as well as to help pay for student employment during the growing season. The main focus of the grant provided by the Kentucky Department of Agriculture was to host

field days for local elementary and high schools to promote healthy eating habits by showing the students how their food is produced.



Blueberries ready for harvest.

“Most recently we were awarded a student research grant to compare the growing production of blueberries in a traditional field setting versus a hydroponic system. The hydroponic system is currently setup in our greenhouse facilities next the Carter Building. Mr. Robby Dostart, a junior from Lexington, is leading the student research and will be presenting his findings at the Kentucky Fruit and Vegetable Conference in January of 2024,” said Mr. Duvall

Not only does the Red Barn Garden provide a learning space for our students, but it enables them to have the opportunity to connect with members of the community. “The Red Barn Garden has a lot to offer with the large variety of crops and fruit trees that are being grown there. As a student this facility has helped me in strides because it has taught me more than just how to grow a garden. I have developed more interpersonal communication skills and qualities that employers seek,” said Mr. Skylar Campbell, a senior agriculture major from Beattyville, KY.

The students hard work is rewarded by seeing the literal “fruit of their labor” sold to members of the community at the Madison County Farmer’s Market. The market sets up on campus, in the Carter Building parking lot, every Thursday during the summer. Produce grown by the students has also been sold to our local school systems and even turned into delicious dishes prepared by the Burrier Café on campus.



Students selling produce harvested from the Red Barn Garden.

### **Bachelor of Science degree program in Management Information Systems**

According to the Bureau of Labor Statistics (BLS), employment for management information systems managers is projected to grow 16 percent from 2021 to 2031 which is much faster than the average for all occupations. Approximately 48,500 job openings for computer and management information systems managers are projected each year over the decade.

The Bachelor of Science in Management Information Systems (MIS) is a new degree program offered by the Computer Science and Information Technology (CSIT) Department. The decision to establish the College of Science, Technology, Engineering, and Mathematics (CSTEM) provided a strategic opportunity to consolidate all computer-related degrees into the CSIT department to allow sharing of courses, computer laboratories, and other resources. “Having all computer-based programs in the CSIT department allows EKU to focus resources while assisting students in making informed decisions about the best computer-related degree to meet their career goals,” said Dr. Tom Otieno, Dean of CSTEM.

The MIS degree is replacing the Computer Information Systems (CIS) concentration that is part of the Bachelor of Business Administration in the College of Business. The MIS program provides students with a focus on the business application of computer technology. It specifically does not require advanced

mathematics courses, such as calculus and it is not heavily focused on computer programming. Instead, the degree allows students to learn business applications of computer and information technology.

The MIS degree has program electives that allow students to focus on business analytics or business systems security or both. “The uniqueness of the program is that, although a business minor is recommended, students may choose to minor in other complimentary areas such as Cyber Security and Intelligence, Informatics, or Computer Electronics Technology in order to personalize their program,” remarked Dr. Tim Ross, associate dean of CSTEM.

The MIS program is specifically designed for students who wish to work in business IT departments. This degree will prepare students for a career path in supervision and management. The business minor provides coverage of accounting, economics, finance, marketing, management, business law, and business strategy. These courses prepare students to work in all areas of business and are a strong foundation for a career in management.

As mentioned, the MIS program is replacing the former CIS program. A recent survey found graduates of the ECU CIS program are employed in a variety of industries such as Amazon, IBM, Humana, Cincinnati Insurance Company, CISCO Systems, Alltech, God's Pantry Food Bank, Dell Technologies, YUM! Brands, Valvoline, TriHealth, UK Healthcare, and many other organizations.

Job positions of current graduates are varied, with approximately 25% surveyed responding with the title of manager. ECU graduates also worked as programmer/developer, business analyst, database, network analyst, network security specialist, web developer, and help desk consultant.

The B.S. in Management Information Systems is now accepting enrollments for Fall 2023. For more information, visit the website <https://www.ecu.edu/csit> or contact Dr. Kuang-Nan Chang, Department of Computer Science and Information Technology chair [Kuangnan.Chang@ecu.edu](mailto:Kuangnan.Chang@ecu.edu)

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## FACULTY/STAFF AND STUDENT SPOTLIGHTS

### Dr. Shane Redmond: Department of Mathematics and Statistics



Dr. Shane Redmond

Dr. Shane Redmond, professor and chair of the Department of Mathematics and Statistics, was born in Mansfield, Ohio. “My grandparents were born in Eastern Kentucky. During World War II, they moved to Ohio so my grandfather could work in the factories to support the war effort. Then he was drafted and served a tour of duty before returning home with a Purple Heart. Even though my grandparents stayed in Ohio to raise their family, Kentucky was always a proud part of their identity,” he said.

Dr. Redmond has B.S. and M.S. degrees in mathematics from Ohio University with minors in computer science and history and a Ph.D. degree in mathematics from the University of Tennessee. He was inspired to major in mathematics because it touches every area of life. He commented, “anything you want to measure or record or quantify uses mathematics to do so. I also love the beauty, creativity, and logic of pure mathematics. It can be a real thrill to create something new or answer a question no one has been able to answer before.”

He came to Eastern Kentucky University (EKU) in 2003 as an assistant professor and rose through the ranks, becoming a professor in 2016. In 2020 he became the interim chair of the Department of Mathematics and Statistics and chair in 2022. “Shane is easy to work with as chair of the department. He is accessible, reasonable, an effective communicator, and wants what is best for all EKU students. He should be commended for successfully navigating our department through the pandemic as a new chair,” said Dr. Michelle Smith, professor in the Department of Mathematics and Statistics.

During his tenure at EKU, he has seen a change in the way mathematics has been taught. “We incorporate technology in our classrooms more than ever through online homework and other resources. We have support courses that students take while completing their College Algebra, Introductory Statistics, or Mathematics with Applications courses. This means students no longer have to complete a semester or two of remedial courses; they can take the courses their majors require while still getting the support they need. Our tutoring efforts have grown as well, with tutoring services that include online tutoring options. Across campus, we see more support for students, like the new Center for STEM Excellence, to help students succeed in their mathematics and statistics courses,” he said.

Dr. Redmond’s greatest satisfaction is when a major from the department gets accepted to graduate school or gets that dream job for which they have been searching

#### **Mr. Andrew Elliott**



Mr. Andrew Elliott

Mr. Andrew Elliott is a recent recipient of the College of Science, Technology, Engineering, and Mathematics (STEM) Dean’s Award of Merit. He will graduate in May 2023 with a B.S. degree in Chemistry and is part of the EKU Honors Program.

Mr. Elliott has been conducting research since his first semester at EKU, beginning with neuroscience research in the Department of Biological Sciences. He then transitioned to working with his current mentor, Dr. Margaret Ndinguri, associate professor in the Department of Chemistry, focusing on chemotherapeutics and cancer imaging research. Recently, he has been assisting Dr. Benjamin Wicker, an assistant professor of chemistry, in his efforts to develop phosphonium metal ligands. During this time, he has co-authored articles in two reputable journals, one in *Neuroscience* and another in the American Chemical Society’s journal, *ACS Omega*. He presented at three major poster symposiums; The Kentucky Academy of Science (for which he received the 1st place prize in organic chemistry research), The Southeastern Regional American Chemical Society Symposium in Puerto Rico, and most recently at The Kentucky Honor’s Roundtable in Morehead, Kentucky.

Mr. Elliott also finds time to give back to the community. He has been studying Shao Lin Kung Fu for twenty-one years and is working on his 4<sup>th</sup>-degree belt. As a part of this, he volunteered over the years as a children’s instructor, and more recently as a guest instructor for Dr. Cheryl Carrico, assistant professor in the EKU Department of Occupational Therapy. He also served as the Berea Farmer’s Market president for five years, where he oversaw the implementation of Electronic Benefit Transfer (EBT) access to the market. This enabled many more low-income individuals in our region to access healthy food.



At ECU, he serves on both the sociology program's academic appeal's committee and the Department of Chemistry's curriculum committee as a student representative. He also serves as the Department of Chemistry's head tutor, a job he enjoys very much.

Mr. Elliot has received many awards during his tenure at ECU, including the Goldwater Scholarship, The Richard and Mary Steele Memorial Endowed Scholarship, The Thomas Herndon Scholarship, and the Pricilla Chu Foundation Scholarship. He has been on the dean's list and the president's list every semester since he enrolled at ECU. He received the Kentucky Academy of Sciences 1st Place Prize for an organic chemistry research presentation, ECU 2022 Top Student in Biochemistry, Kentucky Oral History Foundation Grant awardee for his work chronicling Kentucky's history of Shao Lin, and the ECU Student Research Grant for 2022.

Mr. Elliott is most proud of his family. "I am proud to be a father to my son and husband to my wife, this has definitely been my proudest achievement," he said.

Mr. Elliott hopes to matriculate into the MD/Ph.D. program at the University of Kentucky (UK) in 2024. During the interim, he will be conducting research at the UK Markey Cancer Institute under Dr. Kathleen O'Connor. This work focuses on the role of integrin signaling in breast cancer. Once he is enrolled in his graduate program, he hopes to earn an M.D. and then a Ph.D. in either immunology or toxicology. With these qualifications, his aim is to gain residency as an Internal Medicine specialist, then a fellowship in Medical Oncology. "My ultimate goal is to become a childhood cancer specialist focused on caring for malignancies of the blood. I would like to focus my research efforts on peptide-targeted chemotherapeutic therapies and metabolic therapies for cancer care. Alongside practicing medicine and conducting research I also hope to serve as a professor of medicine," Mr. Elliot said.

According to Dr. Reed, chair of the Department of Chemistry, "Throughout his career here at Eastern Kentucky University, Andrew has excelled in his classes, been an excellent and engaged student in his courses, and is a cheerful leader amongst his peers...his independence, self-motivation, drive, and intelligence exhibited during his research project and courses have been remarkable."

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## ALUMNI AND FRIENDS

### Dr. Shahed M. Jameel



Dr. Shahed Jameel

*"I struck gold by being integrated into ECU and in particular the Department of Biological Sciences where I learned some essential life and career skills and many long-term relationships and friends." - Shahed M Jameel, M.D.*

Dr. Shahed M. Jameel obtained his Bachelor's in Medicine and Bachelor's in Surgery (MBBS) degree from Annamalai University in Tamil Nadu, India (2000), M.S. in Biology (Microbiology and Molecular Biology) from Eastern Kentucky University (2007), and M.D. in Internal Medicine from Louisiana State University (2010).

Dr. Jameel currently works as a Hospitalist at North Oaks Medical Center in Hammond, Louisiana and occasionally works in the Oschner Medical System in New Orleans, Louisiana. He previously worked in hospitals across Louisiana, Washington State, and Minnesota.

He explained his motivation for enrolling in the M.S. program in biology at Eastern Kentucky University (EKU) thusly, "After completing my medical degree in India, I wanted to learn the process of research and gain experience in its techniques. I had a lot of exposure to clinical microbiology as a clinician but had none in research. I wanted to gain insight in the world of disease management. What better way to fight disease than by learning more about them and using this information to overcome and contain the spread of pathogens,"

He further commented, "I was very fortunate to have Dr. Marcia Pierce [associate professor in the Department of Biological Sciences] as my mentor and advisor and she helped me succeed in several endeavors on my path to eventually help fight disease. I struck gold by being integrated into EKU and in particular the Department of Biological Sciences where I learned some essential life and career skills and many long-term relationships and friends."

Dr. Jameel paid for his own graduate degree by working several on-campus jobs including, teaching assistant, graduate assistant, front desk at various resident halls, and working with EKU information technology (IT) to name a few. "Working in several positions involved interacting with innumerable people and was priceless in learning to be part of the American culture," he remarked.

The many fond memories of EKU that Dr. Jameel has, include hanging out with friends, working on graduate research projects in the biology laboratory with friends and classmates, the various jobs he held on-campus, serving as an orientation leader and new student leader, being a senator for student government, fencing, and movie nights at the stadium.

To current students aspiring to major in microbiology, Dr. Jameel has the following advice. "It's worth it. It will be worth it. What you gain is the abstract power to face situations where you figure out solutions. It may be hard to see it from where you are, but a much older you will thank yourself for all the good decisions you make. Do not be afraid to fail. It shows that you have the courage to try. The lesson gained from this cannot be taught in classrooms. There will always be a need for more personnel in the world of microbiology, be it in the lab or in the field. Join the fight against disease and suffering. You will be rewarded with the knowledge of doing good for humanity."

Dr. Jameel was born in the city of Coimbatore, in the state of Tamil Nadu, in India. He met his wife soon after he completed his residency program, and they have two young, identical twin daughters. "They make my hardest days melt away and my best days lived large. They make my heart happy. I got lucky," he said with pride.

Dr. Jameel credits EKU with being the perfect launching pad to life out in the 'real world' in America. "I have many fond memories of my time at EKU and hope to one day show my family where it all started for me here in the U.S.," he concluded.

## Mr. Alan Ewing



Mr. Alan Ewing

*"It was one thing to do the class work - it was another to help collect data to support real research. I had a significant head start on others in graduate school because of that experience."* -Mr. Alan Ewing

Mr. Alan Ewing was born in Florence, Kentucky, and obtained a B.S. degree in physics with a minor in mathematics from Eastern Kentucky University (EKU) in 1989 and an M.S. degree in physics from the University of Tennessee in 1993.

Having decided to stay in-state for his undergraduate education because of affordability, he picked EKU because, "I really liked the reputation of quality of instruction in the sciences, math, and computer science departments at EKU.

Another factor was the more personal attention in the advanced classes and opportunities to collaborate with the professors doing research," he explained.

Mr. Ewing elected to major in physics because he believed physics would give him the greatest exposure to math, computer science and preparing for what he saw as "practical" science. "I knew that I was more of an experimentalist and the more hands-on approach had a particular satisfaction for me," he said.

During the summers, Mr. Ewing worked with Dr. Christopher Laird (retired EKU physics professor) at the University of Kentucky Van de Graaff Accelerator Laboratory (UKAL) conducting undergraduate research, thereby gaining real context of how scientists work in practice. "It was one thing to do the class work - it was another to help collect data to support real research. I had a significant head start on others in graduate school because of that experience," he remarked.

Asked about his fondest memories of EKU, Mr. Ewing responded, "Academically, the relationships I built with some of the key faculty in the Department of Physics and Astronomy are the ones that really sticks with me. I am deeply appreciative of what Drs. Laird, (Jerry) Faughn, and (Jerry) Cook did to help extend my knowledge beyond academics. They not only taught physics, but what it meant to be a scientist and a well-rounded, thinking person that could take risks and face challenges. On a personal level, it was meeting my wife-to-be, Mindy, while we were both undergraduates. She has been my partner, friend, and greatest supporter for almost 34 years."

To current students who want to major in physics, Mr. Ewing offers the following advice, "First, stick with it! Second, use your professors as resources. These very intelligent folks genuinely care about your development as a professional and are there to help you reach your potential. Finally, be flexible in your professional aspirations. Having a degree in physics will be a significant professional advantage - take advantage of that. The world needs smart people who are trained to learn, take intellectual risks, and solve problems."

Mr. Ewing spent 15 years working at Nokia Mobile Phones as director of internet technologies. Currently, he is the executive director for the OnGo Alliance which is an industry association for the telecom industry. He also runs his own telecom engineering consulting company called E-Qualus Partners with five other telecom professionals. Additionally, he is giving back to his alma mater by teaching as an adjunct professor in the Department of Physics, Geosciences, and Astronomy.