

INNOVATE



THE SCHOOL OF ENGINEERING, MATHEMATICS AND SCIENCE
AT ROBERT MORRIS UNIVERSITY



RMU.EDU/SEMS

MESSAGE FROM THE DEAN



MARIA V. KALEVITCH, PH.D.
Dean
University Professor of Biology

At Robert Morris University School of Engineering, Mathematics and Science, students innovate for the present, prepare for the future, and have limitless potential to transform the world around them. Our motto here is “Explore, innovate, solve.”

With the school celebrating its 20th anniversary in 2019, it’s hard not to look back with pride at how far we have come. From just 22 engineering students in 1999 to almost 1,000 undergraduate and graduate students today, we’ve seen some impressive growth. We have Pennsylvania’s only ABET-accredited bachelor’s degree in manufacturing engineering, and our vision is to continue becoming a nationally and internationally recognized leader in STEM education.

We are committed to creating the new STEM professional, one who understands leadership and collaboration in a changing world. We emphasize mentorship and professional development, both for our students and for our faculty. We listen to industry leaders and keep their specific needs in mind when designing programs that provide our students with workplace-ready skills. We believe in faculty and student diversity, and in providing international opportunities that expose our students to different cultures and prepare them for success in today’s global economy. As the Pittsburgh Technology Council’s TEQ Magazine recently reported, our school “graduates industry-ready talent.”

In the following pages you can read the success stories of just a few of the talented students who have come through our school. As dean of the School of Engineering, Mathematics and Science, I’m proud to know them and confident we will see many more excellent students like them in the future.



- Partner in America Makes, a national public-private collaboration in 3D printing and additive manufacturing technology
- One of only 16 universities in the country rated a Center of Actuarial Excellence by the Society of Actuaries
- Top 50 B.S. in Environmental Science, rated by EnvironmentalScience.org

“A faculty mentor took me under his wing and brought me to a local gathering of professionals. It ended up leading to a surgeon-shadowing experience, which really helped confirm what I wanted to do with my career.”

When **NOLEN KEEYS** was doing his college search, he knew he wanted a place that would allow him to modify a traditional pre-med curriculum in a way that catered to his interest in math and science. RMU’s program in biomedical engineering turned out to be the perfect fit.

As a sophomore, Nolen became the first RMU student to be named an Institute Scholar by the Institute for Responsible Citizenship in Washington, D.C. It placed him in internships in the nation’s capital for two consecutive summers — first in Howard University’s orthopedic department, where he got an inside look at his chosen career field, and

the next summer at the NFL Players Association, informing players about possible mental health issues and available services. Now a senior, Nolen is conducting research on shoulder prostheses. He’s also making an impact as a peer tutor and as president of RMU’s chapter of the National Society of Black Engineers.

RMU’s School of Engineering, Mathematics and Science is internationally recognized as a leader in STEM education. The school believes in faculty and student diversity and is committed to preparing students like Nolen for leadership and collaboration in an ever-changing world.



SUSHIL ACHARYA, D.ENG.
Professor of Software Engineering
Computer science, software design, verification and validation



JAMEELA AL-JAROODI, PH.D.
Associate Professor of Software Engineering
Middleware, network and internet applications, collaborative technologies



PAUL BADGER, PH.D.
Associate Professor of Chemistry
Inorganic chemistry, fluorescence lanthanide complexes, instrumentation



GAVIN BUXTON, PH.D.
Associate Professor of Physics
Physics, computational biology, mathematical modeling



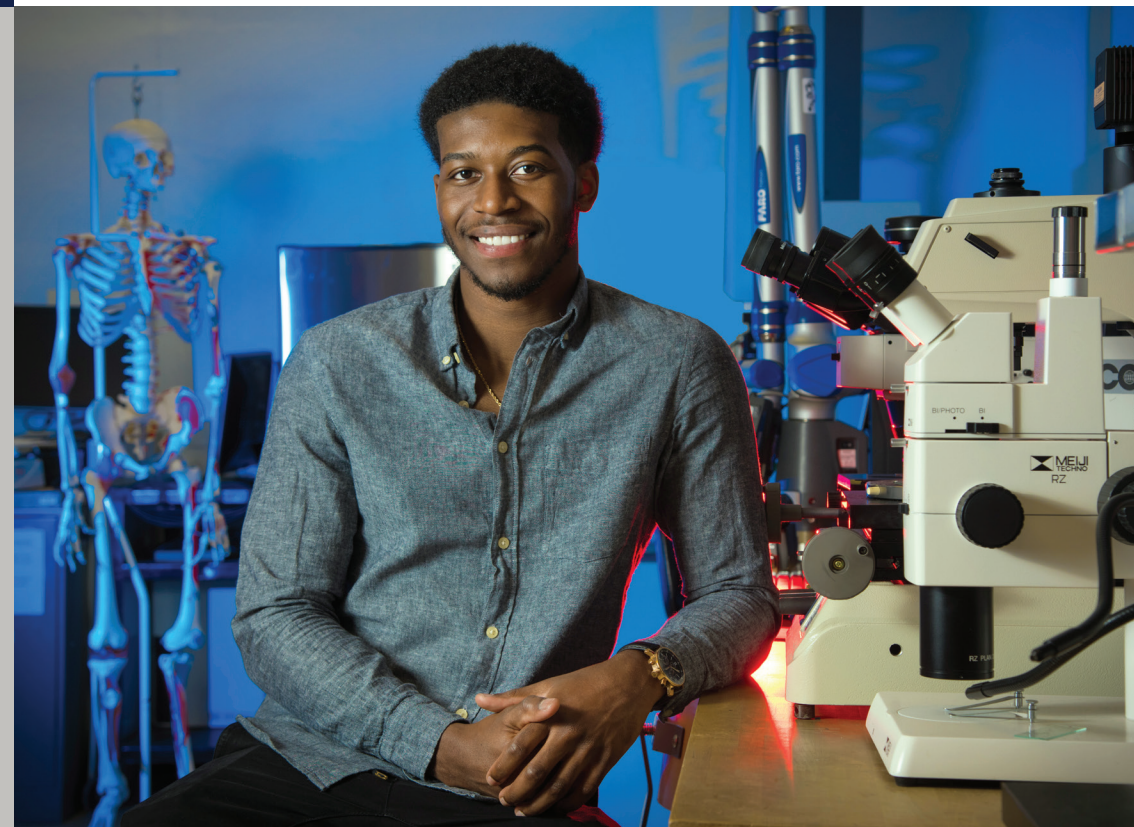
BEN CAMPBELL, PH.D.
Assistant Professor of Engineering
Electrical engineering, mechatronics, lasers



RIKA CARLSEN, PH.D.
Assistant Professor of Mechanical and Biomedical Engineering
Traumatic brain injury, bio-hybrid microrobotics



KATHLEEN DONOGHUE
Senior Lecturer of Mathematics
Online learning, education, mathematics





“The internship requirement is huge. It gives you such great exposure and experience. It really helps get your foot in the door.”

You might call **SARAH BURNS** a jack-of-all-trades. As a quality assurance engineer for Mitsubishi Electric Power Products in Pittsburgh, not only does Sarah make sure the company’s products are top-notch, she also qualifies vendors and performs in-depth investigations whenever problems arise. It’s the kind of challenging yet satisfying career she dreamed of at RMU while earning her bachelor’s in mechanical engineering and her master’s in engineering management.

Landing a job with Mitsubishi came as no surprise for Sarah, thanks to her yearlong internship with the company as an undergrad — which helped get her foot in the door,

literally. Since then she’s earned accolades from her managers on the professionalism of her presentations, something she attributes to RMU’s focus on communication skills.

All engineering students in RMU’s School of Engineering, Mathematics and Science are required to complete an academic internship between their sophomore and senior years to put their skills to the test in a real-life industry setting. These engaged-learning opportunities are just one reason 95 percent of RMU grads have a job or are enrolled in graduate school a year after graduation.

“RMU taught me how to learn, and that’s what this job is. Honestly, I’m learning how to be an additive manufacturing engineer because nobody really knows what that looks like right now.”

After running a construction company for 15 years, **JAKE SCHOONHOVEN** enrolled at RMU to complete a manufacturing engineering degree. A born tinkerer with a tool-crammed garage, Jake dug into filament research with one of his professors, a 3D printing expert who suggested he should look into the fast-growing field of additive manufacturing.

As soon as Jake earned his diploma, he got a job at General Electric’s additive manufacturing research center in nearby Findlay Township. Not the first RMU graduate hired at the gleaming new facility, Jake works with the direct metal laser machine team, using lasers to weld layers of metal powder. And typical of the start-up environment, as a new hire Jake has had the opportunity

to get involved with everything from operation to research to shop layout.

Facility director Jen Cipolla says she has been so impressed with Jake and other RMU alumni and student interns that she has joined the board of visitors for the School of Engineering, Mathematics and Science, where she works closely with the dean to make sure its future graduates continue to be well prepared for the demands of the workforce.

Through close corporate relationships with major employers, including internships and other strategic connections, the School of Engineering, Mathematics and Science prepares students for career success.



WILLIAM DRESS, PH.D.
Associate Professor of Biology
Ecology, biogeochemistry, plant biology



HEATHER ELFEN, PH.D.
Assistant Professor of Mathematics
Functional equations defined on abstract structures



ERGIN ERDEM, PH.D.
Assistant Professor of Industrial and Manufacturing Engineering
Optimization, scheduling in health care systems, genetic algorithms



CHRISTOPHE GROENDYKE, PH.D.
Associate Professor of Actuarial Science
Disease dynamics, computationally intensive statistical inference, regime-switching



CATHERINE HANNA, PH.D.
Associate Professor of Biology
Ecology, zoology, animal behavior



SARAJANE HILL
Lecturer of Engineering
General and mechanical engineering



MELISSA HILLWIG, PH.D.
Assistant Professor of Biology
Molecular genetics, molecular biochemistry, plant genetics



E. GREGORY HOLDAN, PH.D.
Professor of Mathematics and Education
Mathematics education, reflection, learning and teaching style



LIANG HONG, PH.D.
Associate Professor of Actuarial Science and Mathematics
Actuarial science, insurance economics, statistics



DAVID HUDAK, PH.D.
Professor of Actuarial Science and Mathematics
Statistics, actuarial science



WON JOO, PH.D.
Assistant Professor of Biomedical Engineering
Biomedical implant and device development, materials science and engineering



MARIA KALEVITCH, PH.D.
University Professor of Biology
Microbiology, environmental issues, biotechnology and biochemistry



TONY KERZMANN, PH.D.
Associate Professor of Mechanical Engineering
Energy and sustainability, thermo-fluids



KENNETH LASOTA, PH.D.
Associate Professor of Geology and Earth Sciences
Environmental geology, climatology, earth science education



ALLEN LIAS, PH.D.
Professor of Mathematics
Teaching and learning of mathematics



“I do think that Robert Morris was a good place for me. It was a good fit.”

When a UPMC doctor came to speak to students at the RMU pre-med club, **KELSEY PAXTON** saw an opportunity. So the biology major buttonholed the visitor after the program and volunteered to work on any medical research project she had available. And it worked — that summer Kelsey had an internship at UPMC, assisting with medical research on polycystic ovary syndrome, even shadowing the doctor on her rounds with patients.

Taking advantage of opportunities is something Kelsey specialized in at RMU. As an honors student, she was a regular visitor to her professors’ office hours. She got involved with theater performances and the RMU dance team, and

also spent a semester abroad at the University of Limerick, where her horseback riding class counted as animal behavior study credit toward her degree. And with the help of strong prep classes for the MCAT exams, Kelsey was accepted to the University of Pittsburgh School of Medicine. She plans to become a pediatric otolaryngologist.

Degree programs at the School of Engineering, Mathematics and Science place key emphasis on collaborative research, and students frequently co-publish scientific papers with faculty mentors. That builds strong resumes and creates a pathway to career success for students just like Kelsey.

“If I hadn’t had that one-on-one with my professors, I probably would have quit. And if I’d chosen a bigger school, I probably wouldn’t have had that attention.”

As an actuary for Highmark, **JACLYN BOSILJEVAC COX** works with a team of analysts to set health insurance premiums for big companies with thousands of employees. It’s a perfect job for someone who always had a knack for numbers. It’s also a career she never would have dreamed of back when she was in high school.

Her actuarial science professors at RMU made all the difference, Jaclyn says. One-on-one attention and support helped her to get through the challenging coursework, especially as a freshman. Two professional internships during her time in college further prepared her for career success. Jaclyn also met

her future husband Jeffrey, another Robert Morris alum, at an internship program Downtown. The rowing coach recruited her for varsity crew, and she loved it so much she still rows for Highmark’s corporate team. Now she advises younger women in the university’s Women’s Leadership and Mentorship Program.

Only 17 universities in the United States earn the designation Center of Actuarial Excellence, the highest recognition given by the Society of Actuaries. Considering the success of graduates like Jaclyn, it’s no surprise RMU is one of them.



PRIYADARSHAN MANOHAR, PH.D.
Professor of Industrial and Manufacturing Engineering
Materials science and engineering, computer science, manufacturing



MATTHEW MAURER, PH.D.
Associate Professor of Science
Science teacher professional development



JEFFREY MITCHELL, PH.D.
Professor of Mathematics
Mathematical physics



LUIS MONTERRUBIO, PH.D.
Assistant Professor of Mechanical Engineering
Automotive manufacturing, mechanical design, vibrations



ALLEN RENFRO, PH.D.
Senior Lecturer of Mathematics
Teaching and learning of mathematics and applied mathematics



ANTHONY ROBINS, PH.D.
Associate Professor of Biology
Epidemiology, anatomy, STEM diversity



SANGHO SHIM, PH.D.
Assistant Professor of Industrial and Manufacturing Engineering
Optimization, supply chain management, informatics



DANIEL SHORT, PH.D.
Associate Professor of Environmental Science
Environmental chemistry, water quality, geographical information systems



ARIF SIRINTERLIKCI, PH.D.
University Professor of Industrial and Manufacturing Engineering
Manufacturing processes and simulation, 3D printing/additive manufacturing, reverse engineering



SUE SPADE
Lecturer of Engineering
General and electrical engineering



LEWIS STEIN, D.P.M.
Senior Lecturer of Biology
Life sciences, microbiology, anatomy



MONICA VANDIEREN, PH.D.
University Professor of Mathematics
Model theory, research in undergraduate mathematics education



WOODROW WINCHESTER, PH.D.
Associate Professor of Engineering Management
Systems engineering, new health technologies, Afro-futurism



QIAN ZHAO, PH.D.
Assistant Professor of Actuarial Science
Actuarial science, robust statistics, mathematical modeling



CHARLES ZIMMERMAN, PH.D.
Professor of Mathematics
Praxis math content, optimal tax consequences for investment strategies

UNDERGRADUATE PROGRAMS

Engineering

Biomedical

Industrial

Mechanical

Software

Manufacturing Engineering

Actuarial Science

Applied Mathematics

Financial Mathematics

Mathematics Education

Statistics and Predictive Analytics

Biology

Pre-Medicine

Biology Education

Environmental Science

GRADUATE PROGRAM

Engineering Management



**School of Engineering,
Mathematics and Science**

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