



Materials Science and Engineering AT RUTGERS

Do you want to learn how a thin piece of extra strong glass makes it possible to manage information with the smart phone in the palm of your hand? Or are you interested in creating **lighter, stronger body armor**, or producing **cement that reduces greenhouse gases**? As a materials science and engineering graduate, you will be on the leading edge of innovation, while solving key societal problems.

From clean energy and new electronic devices to protection from terrorism and disease, materials science and engineering students draw on fundamental principles of physics and chemistry to design the structure, properties, performance, and processing of novel materials to make a better—and safer—planet.

Instruction from a distinguished and award-winning faculty with expertise in glass, ceramics, polymers, biomaterials, metals and energy storage, prepares students for the challenges of the 21st century. MSE classes are generally small with hands-on, active and immersive learning opportunities in world-class research facilities, using industrial-level equipment. Our graduates are known to be very well prepared for a successful engineering career and/or postgraduate education in prestigious and highly competitive institutions in the U.S. or abroad.

PROFESSIONAL OPPORTUNITIES

Development engineer
Manufacturing engineer
Production management
Semiconductors
Automotive engineering
Consumer products
Computer systems
Medical devices
Marketing
Research careers in private sector, Fortune 500 companies, and federal government.



THE FUTURE IS NOW

Prof. Ashutosh Goel has discovered ways to immobilize nuclear waste, which is the offshoot of decades of nuclear weapons production, by developing specialty glass and ceramics.



For more information, visit
mse.rutgers.edu

“Get involved in an extracurricular activity that can give you hands-on skills and practical experience that will be useful for internships and a job. The Formula Racing team helped get me my internships—I had practical experience in being given engineering tasks and getting them done.”

Nasef Junaid



DEGREES OFFERED AND CURRICULAR OPTIONS

BS
Concentrations:
Biomaterials, Nanomaterials, Metals, Polymers, Electronic and Optical, Energy Conversion and Storage, Packaging Materials, or individually designed course.

BS/ME Five-year Dual Degree
BS/MBA Five-year Dual Degree
MS
PhD

RUTGERS
School of Engineering

Established in 1864, Rutgers University's School of Engineering is a vibrant academic community whose richly diverse students and faculty members are committed to globally sustainable engineering. Its mission is built on a commitment to fostering the integration of education and research to achieve transformational innovation that is ethically responsible. With seven academic departments representing key engineering disciplines, the School of Engineering is recognized around the world as comprehensive and leading-edge, training the next generation of innovators across a broad spectrum of professions.

Materials Science and Engineering at Rutgers

PROGRAM HIGHLIGHTS

Our exceptionally flexible curriculum is designed to meet the individual needs of our students' personal interests and career goals. While we encourage concentration(s) in either biomaterials, electronic and optical materials, nanomaterials, polymers, metals and alloys (metallurgy), energy conversion and storage materials, and packaging materials, you may also customize your degree program.

Students solve problems related to the design, processing, and evaluation of advanced materials for high technology applications.

HANDS-ON ACTIVITIES

Our laboratory-intensive curriculum provides for an active learning environment and gives hands-on access to the major instrumentation and processing equipment used in industry, including x-ray diffraction, Raman spectroscopy, electron microscopy, additive manufacturing, Pulsed Laser Deposition, among others.

Additionally, students gain invaluable, relevant work experience and forge lasting professional network connections through internships, as well as a six-month co-op program that lets them earn degree credits while working full-time.

COURSES OFFERED

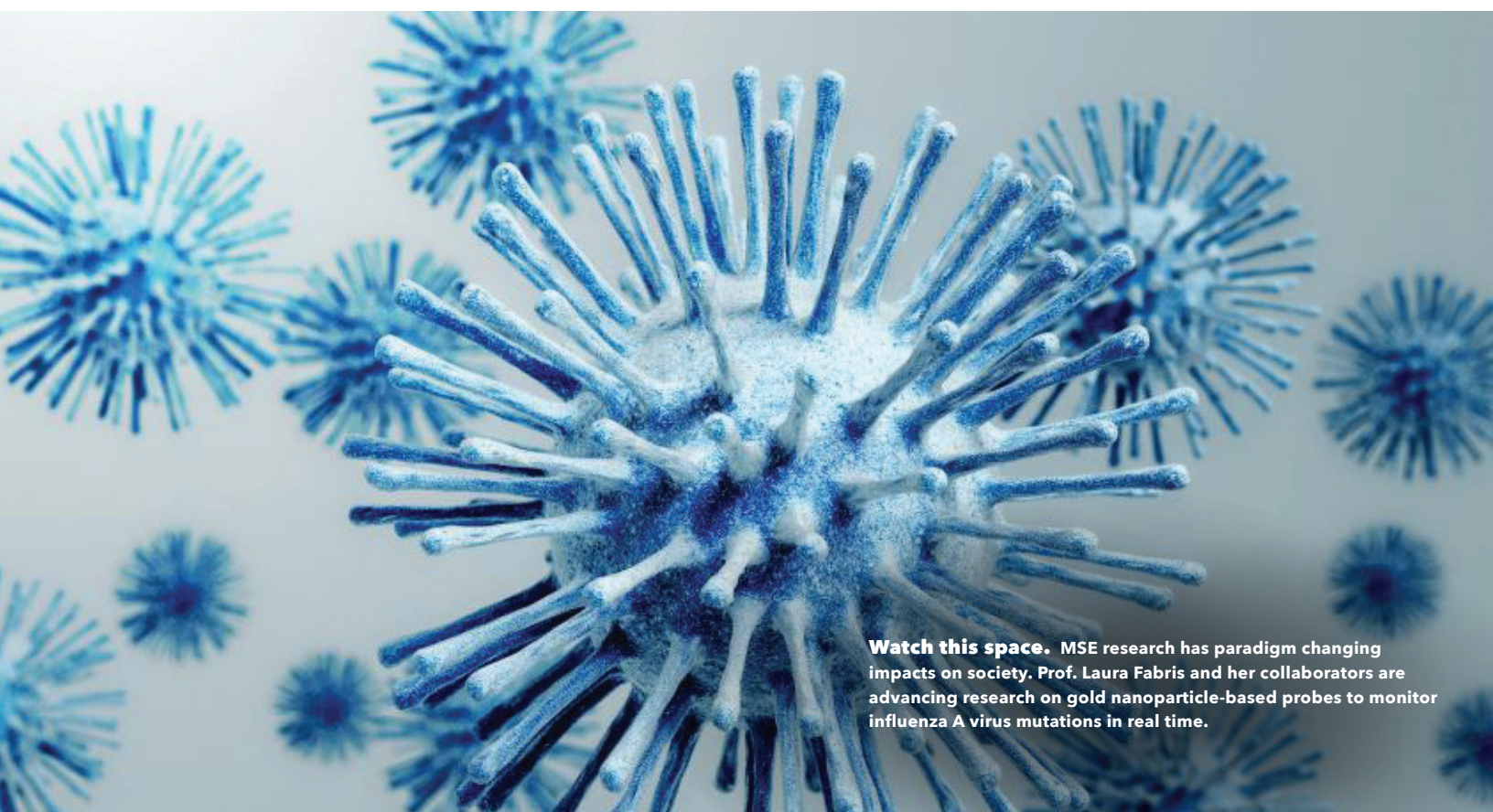
Solar Cell Design and Processing
Biological Applications of Nanostructures and Nanomaterials
Electrochemical Materials and Devices
Nanomaterials
Materials Microprocessing
Electronic Optical and Magnetic Properties of Materials
Physical Metallurgy
Glass Engineering
Ceramics Engineering

RESEARCH FACILITIES AND CENTERS

Center for Advanced Solid-state Ionics and Energy Storage Research
Center for Sustainable Materials
Ceramic Composite and Optical Materials Center
Corning Glass Science and Engineering Laboratory
Nanomaterials Laboratory
Advanced Polymer Center

Prof. Glenn Amatucci has uncovered new electrode materials for batteries and supercapacitors that advance the systems for portable power and improve their safety.

Prof. Richard E. Riman has extracted rare earth elements used in everything from solar energy to smartphones. This environmentally friendly extraction technique could benefit both clean energy and electronics industries.



Watch this space. MSE research has paradigm changing impacts on society. Prof. Laura Fabris and her collaborators are advancing research on gold nanoparticle-based probes to monitor influenza A virus mutations in real time.