



Chemical & Life Science Engineering



"We have some very special, extremely **self-motivated** individuals who teach me new things each day."

- B. Frank Gupton, Ph.D.,
Department Chair

About

Chemical and life science engineering is a diverse engineering field that includes the development of chemicals, biochemical and biologics in a variety of applications including polymers, nanomaterials, pharmaceuticals, cleanfuels, environmental protection and medicine.

Researchers and students in the Department of Chemical and Life Science Engineering apply their talents to projects in focal areas of pharmaceutical engineering, stem cell engineering, nanotechnology and materials science.

Independent and interdisciplinary efforts within the department take place across different academic units and shared facilities. Our collaborative ties with faculty in life sciences, biology, biochemistry, chemistry, medicine, dentistry, pharmacy and forensics have led to multi-disciplinary research projects. State-of-the-art facilities such as the Nanomaterials Core Characterization Facility, the Center for High Performance Computing, the Center for the Study of Biological Complexity and the Massey Cancer Center provide modern equipment and technical expertise.

"...brings the premier disciplines of chemical engineering and life sciences together to form a program **distinct in the nation.**"



About the VCU College of Engineering

The **VCU College of Engineering**, an innovation front-runner in academics and research, brings real-world education to Central Virginia. Our collaborative and multidisciplinary partnerships prepare undergraduate, master's and doctoral students for leadership. Part of a premier research university, the VCU College of Engineering enhances regional and global prosperity through cutting-edge developments in tissue engineering, drug delivery, bioinformatics, cybersecurity, mechanical systems and particle science. We make it real by turning great ideas into breakthrough technologies. Our facilities are hubs of discovery, powered by an expanding student body and faculty committed to excellence. We encourage partnering with industry and the community, bringing new collaborators into our projects. Our key research areas include: sustainability and energy engineering; micro and nano electronic systems; pharmaceutical engineering; mechanobiology and regenerative medicine; big data mining and device design and development.

chemical.egr.vcu.edu

Application Deadline: **January 15**
For Scholarship Consideration: **November 15**

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Medicines for All

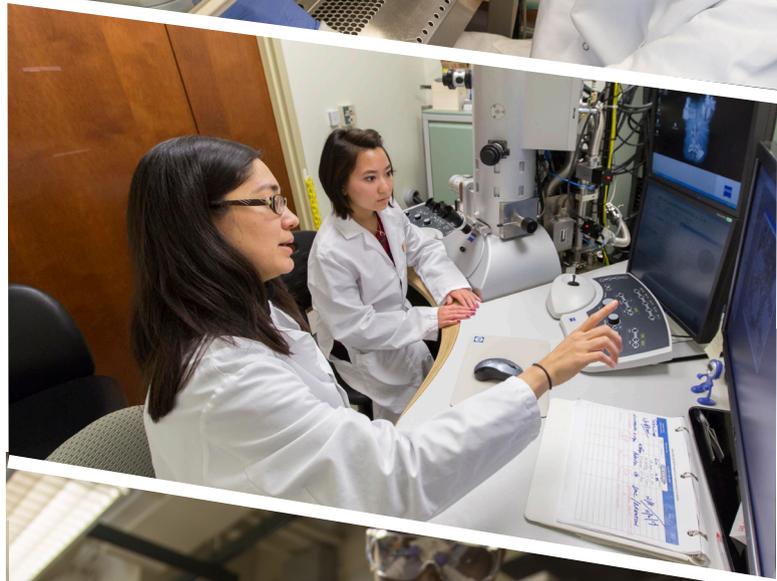
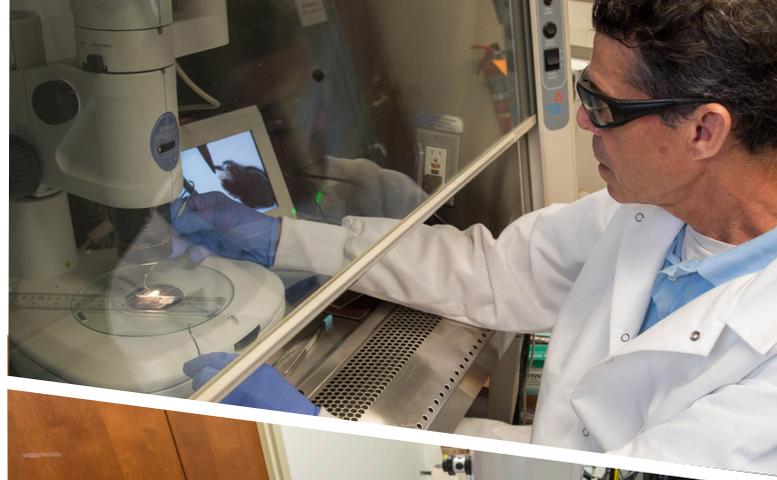
VCU has been awarded \$25 million from the Bill & Melinda Gates Foundation to fund the Medicines for All Institute and increase access to drugs for HIV/AIDS, malaria, tuberculosis and other diseases around the world. The institute has developed an innovative model to reduce the cost of producing active pharmaceutical ingredients in medications.

Fighting Diseases

From groundbreaking research into the origins of Alzheimer's disease to nanotechnology advances that could improve treatment for glaucoma patients, researchers are working to improve patient care through innovations. Researchers in VCU Engineering's Pharmacy on Demand initiative are designing drug manufacturing processes that shrink the environmental and industrial footprint as they expand global access to drugs.

Nanotechnology

VCU Engineering's award-winning faculty members study functional nano and biomaterials and polymer/inorganic nanomaterials. They develop micro- and nano-fabricated devices and seek to understand nanomaterial toxicity.



Degrees

B.S. in Chemical and Life Science Engineering

Through this undergraduate program, students will cultivate business and communication skills while they expand their knowledge of general science, mathematics and biological science. Course material focuses on the study of mass and energy balances, unit operations, transport phenomena, thermodynamics, reaction engineering, process control and process design and economics. This degree offers the option of a chemical engineering track or a life science engineering track.

M.S. and Ph.D. in Engineering

Students in the graduate programs will gain exposure to cutting-edge research practiced by faculty members and peers. Funding for a variety of research areas comes from public and private sector sources.



Research Sponsors

National Institutes of Health
National Science Foundation
Nuclear Regulatory Commission
Clinton Foundation
NASA
Bill & Melinda Gates Foundation
U.S. Department of Energy

"We go beyond academia to make discoveries in healthcare a **reality.**"