DEPARTMENT OF CHEMICAL AND BIOMOLECULAR ENGINEERING

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Chemical and biomolecular engineering represents the formal interaction of chemical engineering with molecular biology. VCU's Department of Chemical and Biomolecular Engineering is uniquely poised to bring these two premier disciplines together to form a program distinct in the nation. Programs are offered at the undergraduate and graduate levels.

Biomolecular engineering — with interest areas including stem cell and stem cell-derived tissue engineering, biosciences/biotechnology, cellular engineering, biochips and biosensors, bioinformatics and molecular biocomputing, genetic and protein molecular engineering, environmental life science engineering, and molecular- and cellular-based therapeutics — is the fastest growing of all industries that currently employ engineers.

Chemical engineering and biomolecular engineering share a broad range of common foundational knowledge bases, including the principles of mass and energy balances, transport phenomena and thermodynamics, surface and interfacial science, and reaction science and engineering. Strong academic and research programs in chemical and biomolecular engineering will provide a wealth of exciting professional opportunities for successful graduates of the VCU program.

The bachelor's program offers concentrations in chemical engineering and life science engineering, and a chemical and life science engineering concentration is also available in the Master of Science in Engineering program, as well as the Ph.D. in Engineering program. The CLSE concentrations in the graduate-level programs are designed primarily for students who are interested in applying chemical and engineering principles toward important contemporary topics including process design, metabolic engineering, biosensor and biochip development, high-performance polymers in medicine and energy conversion, polymer surface science, and environmentally benign polymer processing technologies. Major emphasis is placed on chemical and biomolecular engineering fundamentals with additional emphasis on applied chemistry and molecular biology.

Students who complete the requirements for the below will receive a Doctor of Philosophy in Chemical and Life Science Engineering.

- Chemical and Life Science Engineering, Doctor of Philosophy (Ph.D.) (https://bulletin.vcu.edu/graduate/school-engineering/chemical-biomolecular-engineering/clse-phd/)