

Health & Biotechnology



The skills of chemical engineers are uniquely suited to developing next-generation solutions to persistent health challenges. UW ChemE boasts strong cross-disciplinary collaborations with medical researchers in the design of smarter therapeutics, targeted drug delivery systems, and improved diagnostics. Our faculty also conduct research in systems and synthetic biology, as well as metabolic, biomolecular, and protein engineering.

Above: A Euclidean distance transform of a confocal microscopy image of microglia.
Created by Chad Curtis

Featured research clusters

Biomaterials

With several field-defining visionaries in the biomedical sciences having cultivated their careers in UW ChemE, our department holds one of the longest and richest histories in biomaterial innovation. With creativity more fervent than ever, we employ current tools to engineer functional tissue, guide immune responses to medical implants, and probe stem cell fate in 4D.

Synthetic biology

Deciphering, retooling, and reinventing the tricks of basic biology, our faculty engineer versatile approaches to synthesize industrially and medically important chemicals and materials at scale. These efforts are complemented with advanced computational modeling to shed light on the inner workings of cellular bioprocesses.

Advanced therapeutic delivery

From coercing nanoparticles past the blood-brain barrier, to identifying and treating disease with ultrasound theranostics, to confining therapeutic payload delivery to tissue-barcode bodily locations, the University of Washington is developing real-world solutions to advance medical treatments. Studies are performed in close collaboration with field-leading partners in UW Medicine, the Fred Hutch Cancer Research Center, and Seattle Children's Hospital.

More at www.cheme.uw.edu/research/areas



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Campus opportunities



UW Center for
Synthetic Biology



Molecular Engineering
& Sciences Institute



INSTITUTE FOR
NANO-ENGINEERED SYSTEMS



INSTITUTE FOR
Protein Design