CHEMICAL ENGINEERING

CHEMICAL ENGINEERS DEVELOP THE MOLECULES, MATERIALS AND DEVICES THAT ENABLE US TO BETTER TREAT DISEASE, PRODUCE CLEAN ENERGY AND LIVE MORE SUSTAINABLY.

QUICK FACTS

More than 60% of our students participate in undergraduate research.

85% of our B.S. students go directly into industry.

More than 20% of students study abroad, including a quarter-long program in Scotland and labs in Denmark.

More than 60% of our students participate in an entrepreneurial or industry-linked special design project.

Our cohorts are about 75 people and recent cohorts have been 50% women.

WHAT DO CHEMICAL ENGINEERS DO?

Chemical engineers use their knowledge of physics, math, chemistry, materials and energy balances, and transport phenomena to transform raw materials into useful products.

Innovations made by chemical engineers are reflected in medical advances, electronic devices, and high-performance materials. From targeted drug delivery systems to more efficient photovoltaics to protein-guided assembly of electronics, chemical engineering produces cutting-edge solutions to today's most pressing societal problems.

WHAT PROBLEMS ARE CHEMICAL ENGINEERS TRYING TO SOLVE?

Chemical engineering is broad in application and scale, and chemical engineers contribute to innovation in every industry, designing, building and analyzing processes that range from the nano-scale to refineries larger than city blocks. Chemical engineers address issues such as:

- How do we transform low value materials into high value products?
- How do we make this product in a scalable manner without a negative impact on the environment?
- How can we scale up a process developed in a lab to reach as many people as possible?
- How can we deliver drugs right to the site they're needed and produce them in a way that people can afford to take them?
- Can we optimize manufacturing processes to be more economical, environmental friendly, and safe?

WHERE DO CHEME ALUMNI WORK?

Air and space	*Propulsion and fluid systems, advanced space technologies, power and energy systems, advanced materials, testing, manufacturing, processes | Boeing, Honeywell Aerospace, The Jet Propulsion Lab, NASA*
Computing, data and digital technologies	*Data science, structures and scalability | AWS, Zillow, Google, Cascade Data Labs; Micro-processors and memory | Intel, Micron, IM Flash*
Environment, sustainability and energy	*Water treatment, air quality, clean energy, fuel cells, materials development, nuclear power, battery innovation, solar energy | Puget Sound Naval Shipyard, Trinity Consultants, Membrion*
Health and medicine	*Drug delivery, imaging, synthetic biology, biotech and pharmaceuticals | Just Therapeutics, Bristol Myers Squibb, Philips Healthcare, W.L. Gore*
Infrastructure, transportation and society	*Electrified transportation, materials, concrete, auto parts, engines, air pollution and emission reduction, biofuels, supply chain | CalPortland, Ernst & Young, government agencies*
Robotics and manufacturing	*Process optimization, prototyping, scaling and manufacturing | paper and pulp, PepsiCo, W.L. Gore, cosmetics, brewing*

RECENT INDUSTRY CAPSTONE PROJECTS

- Membrion, Inc. - Extracting heavy metals from mining wastewater.
- Sironix Renewables - Efficient purification of green surfactants.
- AvtechTyee - Co-cure multi-material rod for aerospace applications.
- Boeing - Part smoothing models for additive manufactured titanium

WHAT MAKES CHEME SPECIAL?

UW ChemE is a small, close-knit department with a cohort model. Students know their classmates' names and form study groups, and our advisers are available at a drop-in basis. Our small class sizes enable community building and innovative problem solving. Project-based teams through design coursework and student organizations such as like ChemE Car and the ChemE Brewing & Distilling Club give students a chance to solve problems outside the classroom.

Students have the ability to communicate with department leadership and advise on decision making throughout the department. We have UW chapters of AIChE – the Global Home for Chemical Engineers, and WChE – Women in Chemical Engineering, with opportunities to participate in social events, professional development opportunities, and work to improve representation of women and underrepresented minorities in chemical engineering.

HOW CAN I LEARN MORE?

You can start doing research in a lab even before placing into a major. Take a class that's open to non-majors, such as CHEM E 201: Chemical Engineering Today and Tomorrow, CHEM E 498: Diversity & Ethics in Chemical engineering, CHEM E 341: Energy & Environment or CHEM E 355: Biological Frameworks for Engineers. For more information, visit our undergraduate page: bit.ly/chooseChemE.

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