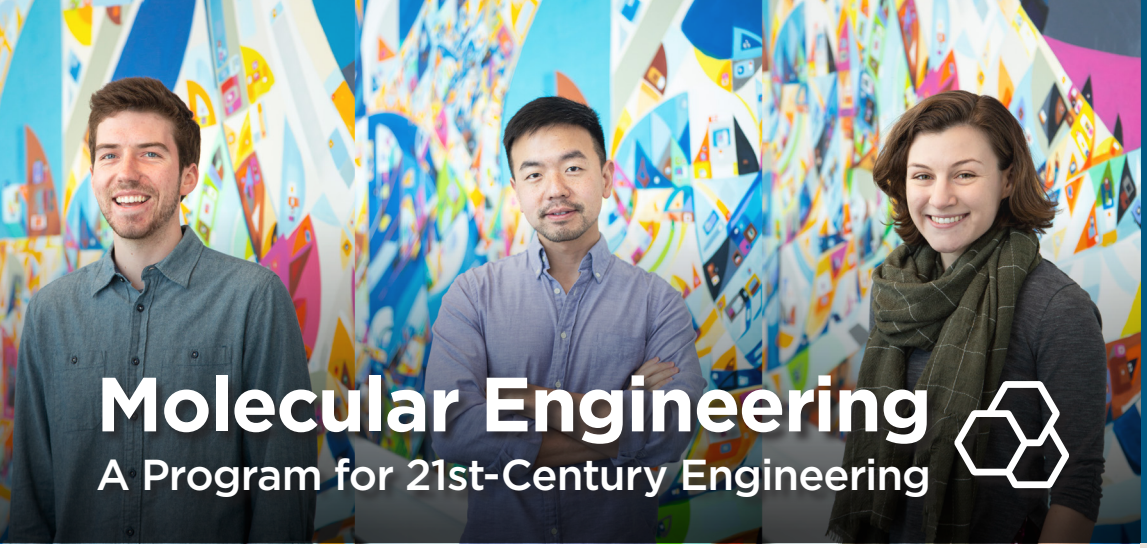


Molecular Engineering

A Program for 21st-Century Engineering

"The Pritzker School of Molecular Engineering embodies a powerful new 'convergent' approach to the engineering educational experience in which students acquire a broad spectrum of fundamentals, as well as projects and research experiences, to empower them to engineer systems from the molecular level up and design solutions to emerging technological problems in society."

Matthew Tirrell, Dean of the Pritzker School of Molecular Engineering

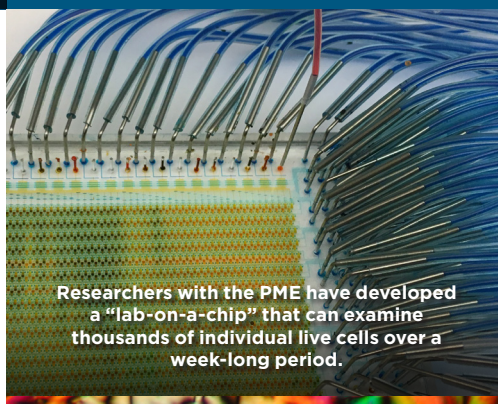
At UChicago, **the Pritzker School of Molecular Engineering (PME)** is a new approach to engineering education and research that builds on a strong liberal arts education to develop interdisciplinary solutions at the molecular level to some of society's most challenging problems. UChicago molecular engineers are solving global problems by designing groundbreaking technologies from the molecule up.

Engineering at the Molecular Scale

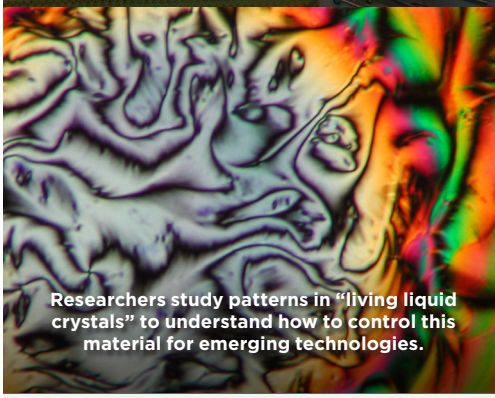
The emerging field in molecular engineering combines a strong background in the sciences and mathematics, offered within a liberal arts environment, and a rigorous engineering education with opportunities to individualize your experience. The PME's classrooms and teaching labs focus on scientific concepts and skills at the forefront of technology in concert with communications, innovation, and leadership. Students are trained to become engaged and effective problem identifiers able to navigate potential solutions. An expansive, innovative program of engineering courses and unique opportunities for undergraduate students ensures that they are prepared to make a difference in our technological society. Along the way, students form bonds of collaboration and discovery that can help shape distinguished careers in the fields of engineering, science, medicine, business, and law.

A Platform for Addressing Society's Most Pressing Problems

The distinctive approach to research and education at the PME brings together experts in diverse academic disciplines to examine and develop holistic solutions to complex issues through the design and incorporation of molecular building blocks into functional systems. Molecular engineers are developing advanced technologies to address pressing global issues, like those found in the fields of cancer treatment, water use and purification, quantum computing and materials, and regenerative medicine.



Researchers with the PME have developed a "lab-on-a-chip" that can examine thousands of individual live cells over a week-long period.



Researchers study patterns in "living liquid crystals" to understand how to control this material for emerging technologies.

CAREER SUPPORT

UChicago is a global leader in a new generation of scientific advancement, and our students graduate prepared to make an impact on a rapidly changing world. Supported by UChicago Career Advancement, Molecular Engineering students participate in treks that connect them with industry leaders in science and technology, complete internships at industry leaders, pursue graduate school in areas such as chemical engineering, materials science & engineering, applied physics, and more. After graduation, Molecular Engineering students begin their careers in a wide range of industries and roles, including at organizations like Abbott, Argonne National Lab, BCG, Billion to 1, Bridgewater, Facebook, Invinity Energy Systems, Microsoft, and NASA, among others.

"As a molecular engineering major who focused on the quantum track, I have had the unique opportunity to synthesize my fundamental physics understanding with experience in specialized topics in quantum technologies. My background from the department, which blends fundamental sciences, advanced topic specializations, and practical problem-solving skills, have thoroughly prepared me for future graduate research in the field of quantum technologies.

Hope L., BS'20, Molecular Engineering & Physics, University of Chicago

MAJOR IN MOLECULAR ENGINEERING

The major in molecular engineering offers the flexibility to experience multiple areas of expertise from across the University—from math, chemistry, physics, and computer science to economics, business, public policy, or foreign languages—to best **prepare students for a wide variety of careers and leadership roles** in a technology-driven society. Many students follow traditional engineering paths in research, technology development, and manufacturing. Others branch out into medicine, technical and management consulting, business administration, finance, policy, and entrepreneurship. Any student who is admitted to the College and satisfies course prerequisites may pursue either a major or minor in molecular engineering.

"While I would have learned a great deal in any program at UChicago, Molecular Engineering had the applied nature that I wanted. I knew it would blend my interest in math, science, and the uses of modern and novel technologies in the real world."

Brian S., BS'18, Molecular Engineering, University of Chicago

Strong Foundations

After receiving a strong background in mathematics, physics, chemistry, and the biological sciences, all Molecular Engineering majors take a shared set of seven foundations courses as a cohort. **These seven courses are:**

- Engineering Principles I-II, which introduce engineering problem-solving and principles of conservation, as well as numerical and computational methods
- Quantum Mechanics
- Molecular Thermodynamics and Statistical Mechanics
- Molecular Transport Phenomena
- Engineering Design I-II, the capstone course for the major in which small teams of students utilize their engineering skills to tackle open-ended and challenging real-world problems alongside mentors from industry and National Laboratories

Flexible Curriculum

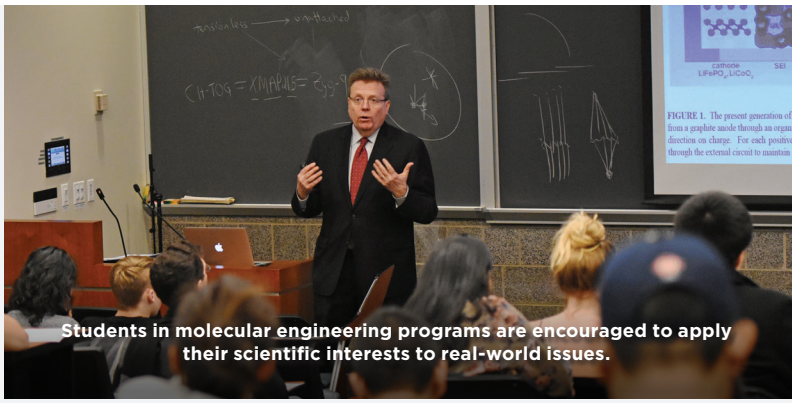
The major allows undergraduates to concentrate in one of three distinct tracks—**bioengineering**, **chemical engineering**, or **quantum engineering**—empowering undergraduates to tailor the Molecular Engineering program to their strengths and interests with the help of faculty advisers. **Formalized sequences of advanced courses in molecular engineering provide opportunities to specialize even further in the fields of:**

- Quantum Information Science
- Immunoengineering
- Molecular, Cellular, and Tissue Engineering
- Systems Bioengineering
- Molecular Science and Engineering of Polymers and Soft Materials
- Molecular Engineering of Sustainable Energy and Water Resources
- Computational Molecular Engineering

MINOR IN MOLECULAR ENGINEERING

Applying the PME's interdisciplinary approach, these programs equip undergraduates with basic engineering tools to discover new ways to think about science and problem-solving.

- The minor in molecular engineering introduces the technical fundamentals of molecular engineering including in quantum mechanics, molecular thermodynamics, transport phenomena, and the application of such concepts to advanced technologies. Primarily targeted to students majoring in the physical or biological sciences, this minor provides a strong preparation for careers or postgraduate studies in engineering fields.
- The Molecular Engineering Technology and Innovation minor introduces basic engineering concepts as they relate to evolving technologies, scientific innovation and entrepreneurship, scientific policy, and the broader impacts of engineering in society.



Students in molecular engineering programs are encouraged to apply their scientific interests to real-world issues.

UChicago's Quantum Exchange, based at the PME, focuses on developing new ways to exploit the laws of quantum mechanics.

Learn more about the PME undergraduate programs:
collegecatalog.uchicago.edu/thecollege/molecularengineering

Learn more about College Admissions:
collegeadmissions.uchicago.edu