

# TACKLE THE WORLD'S GREATEST GREATEST GHALLENGES

with a degree in chemical engineering

Choose Minois

## **Real-world design projects**

A hallmark of the Illinois experience is the our curriculum design program that integrates practical design projects throughout undergraduate courses. With support from Shell, first-year design projects focus on a chemical process accident and how to avoid one. The undergraduate experience culminates in the two-semester design and unit operations lab sequence. In the capstone course, groups design a process for manufacturing a commodity chemical.

## Undergraduate research

Many of our students work alongside our faculty and graduate students on ground-breaking research projects to scrub carbon dioxide from the atmosphere, clean water while recycling value-added chemicals, develop tissue-on-a-chip models of brain cancer, and more. Our students work in world-class facilities—such as the Carl R. Woese Institute for Genomic Biology—and are often included as authors on research publications. Students also have the opportunity to participate in our annual undergraduate research symposium to showcase their efforts.

# Co-ops, internships, and study abroad

We encourage our students to apply their skills and gain real-world experience through cooperative education programs (co-ops), internships, and study abroad programs. We offer all of our required courses in both the spring and fall to help our students fit these opportunities into their schedules without extending their graduation timeline.

# Cutting-edge faculty and resources

Our faculty are leaders in their fields, advancing the frontiers of catalysis, surface chemistry, biomolecular engineering, and soft materials. They're also passionate educators who care about students and their success. Our resources include an undergraduate learning center, chemistry library, tutoring services, and more. We are one of the only departments that provide a dedicated Career Services office to help you land your dream job after graduation.

# A vibrant and diverse community

Our students are active in many social and professional organizations, including the American Institute of Chemical Engineers (AIChE), Omega Chi Epsilon (OXE) honorary society, Society for Women Engineers (SWE), National Organization for Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE), the professional fraternity Alpha Chi Sigma, and others. Our department faculty and students also engage in a variety of outreach opportunities, such as summer camps and after-school programs, to help usher in the next generation of STEM students like you.

#### go.chbe.illinois.edu/UGApplyNow



# What is chemical and biomolecular engineering?

Chemical and biomolecular engineering is a diverse and exciting field where you could find yourself creating life-saving medicines, advancing fuel cell research, or developing the next big food item to hit grocery store shelves. It's about improving things that people use every day while reducing their cost.

Rooted in chemistry, chemical engineering applies the principles of chemistry to a large scale. Chemists often synthesize new molecules or mixtures the size of beakers, and then chemical engineers work to scale up the synthesis process to meet market demand.

## **Chemical Engineering at Illinois**

The study of chemical engineering dates back to 1901 at the University of Illinois Urbana-Champaign. We're one of the oldest chemical engineering departments in the nation. Throughout the 20th century, chemical engineering expanded from chemical production to fuels, plastics, foods, and consumer products.

Our department is housed in the College of Liberal Arts & Sciences because of the discipline's origin in the Department of Chemistry; however, we also maintain close ties with The Grainger College of Engineering. As a ChBE student, you will be able to take advantage of resources and programs in both colleges. "The department excels in providing students with a broad range of opportunities to learn outside the classroom through design projects, undergraduate research, student organizations, career services, and more. At Illinois, I was able to take the initiative to find out who I wanted to be as a chemical engineer by pursuing and learning from all the opportunities offered to me."

> —Patricia Li (BS '18) Diageo Innovation Commercialization Project Manager

#### Fields where graduates start their careers





# Where can a ChBE degree take your career?

As a graduate of the Department of Chemical and Biomolecular Engineering at the University of Illinois Urbana-Champaign, you will join a global community of leaders. The department has a history of producing outstanding graduates.

**Arnold Beckman** (BS '22) invented the pH meter and founded Beckman Instruments.

**Bob Dudley** (BS '78) is the former BP CEO and led the Gulf of Mexico oil spill cleanup.

**John Georges** (BS '51) led International Paper as its chairman and was a director of the New York Stock Exchange.

**Annette Johnston** (BS '82) was a senior project manager at Abbott Laboratories, where she spent 30 years before becoming a consultant.

**Kit Gordon** (BS '83) holds over a dozen patents for developing semiconductors; after a successful career in Silicon Valley, she co-founded a natural cosmetic company and advises organizations in water resource management.

**Paul Adriani** (BS '85) is the director of systems engineering and integration at the Solaria Corporation, innovating solar power.

**Steve Probst** (BS '90) founded Sage Environmental, which advises petrochemical and refining companies.

**Marchoe Dill Northern** (BS '97) is the senior vice president and global home care brand franchise leader at Procter & Gamble.

**Bryan Boudouris** (BS '04) and **Chris Argus** (BS '05) went on to earn their PhDs and have become chemical engineering faculty members.

**Laura Flessner** (BS '05) was involved in product research at Pfizer, working on brands from ChapStick to Emergen-C, before launching her own business to help fuel innovation.

**Jacob Becraft** (BS '13) launched a startup company called Strand Therapeutics that uses mRNA gene therapies to treat tumors.

"An Illinois education builds an exceptional professional base, provides exposure to cuttingedge research, creates a learning atmosphere with prestigious faculty and talented students, and enables opportunities to lead."

—Steve Miller (BS '67), alumnus and former VP/CEO of Shell North America

# Products created by our alumni

Tide®	Foaming insulation	Fire-retardant space suits
Kleenex®	DiGiorno <sup>®</sup> pizza	Stop-sign coatings
Cascade®	Wrigley® 5 gum	Liquid bandages
Lays Stax <sup>®</sup>	Pantene <sup>®</sup> shampoo	UNOX wastewater
Smirnoff Ice®	Cottonelle <sup>®</sup> tissue	treatment system
Budweiser®	Chocolate Altoids®	Boger fluids
Cheerios®	Liquid Clorox 2 <sup>®</sup>	and much more!
pH meter	Artificial kidney	

#### Companies that hire our graduates



# By the numbers

- **545** total undergraduates in 2021
- 38% women
- 14% underrepresented
- 14% international
- 75% participate in an internship/co-op
- 60% participate in research or study abroad
- **30** faculty members
- **30** average number of scholarships awarded annually totaling as much as \$120,000
- **80** average enrollment in core courses
- **4.2** average time to degree; most graduate in four years but some extend for a co-op or to study abroad
- **156** undergraduate graduates in 2020
- **\$70K** average starting salary for graduates, about a third report signing bonuses
- **93%** graduates report landing a job or acceptance into gradaute school after graduation
- **49** faculty and alumni are in the National Academy of Engineering
- 5,000 living alumni around the world



# What our students and alumni have to say:

## Adeel Afshar

"I chose chemical engineering because I wanted to do something that enabled me to make as great an impact as possible on society by using my interest in chemistry and mathematics. Naturally, chemical engineering is quite powerful, and chemical engineers have changed so many peoples' lives with innovation and ingenuity. The University of Illinois is a unique place where you are given an enormous amount of freedom to explore all of your interests. The opportunities are all there it's just up to you to find them. Whether it be through talking to people from all walks of life or traveling to new countries, every moment I've had at Illinois provided its own unique adventure."

## Chikako Barnes

"I really enjoyed chemistry and physics in high school, so I wanted to study something that applied those skills. I wasn't sure what I wanted to pursue as my profession yet, so I loved that ChBE was widely applicable to many industries and gave me some time to explore which field to go into. I love the ChBE community and having supportive professors and classmates. It is also one of the best programs in the country, and I feel like I have many opportunities through the program here. On campus, I am involved in the American Institute of Chemical Engineers (AIChE), Society of Woman Engineers (SWE), and Woman in Engineering (WIE), where I worked as a student coordinator for their freshman orientation. I also do undergraduate research and work as an Engineering Learning Assistant (ELA) for ENG100."

## Mikaela Dressendorfer

"I love the small-school feel of ChBE while being part of a large campus and all the opportunities it offers. Everyone in the program is close, like a family. ChBE does a great job of including everyone. The professors are accessible, and there are lots of student organizations, so you can be as involved as much or as little as you want."

## Jacob Milo

"Academically, I'm interested in learning about process design and safety, particularly when it comes to chemical plants. I chose chemical engineering because it marries my passions for chemistry and engineering and allows me to use both in my daily academic life. It is at an interesting crossroad—ChBE students can go into either R&D or industry and be well-equipped to handle either or both."

# Megan Shamsi

"Take advantage of all the opportunities around you—go to office hours, form study groups, join clubs, and go to events with friends. There is so much out there for you if you just look for it, and seemingly small interactions can have a big impact on your career and success here at Illinois. I am following the biomolecular path, so I am interested in pharmaceuticals and medical research. I work in Dr. Brendan Harley's tissue engineering lab as an undergraduate research assistant, and I have gotten to learn a lot more about the human body and how it repairs itself. I am also the professional chair for the American Institute of Chemical Engineers (AIChE), an outreach chair for SWE (Society of Women Engineers), and I work as a career ambassador for SCS Career Services."

# Samdisha Punjani

"My experience as an undergraduate researcher was phenomenal. Working with Dr. Ying Diao and other group members has taught me something new every day and kept me motivated. As a result, I was able to apply these skills and knowledge to other ChBE courses."

# Anh Nguyen

"My Biogen co-op brought me many experiences that I would never have had a chance to get in the academic setting. I am not only gaining technical and interpersonal skills but also learning about myself and trying to figure out the right path for me to take in the industry."

Connect with us!

University of Illinois Urbana-Champaign Department of Chemical and Biomolecular Engineering

114 Roger Adams Laboratory 600 South Mathews Avenue Urbana, Illinois 61801 go.chbe.illinois.edu/undergrad chbe-ugprogramoffice@illinois.edu

